104th Annual Report

2017

Board of Governors of the Federal Reserve System

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2017

Board of Governors of the Federal Reserve System

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Letter of Transmittal

Board of Governors of the Federal Reserve System
Washington, D.C.

June 2018

The Speaker of the House of Representatives:

Pursuant to the requirements of section 10 of the Federal Reserve Act, I am pleased to submit the 104th annual report of the Board of Governors of the Federal Reserve System.

This report covers operations of the Board during calendar-year 2017.

Sincerely,

Jerome H. Powell
Chairman

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1 Overview

The Federal Reserve, the central bank of the United States, is a federal system composed of a central governmental agency—the Board of Governors—and 12 regional Federal Reserve Banks.

The Board of Governors, located in Washington, D.C., consists of seven members appointed by the President of the United States and supported by a 2,979-person staff. Besides conducting research, analysis, and policymaking related to domestic and international financial and economic matters, the Board plays a major role in the supervision and regulation of U.S. financial institutions and activities, has broad oversight responsibility for the nation's payments system and the operations and activities of the Federal Reserve Banks, and plays an important role in promoting consumer protection, fair lending, and community development.

About This Report

This report covers Board and System operations and activities during calendar-year 2017. The report includes the following sections:

- **Monetary policy and economic developments.** Section 2 provides adapted versions of the Board's semiannual monetary policy reports to Congress.
- **Federal Reserve operations.** Section 3 provides a summary of Board and System activities in the areas of financial stability policy and research; section 4, in supervision and regulation; section 5, in consumer and community affairs; and section 6, in Reserve Bank operations.
- **Dodd-Frank Act implementation and other requirements.** Section 7 summarizes the Board's efforts in 2017 to implement provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act as well as the Board's compliance with the Government Performance and Results Act of 1993.
- **Policy actions and litigation.** Section 8 and section 9 provide accounts of policy actions taken by the Board in 2017, including new or amended rules and regulations and other actions as well as the deliberations and decisions of the Federal Open Market Committee (FOMC); section 10 summarizes litigation involving the Board.
- **Statistical tables.** Section 11 includes 14 statistical tables that provide updated historical data concerning Board and System operations and activities.
- **Federal Reserve System audits.** Section 12 provides detailed information on the several levels of audit and review conducted in regards to System operations and activities, including those provided by outside auditors and the Board's Office of Inspector General.
- **Federal Reserve System budgets.** Section 13 presents information on the 2017 budget performance of the Board and Reserve Banks, as well as their 2017 budgets, budgeting processes, and trends in their expenses and employment.
- **Federal Reserve System organization.** Section 14 provides listings of key officials at the Board and in the Federal Reserve System, including the Board of

For More Background on Board Operations

For more information about the Federal Reserve Board and the Federal Reserve System, visit the Board's website at www.federalreserve.gov/aboutthefed/default.htm. An online version of this annual report is available at www.federalreserve.gov/publications/annual-report/default.htm.

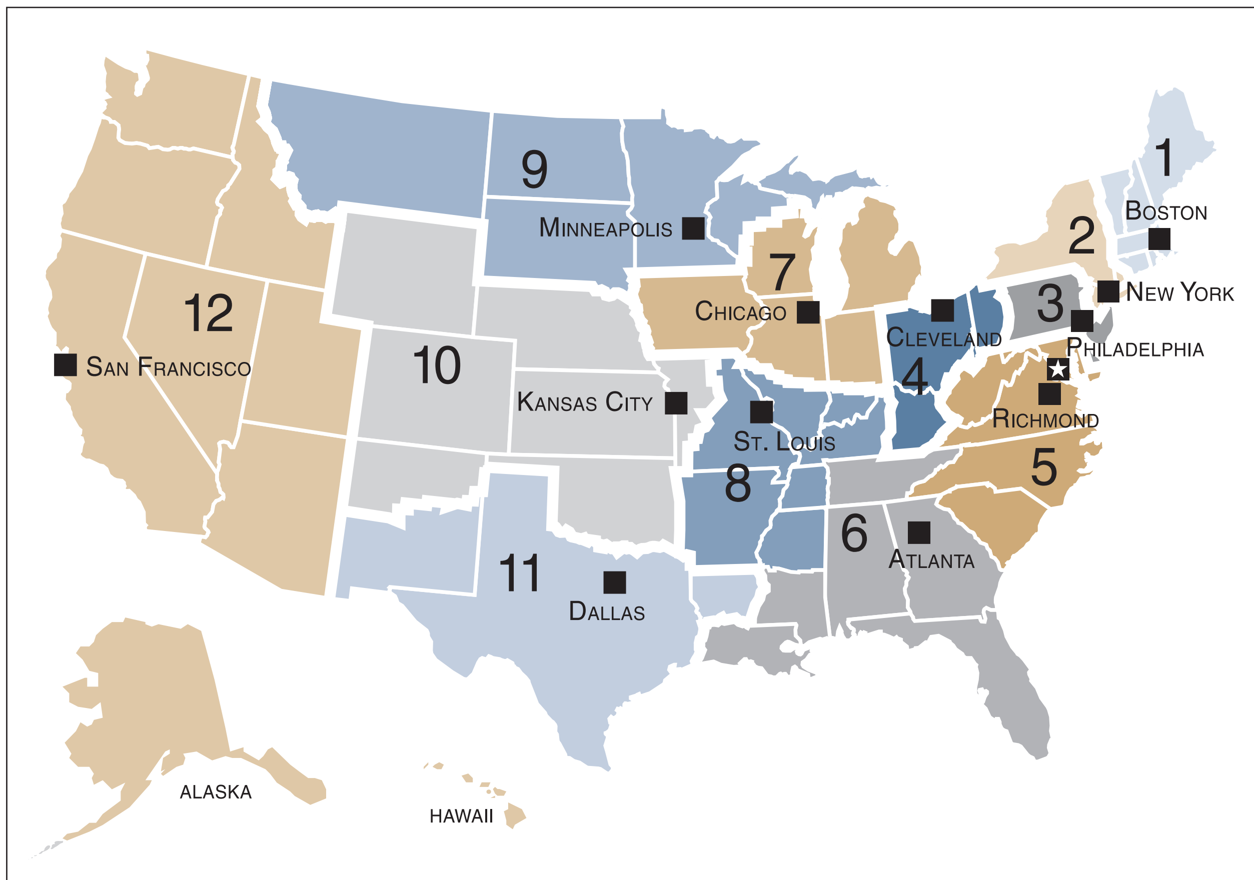
Governors, its officers, FOMC members, several System councils, and Federal Reserve Bank and Branch officers and directors.

About the Federal Reserve System

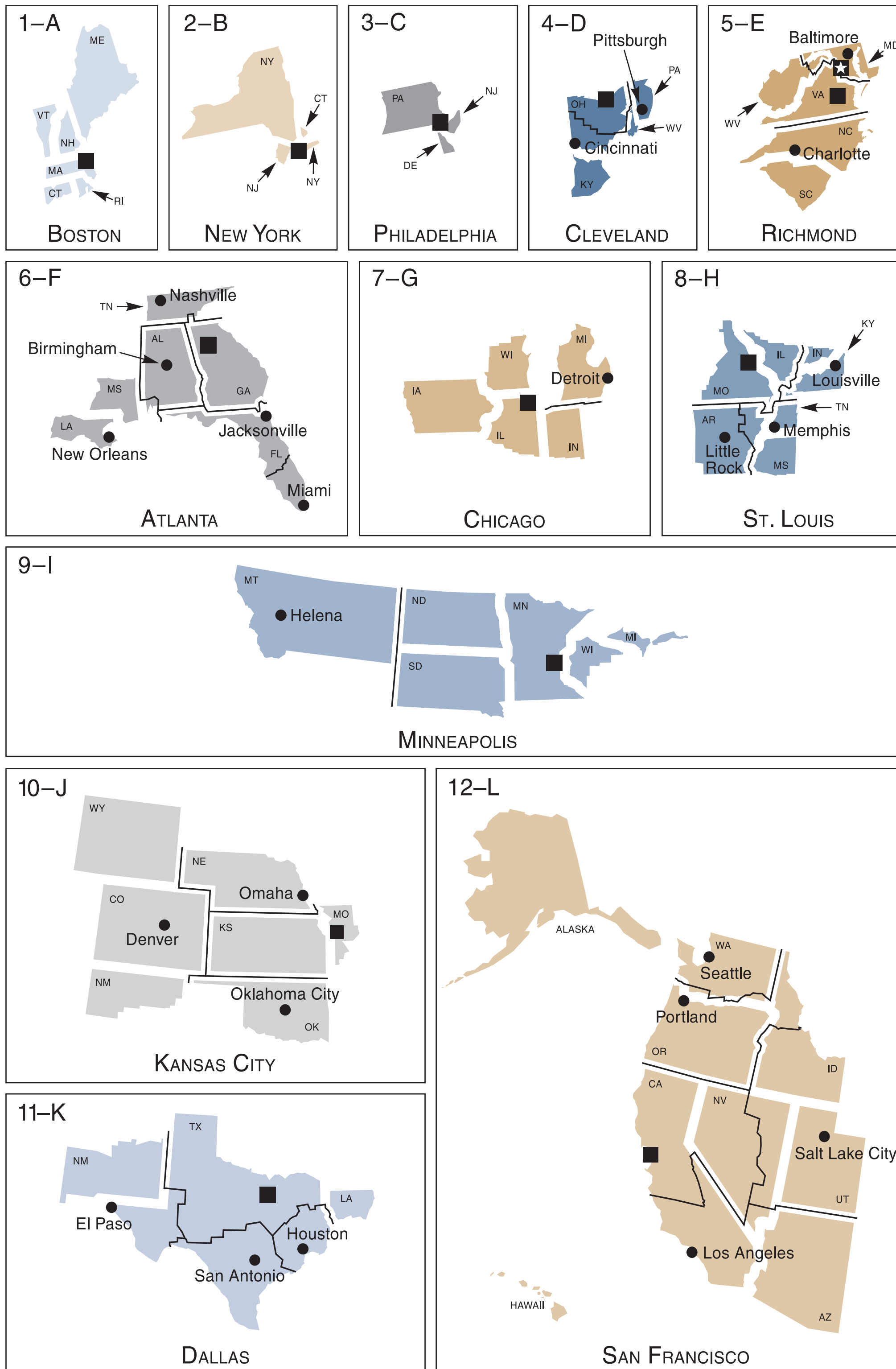
The Federal Reserve System, which serves as the nation's central bank, was created by an act of Congress on December 23, 1913. The System consists of a seven-member Board of Governors with headquarters in Washington, D.C., and the 12 Reserve Banks located in major cities throughout the United States.

The Federal Reserve Banks are the operating arms of the central banking system, carrying out a variety of System functions, including operating a nationwide payment system; distributing the nation's currency and coin; under authority delegated by the Board of Governors, supervising and regulating a variety of financial institutions and activities; serving as fiscal agents of the U.S. Treasury; and providing a variety of financial services for the Treasury, other government agencies, and other fiscal principals.

The following maps identify Federal Reserve Districts by their official number, city, and letter designation.



■ Federal Reserve Bank city
☆ Board of Governors of the Federal Reserve System, Washington, D.C.



■ Federal Reserve Bank city
● Federal Reserve Branch city
☆ Board of Governors of the Federal Reserve System, Washington, D.C.
— Branch boundary

2 Monetary Policy and Economic Developments

As required by section 2B of the Federal Reserve Act, the Federal Reserve Board submits written reports to the Congress that contain discussions of "the conduct of monetary policy and economic developments and prospects for the future." The *Monetary Policy Report,* submitted semiannually to the Senate Committee on Banking, Housing, and Urban Affairs and to the House Committee on Banking and Financial Services, is delivered concurrently with testimony from the Federal Reserve Board Chair.

The following discussion is a review of U.S. monetary policy and economic developments in 2017, excerpted from the *Monetary Policy Report* published in February 2018 and July 2017. Those complete reports are available on the Board's website at www.federalreserve.gov/monetarypolicy/files/20180223_mprfullreport.pdf (February 2018) and www.federalreserve.gov/monetarypolicy/files/20170707_mprfullreport.pdf (July 2017).

Monetary Policy Report February 2018

Summary

Economic activity increased at a solid pace over the second half of 2017, and the labor market continued to strengthen. Measured on a 12-month basis, inflation has remained below the Federal Open Market Committee's (FOMC) longer-run objective of 2 percent. The FOMC raised the target range for the federal funds rate twice in the first half of 2017, resulting in a range of 1 to 1¼ percent by the end of its June meeting. With the federal funds rate rising toward more normal levels, at its September meeting, the FOMC decided to initiate a program of gradually and predictably reducing the size of its balance sheet. At its meeting in December, the Committee judged that current and prospective economic conditions called for a further increase in the target range for the federal funds rate, to 1¼ to 1½ percent.

Economic and Financial Developments

The labor market. The labor market has continued to strengthen since the middle of last year. Payroll employment has posted solid gains, averaging 182,000 per month in the seven months starting in July 2017, about the same as the average pace in the first half of 2017. Although net job creation last year was slightly slower than in 2016, it has remained considerably faster than what is needed, on average, to absorb new entrants into the labor force. The unemployment rate declined from 4.3 percent in June to 4.1 percent in January—somewhat below the median of FOMC participants' estimates of its longer-run normal level. Other measures of labor utilization also suggest that the labor market has tightened since last summer. Nonetheless, wage growth has been moderate, likely held down in part by the weak pace of productivity growth in recent years.

Inflation. Consumer price inflation has remained below the FOMC's longer-run objective of 2 percent. The price index for personal consumption expenditures increased 1.7 percent over the 12 months ending in December 2017, about the same as in 2016. The 12-month measure of inflation that excludes food and energy items (so-called core inflation), which historically has been a better indicator of where overall inflation will be in the future than the headline figure, was 1.5 percent in December—0.4 percentage point lower than it had been one year earlier. However, monthly readings on core inflation were somewhat higher during the last few months of 2017 than earlier in the year. Measures of longer-run inflation expectations have, on balance, been generally stable, although some measures remain low by historical standards.

Economic growth. Real gross domestic product (GDP) is reported to have increased at an annual rate of nearly 3 percent in the second half of 2017 after rising slightly more than 2 percent in the first half. Consumer spending expanded at a solid rate in the second half, supported by job gains, rising household wealth, and favorable consumer sentiment. Business

investment growth was robust, and indicators of business sentiment have been strong. The housing market has continued to improve slowly. Foreign activity remained solid and the dollar depreciated further in the second half, but net exports subtracted from real U.S. GDP growth as imports of consumer and capital goods surged late in the year.

Financial conditions. Financial conditions for businesses and households have eased on balance since the middle of 2017 amid an improving global growth outlook. Notwithstanding financial market developments in recent weeks, broad measures of equity prices are higher, and spreads of yields on corporate bonds over those of comparable-maturity Treasury securities have narrowed. Most types of consumer loans remained widely available, though credit was still difficult to access in credit card and mortgage markets for borrowers with low credit scores or harder-to-document incomes. Longer-term nominal Treasury yields and mortgage rates have moved up on net. The dollar depreciated, on average, against the currencies of our trading partners. In foreign financial markets, equity prices generally increased in the second half of 2017, and most of those indexes remain higher, on net, despite recent declines. Most longer-term yields rose noticeably.

Financial stability. Vulnerabilities in the U.S. financial system are judged to be moderate on balance. Valuation pressures continue to be elevated across a range of asset classes even after taking into account the current level of Treasury yields and the expectation that the reduction in corporate tax rates should generate an increase in after-tax earnings. Leverage in the nonfinancial business sector has remained high, and net issuance of risky debt has climbed in recent months. In contrast, leverage in the household sector has remained at a relatively low level, and household debt in recent years has expanded only about in line with nominal income. Moreover, U.S. banks are well capitalized and have significant liquidity buffers.

Monetary Policy

Interest rate policy. The FOMC continued to gradually increase the target range for the federal funds rate. After having raised it twice in the first half of 2017, the Committee raised the target range for the federal funds rate again in December, bringing it to the current range of 1¼ to 1½ percent. The decision to increase the target range for the federal funds rate reflected the solid performance of the economy. Even with this rate increase, the stance of monetary policy remains accommodative, thereby supporting strong labor market conditions and a sustained return to 2 percent inflation.

The FOMC expects that, with further gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace and labor market conditions will remain strong. Inflation on a 12-month basis is expected to move up this year and to stabilize around the Committee's 2 percent objective over the next few years. The federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. Consistent with this outlook, in the most recent Summary of Economic Projections (SEP), which was compiled at the time of the December FOMC meeting, the median of participants' assessments for the appropriate level of the federal funds rate through the end of 2019 remains below the median projection for its longer-run level. (The December SEP is included as Part 3 of the February 2018 *Monetary Policy Report* on pages 39–54; it is also included in section 9 of this annual report.) However, as the Committee has continued to emphasize, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data. In particular, with inflation having persistently run below the 2 percent longer-run objective, the Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal.

Balance sheet policy. In the second half of 2017, the Committee initiated the balance sheet normalization program that is described in the Addendum to the Policy Normalization Principles and Plans the Committee issued in June.[1] Specifically, since October, the Federal Reserve has been gradually reducing its holdings of Treasury and agency securities by decreasing the reinvestment of principal payments it receives from these securities.

Special Topics

How tight is the labor market? Although there is no way to know with precision, the labor market appears to be near or a little beyond full employment at present. The unemployment rate is somewhat below most estimates of its longer-run normal rate, and the labor force participation rate is relatively close to many estimates of its trend. Although employers report having more difficulties finding qualified workers, hiring continues apace, and serious labor shortages would likely

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[1] The June addendum is available on the Board's website at https://www.federalreserve.gov/monetarypolicy/files/FOMC_PolicyNormalization.20170613.pdf.

have brought about larger wage increases than have been evident to date. (See the box "How Tight Is the Labor Market?" on pages 8–9 of the February 2018 *Monetary Policy Report.*)

Low global inflation. Inflation has generally come in below central banks' targets in the advanced economies for several years now. Resource slack and commodity prices—as well as, for the United States, movements in the U.S. dollar—appear to explain inflation's behavior fairly well. But our understanding is imperfect, and other, possibly more persistent, factors may be at work. Resource slack at home and abroad might be greater than it appears to be, or inflation expectations could be lower than suggested by the available indicators. Moreover, some observers have pointed to increased competition from online retailers or international developments—such as global economic slack or the integration of emerging economies into the world economy—as contributing to lower inflation. Policymakers remain attentive to the possibility of such forces leading to continued low inflation; they also are watchful regarding the opposite risk of inflation moving undesirably high. (See the box "Low Inflation in the Advanced Economies" on pages 14–15 of the February 2018 *Monetary Policy Report*.)

Monetary policy rules. Monetary policymakers consider a wide range of information on current economic conditions and the outlook before deciding on a policy stance they deem most likely to foster the FOMC's statutory mandate of maximum employment and stable prices. They also routinely consult monetary policy rules that connect prescriptions for the policy interest rate with variables associated with the dual mandate. The use of such rules requires careful judgments about the choice and measurement of the inputs into these rules as well as the implications of the many considerations these rules do not take into account. (See the box "Monetary Policy Rules and Their Role in the Federal Reserve's Policy Process" on pages 35–38 of the February 2018 *Monetary Policy Report*.)

Part 1: Recent Economic and Financial Developments

Domestic Developments

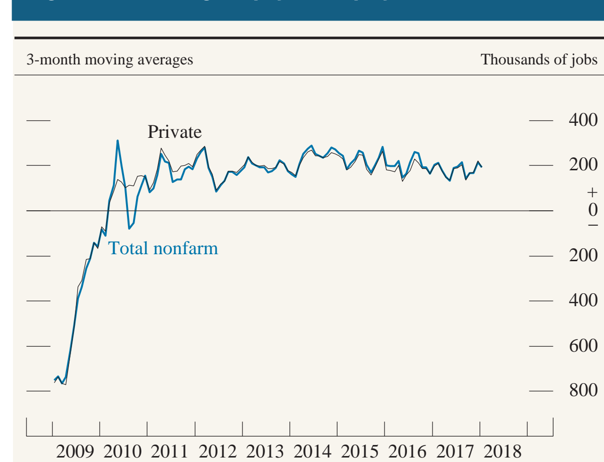
The labor market strengthened further during the second half of 2017 and early this year

Payroll employment has continued to post solid gains, averaging 182,000 per month in the seven months starting in July 2017, about the same pace as in the first half of 2017.[2] Although net job creation last year was slightly slower than in 2016, it has remained considerably faster than what is needed, on average, to absorb new entrants to the labor force and is therefore consistent with the view that the labor market has strengthened further (figure 1). The strength of the labor market is also evident in the decline in the unemployment rate to 4.1 percent in January, ¼ percentage point below its level in June 2017 and about ½ percentage point below the median of Federal Open Market Committee (FOMC) participants' estimates of its longer-run normal level (figure 2).

Other indicators also suggest that labor market conditions have continued to tighten. The labor force participation rate (LFPR)—that is, the share of adults either working or actively looking for work—was 62.7 percent in January. The LFPR is little changed, on net, since early 2014. However, the average age of the population is continuing to increase. In particular, the members of the baby-boom cohort increasingly are moving into their retirement years, a time when labor force participation typically is low. That development implies that a sustained period in which the demand for and supply of labor were in balance would be associated with a downward trend in the overall participation rate. Accordingly, the flat

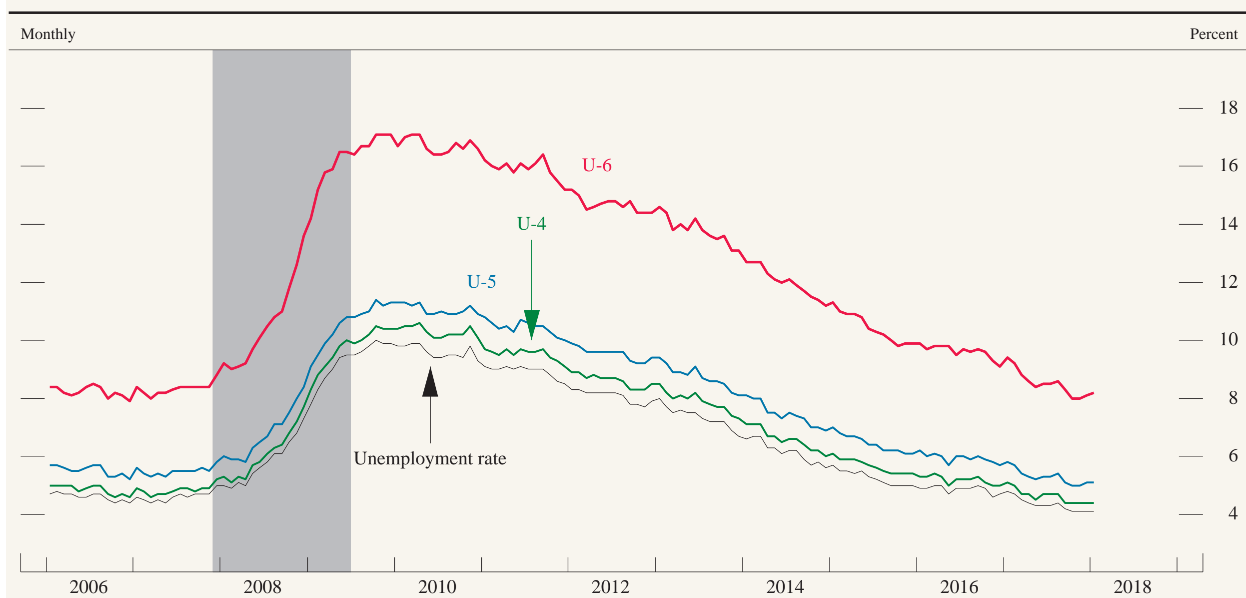
[2] The hurricanes that struck the United States during the second half of last year caused substantial variation in the month-to-month pattern of job gains, but the average performance over the period as a whole was probably substantially unaffected.

Figure 1. Net change in payroll employment



Source: Bureau of Labor Statistics via Haver Analytics.

Figure 2. Measures of labor underutilization



Note: Unemployment rate measures total unemployed as a percentage of the labor force. U-4 measures total unemployed plus discouraged workers, as a percentage of the labor force plus discouraged workers. Discouraged workers are a subset of marginally attached workers who are not currently looking for work because they believe no jobs are available for them. U-5 measures total unemployed plus all marginally attached to the labor force, as a percentage of the labor force plus persons marginally attached to the labor force. Marginally attached workers are not in the labor force, want and are available for work, and have looked for a job in the past 12 months. U-6 measures total unemployed plus all marginally attached workers plus total employed part time for economic reasons, as a percentage of the labor force plus all marginally attached workers. The shaded bar indicates a period of business recession as defined by the National Bureau of Economic Research.

Source: Bureau of Labor Statistics via Haver Analytics.

profile of the LFPR during the past few years is consistent with an overall picture of improving labor market conditions. In line with this perspective, the LFPR for individuals aged 25 to 54—which is much less sensitive to population aging—has been rising since 2015. The employment-to-population ratio for individuals 16 and older—that is, the share of people who are working—was 60.1 percent in January and has been increasing since 2011; this gain primarily reflects the decline in the unemployment rate. (The box "How Tight Is the Labor Market?" on pages 8–9 of the February 2018 *Monetary Policy Report* describes the available measures of labor market slack in more detail.)

Other indicators are also consistent with continuing strong labor demand. The number of people filing initial claims for unemployment insurance has remained near its lowest level in decades.[3] As reported in the Job Openings and Labor Turnover Survey, the rate of job openings remained elevated in the second half of 2017, while the rate of layoffs remained low. In addition, the rate of quits stayed high, an indication that workers are able to obtain a new job when they seek one.

Unemployment rates have declined across demographic groups, but unemployment remains high for some groups

Unemployment rates have trended downward across racial and ethnic groups. The decline in the unemployment rate for blacks or African Americans over the past few years has been particularly notable. This broad pattern is typical: The unemployment rates for blacks and Hispanics tend to rise considerably more than the rates for whites and Asians during recessions, and then they decline more rapidly during expansions. Yet even with the recent narrowing, the disparities in unemployment rates across demographic groups remain substantial and largely the same as before the recession. The unemployment rate for whites has averaged 3.7 percent since the middle of 2017 and the rate for Asians has been about 3.3 percent, while the unemployment rates for Hispanics or Latinos (5.0 percent) and blacks (7.3 percent) have been substantially higher. In addition, the labor force participation rates for blacks, Hispanics, and Asians have generally been lower than those for whites of the same age group. As the labor market

[3] Initial claims jumped in the fall of 2017 as a consequence of disruptions from the hurricanes and then returned to a low level.

has strengthened over the past few years, the participation rates for prime-age individuals in each of these groups have risen.

Growth of labor compensation has been moderate . . .

Despite the strong labor market, the available indicators generally suggest that the growth of hourly compensation has been moderate. Growth of compensation per hour in the business sector—a broad-based measure of wages, salaries, and benefits that is quite volatile—was 2¼ percent over the four quarters ending in 2017:Q4, well above the low reading in 2016 but about in line with the average annual increase from 2010 to 2015.[4] The employment cost index—which also measures both wages and the cost to employers of providing benefits—was up about 2½ percent in the fourth quarter of 2017 relative to its year-ago level, roughly ½ percentage point faster than its gain a year earlier. Among measures that do not take account of benefits, average hourly earnings rose slightly less than 3 percent through January of this year, a gain that was somewhat faster than the average increase in the preceding few years. Similarly, the measure of wage growth computed by the Federal Reserve Bank of Atlanta that tracks median 12-month wage growth of individuals reporting to the Current Population Survey showed an increase of about 3 percent in January, similar to its readings from the past three years and above the average increase in the preceding few years.[5]

. . . and likely was restrained by slow growth of labor productivity

These moderate rates of compensation gain likely reflect the offsetting influences of a tightening labor market and persistently weak productivity growth. Since 2008, labor productivity has increased only a little more than 1 percent per year, on average, well below the average pace from 1996 through 2007 and also below the gains in the 1974–95 period. Considerable debate remains about the reasons for the general slowdown in productivity growth and whether it will persist. The slowdown may be partly attributable to the sharp pullback in capital investment during the most recent recession and the relatively long period of modest growth in investment that followed, but a reduced pace of capital deepening can explain only a portion of the step-down. Beyond that, some economists think that more recent technological advances, such as information technology, have been less revolutionary than earlier general-purpose technologies, such as electricity and internal combustion. Others have pointed to a slowdown in the speed at which capital and labor are reallocated toward their most productive uses, which is reflected in fewer business start-ups and a reduced pace of hiring and investment by the most innovative firms. Still others argue that there have been important innovations in many fields in recent years, from energy to medicine, often underpinned by ongoing advances in information technology, which augurs well for productivity growth going forward. However, those economists note that such productivity gains may appear only slowly as new firms emerge to exploit the new technologies and as incumbent firms invest in new vintages of capital and restructure their businesses.

Price inflation remains below 2 percent, but the monthly readings picked up toward the end of 2017

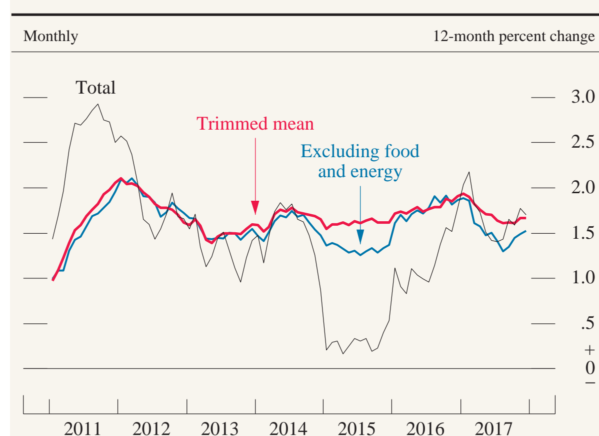
Consumer price inflation, as measured by the 12-month change in the price index for personal consumption expenditures (PCE), remained below the FOMC's longer-run objective of 2 percent during most of 2017. The PCE price index increased 1.7 percent over the 12 months ending in December 2017, about the same as in 2016 (figure 3). Core inflation, which typically provides a better indication than the headline measure of where overall inflation will be in the future, was 1.5 percent over the 12 months ending in December 2017—0.4 percentage point lower than it had been one year earlier.

Both measures of inflation reflected some weak readings in the spring and summer of 2017. A portion of those weak readings seemed attributable to idiosyncratic events, such as a steep 1-month decline in the price index for wireless telephone services. However, the monthly readings on core inflation were somewhat higher during the last few months of 2017, in contrast to the more typical pattern that has prevailed in recent years in which readings around the end of the year have tended to be slightly below average. Moreover, the 12-month change in the trimmed mean PCE price index—an alternative indicator of underlying inflation produced by the Federal Reserve Bank of Dallas that may be less sensitive to idiosyncratic price movements—was 1.7 percent in Decem-

[4] The compensation per hour measure of wages and salaries declined at the end of 2016, possibly reflecting the shifting of bonuses or other types of income into 2017 in anticipation of a possible cut in personal income tax rates.

[5] The Atlanta Fed's measure differs from others in that it measures the wage growth only of workers who were employed both in the current survey month and 12 months earlier.

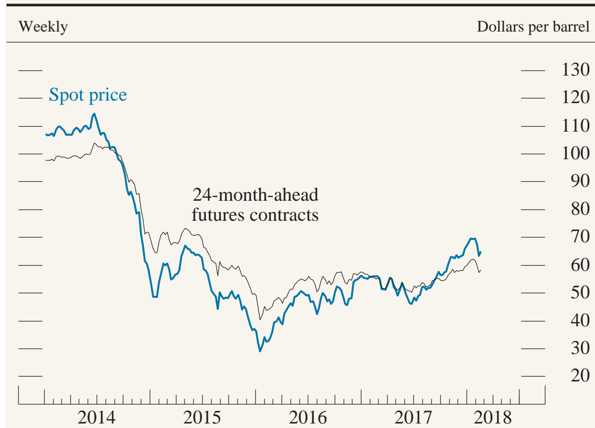
Figure 3. Change in the price index for personal consumption expenditures



Note: The data extend through December 2017; changes are from one year earlier.

Source: For trimmed mean, Federal Reserve Bank of Dallas; for all else, Bureau of Economic Analysis; all via Haver Analytics.

Figure 4. Brent spot and futures prices



Note: The data are weekly averages of daily data and extend through February 21, 2018.

Source: ICE Brent Futures via Bloomberg.

ber 2017 and has slowed by less than core PCE price inflation over the past 12 months.[6] (For more discussion of inflation both in the United States and abroad, see the box "Low Inflation in the Advanced Economies" on pages 14–15 of the February 2018 *Monetary Policy Report*.)

Oil and metals prices increased notably

Headline inflation was a little higher than core inflation last year, which reflected a rise in consumer energy prices. The price of crude oil rose from $48 per barrel at the end of June to a peak of about $70 per barrel early in the year and, even after recent declines, remains more than 30 percent above its mid-2017 level (figure 4). The upswing in oil prices appears to have been driven primarily by strengthening global demand as well as OPEC's decision to further extend its November 2016 production cuts through the end of 2018. The higher oil prices fed through to moderate increases in the cost of gasoline and heating oil.

Inflation momentum was also supported by nonfuel import prices, which rose throughout 2017 in part because of dollar depreciation. That development marked a turn from the past several years, during which nonfuel import prices declined or held flat. In addition to the decline in the dollar, nonfuel import prices were driven higher by a substantial increase in the price of industrial metals. Despite recent volatility, metals prices remain higher, on net, boosted primarily by improved prospects for global demand and also by government policies that restrained production in China.

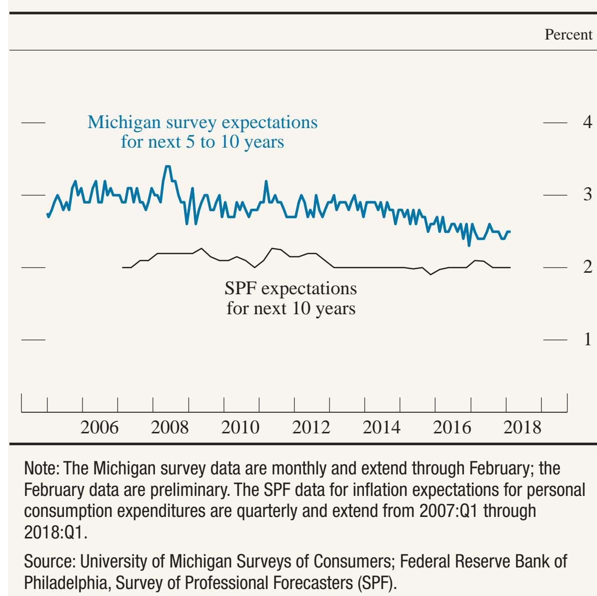
In contrast, headline inflation has been held down by consumer food prices, which increased only about ½ percent in 2017 after having declined in 2016. Food prices have been restrained by softness in the prices of farm commodities, which in turn has reflected robust supply in the United States and abroad. Although the harvests for many crops in the United States declined in 2017, they were larger than had been expected earlier in the year.

Survey-based measures of inflation expectations have been generally stable . . .

Expectations of inflation likely influence actual inflation by affecting wage- and price-setting decisions. Survey-based measures of inflation expectations at medium- and longer-term horizons have remained generally stable. In the Survey of Professional Forecasters conducted by the Federal Reserve Bank of Philadelphia, the median expectation for the annual rate of increase in the PCE price index over the next 10 years has been around 2 percent for the past several years (figure 5). In the University of Michigan Surveys of Consumers, the median value for inflation expectations over the next 5 to 10 years—which had drifted downward starting in 2014—has held about flat since the end of 2016 at a level that is a few tenths lower than had prevailed through 2014.

[6] The trimmed mean index excludes whatever prices showed the largest increases or decreases in a given month; for example, the sharp decline in prices for wireless telephone services in March 2017 was excluded from this index.

Figure 5. Median inflation expectations



Note: The Michigan survey data are monthly and extend through February; the February data are preliminary. The SPF data for inflation expectations for personal consumption expenditures are quarterly and extend from 2007:Q1 through 2018:Q1.

Source: University of Michigan Surveys of Consumers; Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters (SPF).

. . . and market-based measures of inflation compensation have increased in recent months but remain relatively low

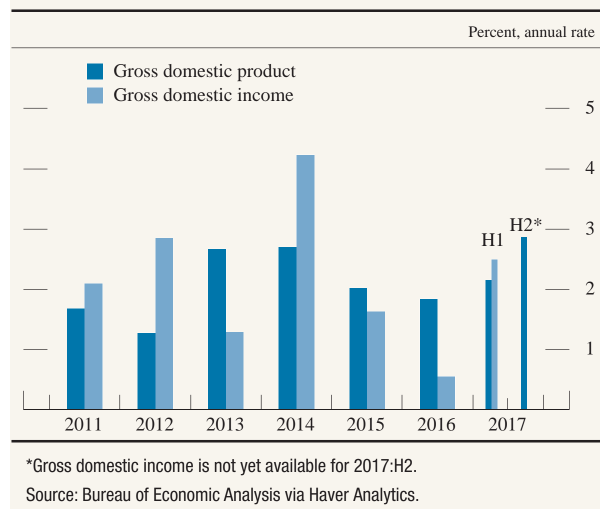
Inflation expectations can also be gauged by market-based measures of inflation compensation, though the inference is not straightforward because market-based measures can be importantly affected by changes in premiums that provide compensation for bearing inflation and liquidity risks. Measures of longer-term inflation compensation—derived either from differences between yields on nominal Treasury securities and those on comparable Treasury Inflation-Protected Securities (TIPS) or from inflation swaps—have increased since June, returning to levels seen in early 2017, but nevertheless remain relatively low.[7] The TIPS-based measure of 5-to-10-year-forward inflation compensation and the analogous measure of inflation swaps are now slightly lower than 2¼ percent and 2½ percent, respectively, with both measures below the ranges that persisted for most of the 10 years before the start of the notable declines in mid-2014.

Real gross domestic product growth picked up in the second half of 2017

Real gross domestic product (GDP) is reported to have risen at an annual rate of nearly 3 percent in the second half of 2017 after increasing slightly more than 2 percent in the first half of 2017 (figure 6). Much of that faster growth reflects the stabilization of inventory investment, which had slowed considerably in the first half of last year. Private domestic final purchases—that is, final purchases by U.S. households and businesses, which tend to provide a better indication of future GDP growth than most other components of overall spending—rose at a solid annual rate of about 3½ percent in the second half of the year, similar to the first-half pace.

The economic expansion continues to be supported by steady job gains, rising household wealth, favorable consumer sentiment, strong economic growth abroad, and accommodative financial conditions, including the still low cost of borrowing and easy access to credit for many households and businesses. In addition to these factors, very upbeat business sentiment appears to have supported solid growth over the past year.

Figure 6. Change in real gross domestic product and gross domestic income



*Gross domestic income is not yet available for 2017:H2.

Source: Bureau of Economic Analysis via Haver Analytics.

[7] Inflation compensation implied by the TIPS breakeven inflation rate is based on the difference, at comparable maturities, between yields on nominal Treasury securities and yields on TIPS, which are indexed to the headline consumer price index (CPI). Inflation swaps are contracts in which one party makes payments of certain fixed nominal amounts in exchange for cash flows that are indexed to cumulative CPI inflation over some horizon. Focusing on inflation compensation 5 to 10 years ahead is useful, particularly for monetary policy, because such forward measures encompass market participants' views about where inflation will settle in the long term after developments influencing inflation in the short term have run their course.

Ongoing improvement in the labor market and gains in wealth continue to support consumer spending . . .

Supported by ongoing improvement in the labor market, real consumer spending rose at a solid annual rate of 3 percent in the second half of 2017, a somewhat faster pace than in the first half. Real disposable personal income—that is, income after taxes and adjusted for price changes—increased at a modest average rate of 1 percent in 2016 and 2017, as real wages changed little over this period (figure 7). With spending growth estimated to have outpaced income growth, the personal saving rate has declined considerably since the end of 2015.

Consumer spending has also been supported by further increases in household net wealth. Broad measures of U.S. equity prices rose robustly last year, though markets have been volatile in recent weeks; house prices have also continued to climb, strengthening the wealth of homeowners. As a result of the increases in home and equity prices, aggregate household net worth rose appreciably in 2017. In fact, at the end of the third quarter of 2017, household net worth was 6.7 times the value of disposable income, the highest-ever reading for that ratio, which dates back to 1947.

. . . borrowing conditions for consumers remain generally favorable . . .

Consumer credit expanded in 2017 at about the same pace as in 2016. Financing conditions for most types of consumer loans are generally favorable. However, banks have continued to tighten standards on credit card and auto loans for borrowers with low credit scores, possibly in response to some upward drift in delinquency rates for those borrowers. Mortgage credit has remained readily available for households with solid credit profiles, but it was still difficult to access for households with low credit scores or harder-to-document incomes.

Although household borrowing continued to increase last year, the household debt service burden—the ratio of required principal and interest payments on outstanding household debt to disposable income, measured for the household sector as a whole—remained low by historical standards.

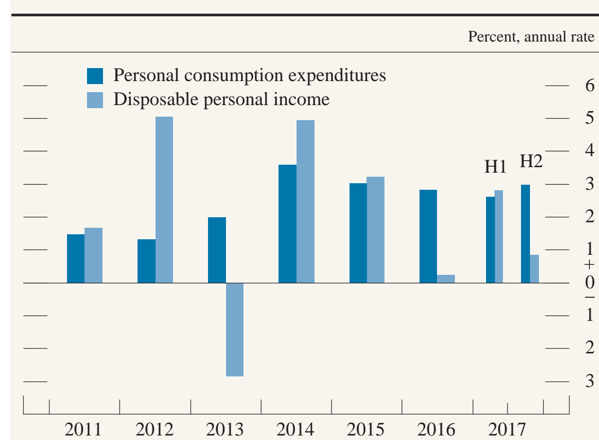
. . . and consumer confidence is strong

Consumers have remained optimistic about their economic situation. As measured by the Michigan survey, consumer sentiment was solid throughout 2017, likely reflecting rising income, job gains, and low inflation. Furthermore, the share of households expecting real income to rise over the next year or two has continued to strengthen and now exceeds its pre-recession level.

Activity in the housing sector has improved modestly

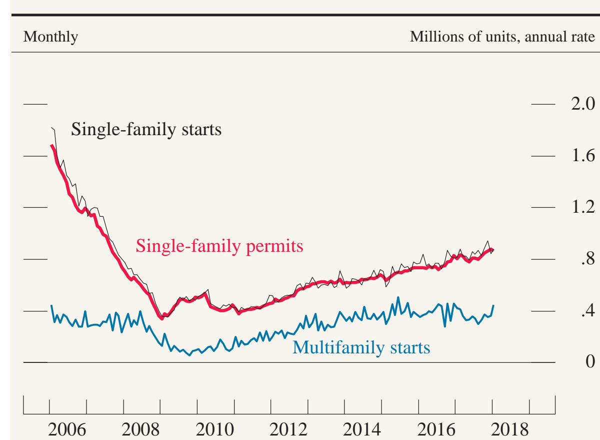
Real residential investment spending increased around 2 percent in 2017, about the same modest gain that was seen in 2016. Housing activity was soft in the spring and summer, possibly reflecting the rise in mortgage interest rates early in the year, and then picked up toward the end of the year. For the year as a whole, sales of new and existing homes gained, and single-family housing starts increased (figure 8). In

Figure 7. Change in real personal consumption expenditures and disposable personal income



Source: Bureau of Economic Analysis via Haver Analytics.

Figure 8. Private housing starts and permits



Source: U.S. Census Bureau via Haver Analytics.

contrast, multifamily housing starts continued to edge down from the solid pace seen in 2016. Going forward, lean inventories are likely to support further gains in homebuilding activity, as the months' supply of homes for sale has remained near low levels.

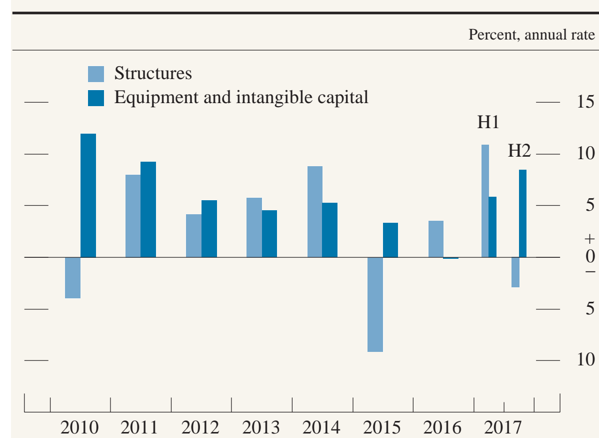
Business investment has continued to rebound . . .

Real outlays for business investment—that is, private nonresidential fixed investment—rose at an annual rate of about 6 percent in the second half of 2017, a bit below the gain in the first half but still notably faster than the unusually weak pace recorded in 2016 (figure 9). Business spending on equipment and intangibles (such as research and development) advanced at a solid pace in the second half of the year, and forward-looking indicators of business spending are generally favorable: Orders and shipments of capital goods have posted net gains in recent months, and indicators of business sentiment and activity remain very upbeat. That said, business outlays on structures turned down in the second half of 2017, as investment growth in drilling and mining structures retreated from a very rapid pace in the first half and investment in other nonresidential structures declined.

. . . while corporate financing conditions have remained accommodative

Aggregate flows of credit to large nonfinancial firms remained solid through the third quarter, supported in part by continued low interest rates. The gross issuance of corporate bonds stayed robust during the second half of 2017, and yields on both investment-grade and high-yield corporate bonds remained low by historical standards.

Figure 9. Change in real private nonresidential fixed investment



Source: Bureau of Economic Analysis via Haver Analytics.

Despite solid growth in business investment, outstanding commercial and industrial (C&I) loans on banks' books continued to rise only modestly in the third quarter of 2017. Respondents to the Senior Loan Officer Opinion Survey on Bank Lending Practices, or SLOOS, reported that demand for C&I loans declined in the third quarter and was little changed in the fourth quarter even as lending standards and terms on such loans eased.[8] Respondents attributed this decline in demand in part to firms drawing on internally generated funds or using alternative sources of financing. Financing conditions for small businesses appear to have remained favorable, and although credit growth has remained sluggish, survey data suggest this sluggishness is largely due to continued weak demand for credit by small businesses.

Net exports subtracted from GDP growth in the fourth quarter after providing a modest addition during the rest of the year

U.S. real exports expanded at a moderate pace in the second half of last year after having increased more rapidly in the first half, supported by solid foreign growth (figure 10). At the same time, real imports surged in the fourth quarter following a slight contraction in the third quarter. As a result, real net exports moved from modestly lifting U.S. real GDP growth during the first three quarters of 2017 to subtracting more than 1 percentage point in the fourth quarter. Although the nominal trade and current account deficits narrowed in the third quarter of 2017, the trade deficit widened in the fourth quarter.

Federal fiscal policy actions had a roughly neutral effect on economic growth in 2017 . . .

Federal government purchases rose 1 percent in 2017, and policy actions had little effect on federal taxes or transfers (figure 11). Under currently enacted legislation, which includes the Tax Cuts and Jobs Act (TCJA) and the Bipartisan Budget Act, federal fiscal policy will likely provide a moderate boost to GDP growth this year.[9]

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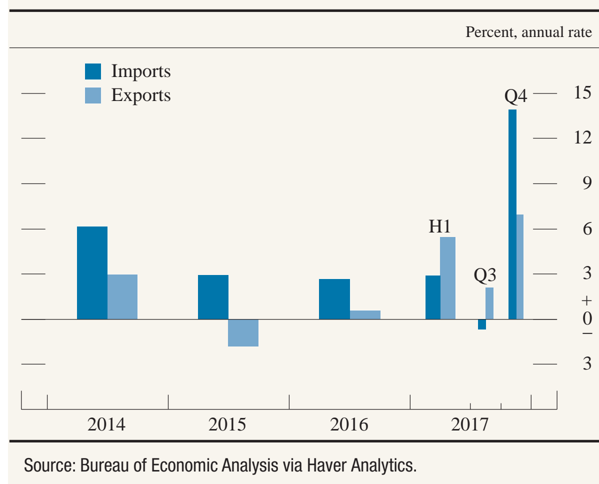
[8] The SLOOS is available on the Board's website at https://www.federalreserve.gov/data/sloos/sloos.htm.

[9] The Joint Committee on Taxation estimates that the TCJA will reduce average annual tax revenue by a little more than 1 percent of GDP over the next few years. This revenue estimate does not account for the potential macroeconomic effects of the legislation.

Figure 10. Change in real imports and exports of goods and services



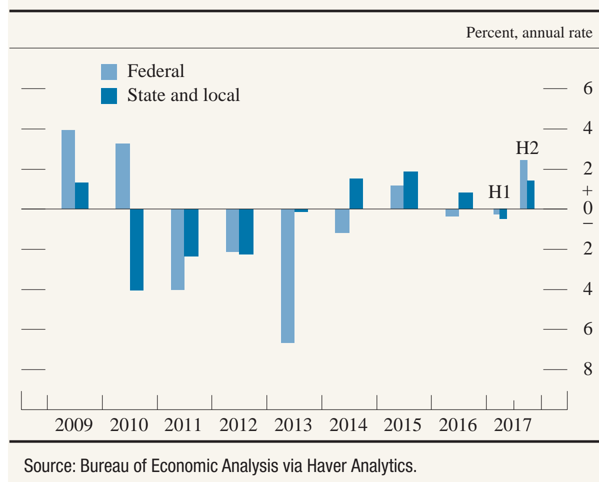
Source: Bureau of Economic Analysis via Haver Analytics.

The federal unified deficit continued to widen in fiscal year 2017, reaching 3½ percent of nominal GDP. Although expenditures as a share of GDP were relatively stable at a little under 21 percent, receipts moved lower in 2017 to roughly 17 percent of GDP. The ratio of federal debt held by the public to nominal GDP was 75¼ percent at the end of fiscal year 2017 and remains quite elevated relative to historical norms.

. . . and the fiscal position of most state and local governments is stable

The fiscal position of most state and local governments is stable, although there is a range of experiences across these governments. Many state governments are experiencing lackluster revenue growth, as income tax collections have only edged up, on average, in recent quarters. In contrast, house price gains have continued to push up property tax revenues at the local level. Employment in the state and local government sector only inched up in 2017, while outlays for construction by these governments continued to decline on net.

Figure 11. Change in real government expenditures on consumption and investment



Source: Bureau of Economic Analysis via Haver Analytics.

Financial Developments

The expected path of the federal funds rate has moved up

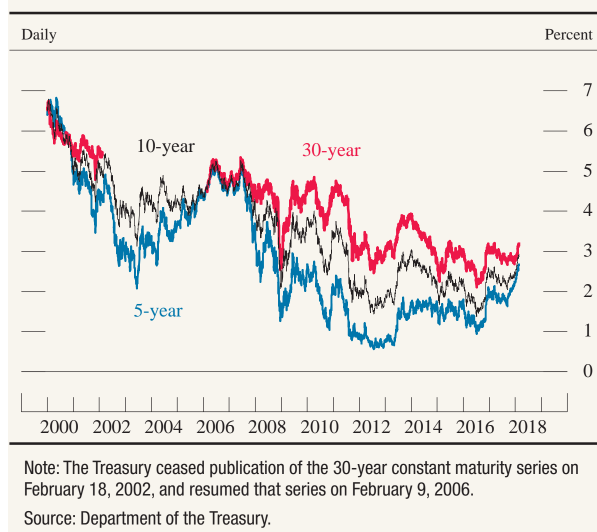
The path of the expected federal funds rate implied by market quotes on interest rate derivatives has moved up on net since the middle of last year amid an improving global growth outlook. Part of the upward shift occurred around FOMC communications in the fall that were interpreted as implying a somewhat quicker pace of policy rate increases than had been previously anticipated. The expected policy path also moved higher around the time when the U.S. tax legislation was finalized.

Survey-based measures of the expected path of the policy rate have been generally little changed on net, suggesting that part of the rise in the market-implied path reflected higher term premiums. In the Federal Reserve Bank of New York's Survey of Primary Dealers and Survey of Market Participants, which were conducted just before the January 2018 FOMC meeting, the median respondents expected three 25 basis point increases in the FOMC's target range for the federal funds rate as the most likely outcome for this year, unchanged from what they had expected in surveys conducted before the June FOMC meeting. Market-based measures of uncertainty about the policy rate approximately one to two years ahead have, on balance, edged up from their levels in the middle of 2017.

The nominal Treasury yield curve has shifted up

The nominal Treasury yield curve has shifted up on net since the middle of 2017, owing to greater optimism about the global growth outlook and investors' perceptions of higher odds for the removal of monetary policy accommodation (figure 12). Yields on shorter-term nominal Treasury securities increased relatively more than those on longer-term nominal Treasury securities, thus resulting in some flattening of the yield curve. According to market participants, among the factors contributing to this outcome has been the Treasury Department's stated intention to increase its reliance on issuance of short-dated secu-

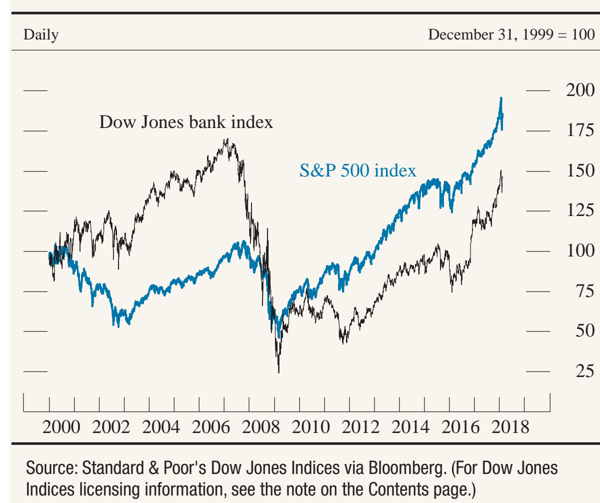
Figure 12. Yields on nominal Treasury securities



Note: The Treasury ceased publication of the 30-year constant maturity series on February 18, 2002, and resumed that series on February 9, 2006.

Source: Department of the Treasury.

Figure 13. Equity prices



Source: Standard & Poor's Dow Jones Indices via Bloomberg. (For Dow Jones Indices licensing information, see the note on the Contents page.)

rities, as discussed in the two most recent releases of the Treasury's quarterly financing statement.

Consistent with the changes in Treasury yields, yields on 30-year agency mortgage-backed securities (MBS)—an important determinant of mortgage interest rates—increased but remain quite low by historical standards.

Broad equity price indexes have increased further . . .

Broad U.S. equity indexes, despite some declines seen in recent weeks, have, on balance, increased further since June 2017, with most of the net gains occurring during the final quarter of last year (figure 13). Equity prices were reportedly supported in part by an increase in investors' confidence that changes to the federal tax law will boost corporate earnings. Stock prices generally increased across industries outside utilities and real estate, two sectors for which the increases in interest rates described earlier are likely to have weighed more heavily on stock prices; stock prices of banks rose more than the broader market. Implied volatility for the S&P 500 index, as calculated from options prices, increased notably in early February, ending the period close to the median of its historical distribution.

. . . while risk spreads on corporate bonds have continued to decrease

Spreads on both high-yield and investment-grade corporate bond yields over comparable-maturity Treasury yields have decreased further since the middle of last year, with spreads for high-yield bonds moving closer to the bottom of their historical ranges. The narrowing of the spreads since the middle of 2017 appears to reflect both an anticipation that the losses from defaults on these bonds will be smaller and a lower compensation being charged for bearing the risk of such losses. (For a discussion of financial stability issues, see the box "Developments Related to Financial Stability" on pages 24–26 of the February 2018 *Monetary Policy Report*.)

Markets for Treasury securities, mortgage-backed securities, municipal bonds, and short-term funding have functioned well

Available indicators of Treasury market functioning have generally remained stable over the second half of 2017 and early 2018, with a variety of liquidity metrics—including bid-ask spreads, bid sizes, and estimates of transaction costs—mostly unchanged over the period. Liquidity conditions in the agency MBS market have also been generally stable. In recent months, the functioning of Treasury and agency MBS markets has not been notably affected by the implementation of the Federal Reserve's balance sheet normalization program and the resulting reduction in reinvestment of principal payments from the Federal Reserve's securities holdings. In early February, amid financial market volatility, liquidity conditions in the Treasury market deteriorated but have recovered somewhat since. Credit conditions in municipal bond markets have also remained generally stable since June 2017. Over that period, yield spreads on 20-year general obligation municipal bonds over comparable-maturity Treasury securities

have narrowed on balance. Nevertheless, significant financial strains were still evident for some issuers. In particular, prices for Puerto Rico general obligation bonds fell notably after Hurricane Maria hit the island and its economic outlook deteriorated even further. However, these developments left little imprint in broader municipal bond markets. Conditions in domestic short-term funding markets have remained stable since the middle of last year.

Bank credit continued to expand and bank profitability remained stable

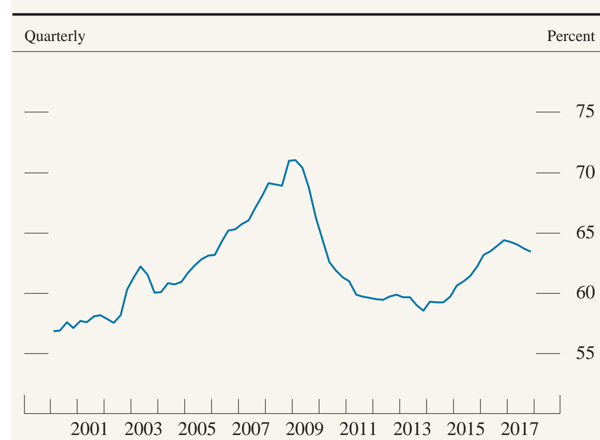
Aggregate credit provided by commercial banks continued to expand in the second half of 2017 at a pace similar to the one seen earlier in the year but more slowly than in 2016. Its pace was also slower than that of nominal GDP, thus leaving the ratio of total commercial bank credit to current-dollar GDP slightly lower than earlier in 2017 (figure 14). Measures of bank profitability were little changed at levels below their historical averages.

International Developments

Economic activity in most foreign economies continued at a healthy pace in the second half of 2017

Foreign real GDP appears to have expanded notably in the second half of 2017, extending the period since mid-2016 when the pace of economic growth picked up broadly around the world.

Figure 14. Ratio of total bank credit to nominal gross domestic product



Source: Federal Reserve Board, Statistical Release H.8, "Assets and Liabilities of Commercial Banks in the United States"; Bureau of Economic Analysis via Haver Analytics.

Growth in advanced foreign economies was solid, and unemployment fell to multidecade lows . . .

In the advanced foreign economies (AFEs), the economic recovery has continued to firm. Real GDP in the euro area and the United Kingdom expanded at a solid pace in the second half of the year. Economic activity also continued to expand in Japan, though real GDP growth slowed sharply in the fourth quarter. In Canada, data through November indicate that economic growth moderated somewhat in the second half following a very rapid expansion earlier in the year. Unemployment declined further as well, reaching 40-year lows in Canada and the United Kingdom, while growth in labor compensation ticked up only modestly.

. . . but inflation remained subdued . . .

Consumer price inflation rose somewhat in most AFEs, boosted by the rise in commodity prices. However, headline and especially core inflation remained below the central banks' targets in the euro area and Japan. In contrast, U.K. inflation rose further above the Bank of England's (BOE) 2 percent target as the substantial sterling depreciation observed since the June 2016 Brexit referendum continued to provide some uplift to import prices. (For more discussion of inflation both in the United States and abroad, see the box "Low Inflation in the Advanced Economies" on pages 14–15 of the February 2018 *Monetary Policy Report*.)

. . . leading AFE central banks to maintain accommodative monetary policies

The Bank of Japan kept its policy rates at historically low levels, with the target for 10-year government bond yields around zero. In October, the European Central Bank extended its asset purchase program until September 2018, albeit at a reduced pace. The Bank of Canada and the BOE both raised their policy rates but also indicated that they intend to proceed gradually with further removal of policy accommodation.

In emerging Asia, growth remained solid . . .

Economic growth in China remained relatively strong in the second half of 2017 even as the authorities enacted policies to limit production in heavily polluting industries, tighten financial regulations, and curb house price growth. Most other emerging Asian economies registered very strong growth in the third quarter of 2017, fueled by solid external demand, but slowed in the fourth quarter.

. . . while the largest Latin American economies continued to struggle

In Mexico, real GDP declined in the third quarter as two major earthquakes and a hurricane significantly disrupted economic activity, but rebounded in the fourth quarter. Following a prolonged period of contraction, the Brazilian economy continues to recover, but only at a weak pace. Private investment has remained sluggish amid corporate deleveraging and continued uncertainty about government policies, although it turned positive in the third quarter for the first time in nearly four years.

Foreign equity prices rose further on net . . .

Solid macroeconomic data and robust corporate earnings helped broad AFE and emerging market economies (EMEs) equity indexes extend their 2016 gains through the start of this year. Declines since the end of January have erased some of these gains, and volatility in foreign stock markets increased. On balance, most AFE stock prices are higher, and EME equity markets significantly outperformed those of AFEs. Capital flows into emerging market mutual funds generally remained robust as higher commodity prices added to optimism about the economic outlook.

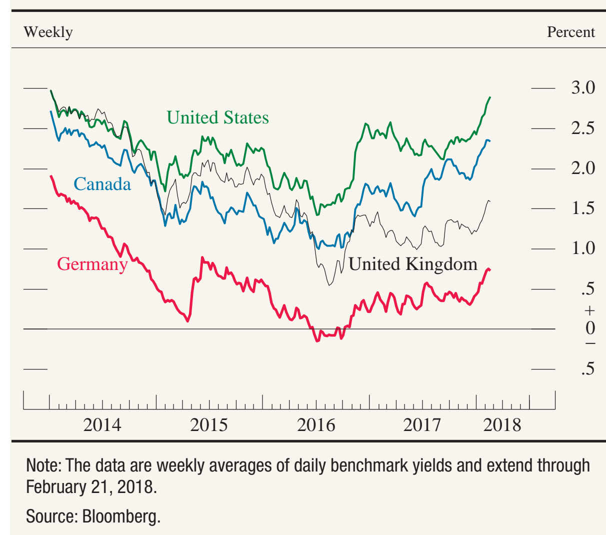
. . . and government bond yields increased

Longer-term government bond yields in most AFEs were noticeably higher than their mid-2017 levels, reflecting strengthening growth and mounting prospects for the normalization of monetary policies (figure 15). In Canada, where the central bank has raised its policy interest rate 75 basis points since June, the rise in longer-term yields was particularly notable. On balance, spreads of dollar-denominated emerging market sovereign bonds over U.S. Treasury securities were stable around the levels observed in mid-2017.

The dollar depreciated on net

The broad dollar index—a measure of the trade-weighted value of the dollar against foreign currencies—fell roughly 5 percent in the first half of 2017. Notwithstanding some appreciation in early February, the currency has depreciated further since the end of June, partially reversing substantial appreciation realized over the period from 2014 to 2016 (figure 16). The weakness in the dollar mostly reflects a broad-based improvement in the outlook for foreign economic growth. Brexit-related headlines weighed on the British pound at times during the second half of 2017, but progress regarding the terms of the U.K. separation from the European Union boosted the currency later in the year. In contrast, the dollar appreciated against the Mexican peso, on net, amid uncertainty around North American Free Trade Agreement negotiations.

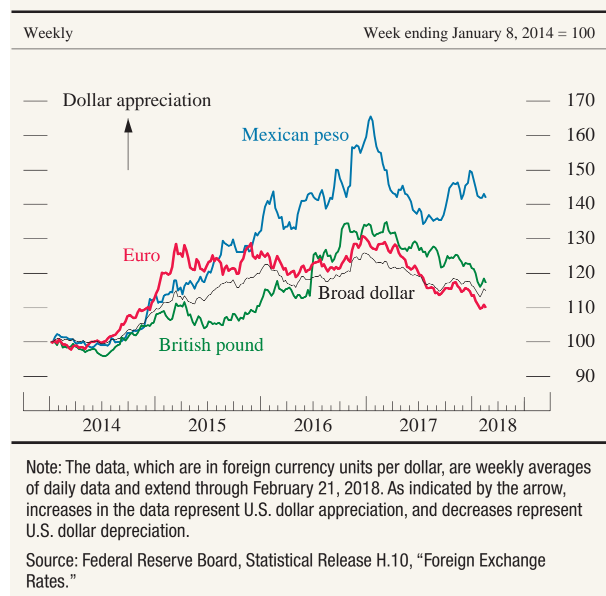
Figure 15. 10-year nominal benchmark yields in selected advanced economies



Note: The data are weekly averages of daily benchmark yields and extend through February 21, 2018.

Source: Bloomberg.

Figure 16. U.S. dollar exchange rate indexes



Note: The data, which are in foreign currency units per dollar, are weekly averages of daily data and extend through February 21, 2018. As indicated by the arrow, increases in the data represent U.S. dollar appreciation, and decreases represent U.S. dollar depreciation.

Source: Federal Reserve Board, Statistical Release H.10, "Foreign Exchange Rates."

Part 2: Monetary Policy

The Federal Open Market Committee raised the federal funds rate target range in December

For more than two years, the Federal Open Market Committee (FOMC) has been gradually increasing its target range for the federal funds rate as the labor market strengthened and headwinds in the aftermath of the recession continued to abate. After having raised the target range for the federal funds rate twice in the first half of 2017, the Committee raised it again in December, bringing the target range to 1¼ to 1½ percent (figure 17).[10] As on previous occasions, the decision to increase the federal funds rate in December reflected realized and expected labor market conditions and inflation relative to the FOMC's objectives. Information available at that time indicated that economic activity had been rising at a solid rate and the labor market had continued to strengthen. In addition, although inflation had continued to run below the FOMC's 2 percent longer-run objective, the Committee expected that it would stabilize around that target over the medium term. At its most recent meeting, which concluded on January 31, the Committee kept the target range for the federal funds rate unchanged.[11]

[10] See Board of Governors of the Federal Reserve System (2017), "Federal Reserve Issues FOMC Statement," press release, December 13, https://www.federalreserve.gov/newsevents/pressreleases/monetary20171213a.htm.

[11] See Board of Governors of the Federal Reserve System (2018), "Federal Reserve Issues FOMC Statement," press release, January 31, https://www.federalreserve.gov/newsevents/pressreleases/monetary20180131a.htm.

Monetary policy continues to support economic growth

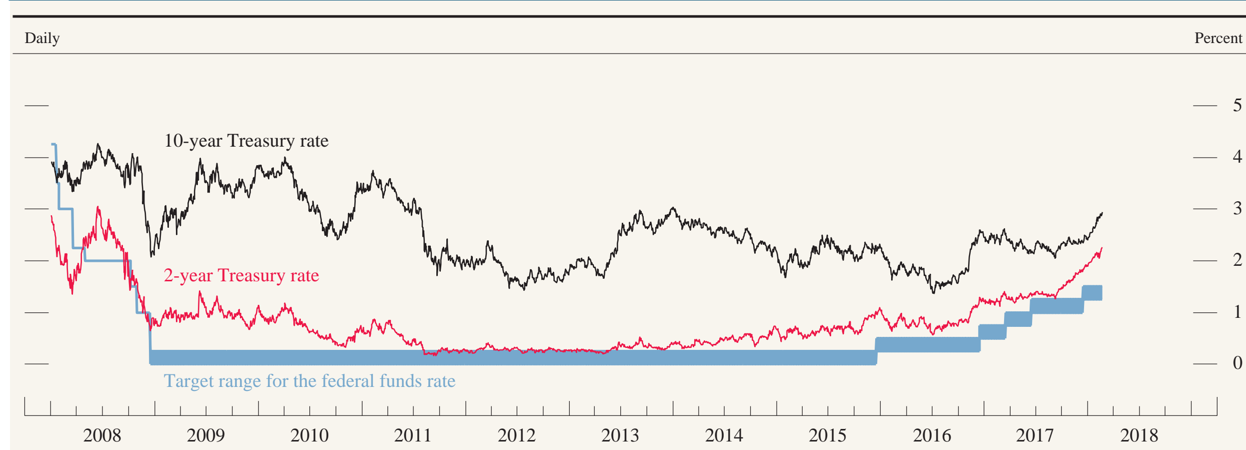
Even with the gradual increases in the federal funds rate to date, the Committee judges that the stance of monetary policy remains accommodative, thereby supporting strong labor market conditions and a sustained return to 2 percent inflation. The federal funds rate remains somewhat below most estimates of its neutral rate—that is, the level of the federal funds rate that is neither expansionary nor contractionary.

In evaluating the stance of monetary policy, policymakers routinely consult prescriptions from a variety of policy rules, which can serve as useful benchmarks. However, the use and interpretation of such prescriptions require careful judgments about the choice and measurement of the inputs to these rules as well as the implications of the many considerations these rules do not take into account. (See the box "Monetary Policy Rules and Their Role in the Federal Reserve's Policy Process" on pages 35–38 of the February 2018 *Monetary Policy Report*.)

Future changes in the federal funds rate will depend on the economic outlook as informed by incoming data

The Committee has continued to emphasize that, in determining the timing and size of future adjustments to the target range for the federal funds rate, it will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of

Figure 17. Selected interest rates



Note: The 2-year and 10-year Treasury rates are the constant-maturity yields based on the most actively traded securities.

Source: Department of the Treasury; Federal Reserve Board.

inflation pressures and inflation expectations, and readings on financial and international developments. The FOMC has emphasized that it will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal, as inflation has been running persistently below the 2 percent longer-run objective.

The Committee expects that the ongoing strength in the economy will warrant further gradual increases in the federal funds rate, and that the federal funds rate will likely remain, for some time, below the levels that the Committee expects to prevail in the longer run. Consistent with this outlook, in the most recent Summary of Economic Projections, which was compiled at the time of the December FOMC meeting, the median of participants' assessments for the appropriate level of the midpoint of the target range for the federal funds rate at year-end rises gradually over the period from 2018 to 2020, remaining below the median projection for its longer-run level through the end of 2019.[12]

The size of the Federal Reserve's balance sheet has begun to decrease

The Committee had communicated for some time that it intended to reduce the size of the Federal Reserve's balance sheet once normalization of the level of the federal funds rate was well under way. At its meeting in September, the FOMC decided to initiate the balance sheet normalization program described in the June 2017 Addendum to the Policy Normalization Principles and Plans. This program is gradually and predictably reducing the Federal Reserve's securities holdings by decreasing the reinvestment of the principal payments it receives from securities held in the System Open Market Account (SOMA). Since October, such payments have been reinvested only to the extent that they exceeded gradually rising caps.

In the fourth quarter, the Open Market Desk at the Federal Reserve Bank of New York, as directed by the Committee, reinvested principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month in excess of $6 billion. The Desk also reinvested in agency mortgage-backed securities (MBS) the amount of principal payments from the Federal Reserve's holdings of agency debt and agency MBS received during each calendar month in excess of $4 billion. Since January, payments of principal from maturing Treasury securities and from the Federal Reserve's holdings of agency debt and agency MBS have been reinvested to the extent that they have exceeded $12 billion and $8 billion, respectively. The Committee has indicated that the cap for Treasury securities will continue to increase in steps of $6 billion at three-month intervals until it reaches $30 billion per month, and that the cap for agency debt and agency MBS will continue to increase in steps of $4 billion at three-month intervals until it reaches $20 billion per month. These caps will remain in place until the Committee judges that the Federal Reserve is holding no more securities than necessary to implement monetary policy efficiently and effectively.

The initiation of the balance sheet normalization program was widely anticipated and therefore did not elicit a notable reaction in financial markets. Subsequently, the implementation of the program has proceeded smoothly without materially affecting Treasury and MBS markets. With the caps having been set thus far at relatively low levels, the reduction in SOMA securities has represented a small fraction of the SOMA securities holdings. Consequently, the Federal Reserve's total assets have declined somewhat to about $4.4 trillion, with holdings of Treasury securities at approximately $2.4 trillion and holdings of agency debt and agency MBS at approximately $1.8 trillion (figure 18).

Interest income on the SOMA portfolio has continued to support substantial remittances to the U.S. Treasury. Preliminary financial statement results indicate that the Federal Reserve remitted about $80.2 billion of its estimated 2017 net income to the Treasury.

The Federal Reserve's implementation of monetary policy has continued smoothly

In December 2017, the Federal Reserve raised the effective federal funds rate by increasing the interest rate paid on reserve balances along with the interest rate offered on overnight reverse repurchase agreements (ON RRPs). Specifically, the Federal Reserve increased the interest rate paid on required and excess reserve balances to 1½ percent and the ON RRP offering rate to 1¼ percent. In addition, the Board of Governors approved an increase in the discount rate (the so-called primary credit rate) to 2 percent. Yields on a broad set of money market instruments moved higher in response to the FOMC's policy action in December. The effective

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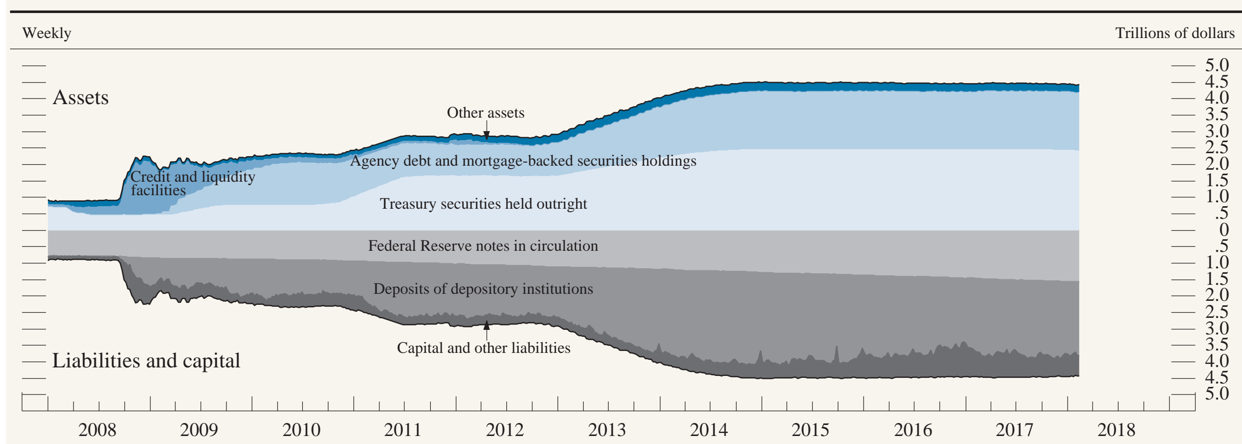
[12] See the December Summary of Economic Projections, which appeared as an addendum to the minutes of the December 12–13, 2017, meeting of the FOMC and is included as Part 3 of the February 2018 *Monetary Policy Report*.

Figure 18. Federal Reserve assets and liabilities



Note: "Credit and liquidity facilities" consists of primary, secondary, and seasonal credit; term auction credit; central bank liquidity swaps; support for Maiden Lane, Bear Stearns, and AIG; and other credit facilities, including the Primary Dealer Credit Facility, the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, the Commercial Paper Funding Facility, and the Term Asset-Backed Securities Loan Facility. "Other assets" includes unamortized premiums and discounts on securities held outright. "Capital and other liabilities" includes reverse repurchase agreements, the U.S. Treasury General Account, and the U.S. Treasury Supplementary Financing Account. The data extend through February 14, 2018.

Source: Federal Reserve Board, Statistical Release H.4.1, "Factors Affecting Reserve Balances."

federal funds rate rose in line with the increase in the FOMC's target range and generally traded near the middle of the new target range amid orderly trading conditions in money markets. Usage of the ON RRP facility has declined on net since the middle of 2017, reflecting relatively attractive yields on alternative investments.

Although the normalization of the monetary policy stance has proceeded smoothly, the Federal Reserve has continued to test the operational readiness of other policy tools as part of prudent planning. Two operations of the Term Deposit Facility were conducted in the second half of 2017; seven-day deposits were offered at both operations with a floating rate of 1 basis point over the interest rate on excess reserves. In addition, the Desk conducted several small-value exercises solely for the purpose of maintaining operational readiness.

Monetary Policy Report July 2017

Summary

Economic activity increased at a moderate pace over the first half of the year, and the jobs market continued to strengthen. Measured on a 12-month basis, inflation has softened some in the past few months. The Federal Open Market Committee (FOMC) judged that, on balance, current and prospective economic conditions called for a further gradual removal of policy accommodation. At its most recent meeting in June, the Committee boosted the target range for the federal funds rate to 1 to 1¼ percent. The Committee also issued additional information regarding its plans for reducing the size of its balance sheet in a gradual and predictable manner.

Economic and Financial Developments

Labor markets. The labor market has strengthened further so far this year. Over the first five months of 2017, payroll employment increased 162,000 per month, on average, somewhat slower than the average monthly increase for 2016 but still more than enough to absorb new entrants into the labor force. The unemployment rate fell from 4.7 percent in December to 4.3 percent in May—modestly below the median of FOMC participants' estimates of its longer-run normal level. Other measures of labor utilization are also consistent with a relatively tight labor market. However, despite the broad-based strength in measures of employment, wage growth has been only modest, possibly held down by the weak pace of productivity growth in recent years.

Inflation. Consumer price inflation, as measured by the 12-month change in the price index for personal consumption expenditures, briefly reached the FOMC's 2 percent objective earlier this year, but it more recently has softened. The latest reading, for May, was 1.4 percent—still up from a year earlier when falling energy prices restrained overall consumer prices. The 12-month measure of inflation that excludes food and energy items (so-called core inflation), which historically has been a better indicator than the headline figure of where overall inflation will be in the future, was also 1.4 percent over the year ending in May; this reading was a bit lower than it had been one year earlier. Measures of longer-run inflation expectations have been relatively stable, on balance, though some measures remain low by historical standards.

Economic growth. Real gross domestic product (GDP) is reported to have risen at an annual rate of about 1½ percent in the first quarter of 2017, but more recent data suggest growth stepped back up in the second quarter. Consumer spending was sluggish in the early part of the year but appears to have rebounded recently, supported by job gains, rising household wealth, and favorable consumer sentiment. Business investment has turned up this year after having been weak for much of 2016, and indicators of business sentiment have been strong. The housing market continues its gradual recovery. Economic growth has also been supported by recent strength in foreign activity.

Financial conditions. On balance, domestic financial conditions for businesses and households have continued to support economic growth. Long-term nominal Treasury yields and mortgage rates have decreased so far in 2017, although yields remain somewhat above levels that prevailed last summer. Broad measures of equity prices increased further during the first half of the year. Spreads of yields on corporate bonds over comparable-maturity Treasury securities decreased. Most types of consumer loans remained widely available, while mortgage credit stayed readily available for households with solid credit profiles but was still difficult to access for households with low credit scores or harder-to-document incomes. In foreign financial markets, equity prices increased and risk spreads decreased amid generally firming economic growth and robust corporate earnings. The broad U.S. dollar index depreciated modestly against foreign currencies.

Financial stability. Vulnerabilities in the U.S. financial system remained, on balance, moderate. Contributing to the financial system's improved resilience, U.S. banks have substantial amounts of capital and liquidity. Valuation pressures across a range of assets and several indicators of investor risk appetite have increased further since mid-February. However, these developments in asset markets have not been accompanied by increased leverage in the financial sector, according to available metrics, or increased borrowing in the nonfinancial sector. Household debt as a share of GDP continues to be subdued, and debt owed by nonfinancial businesses, although elevated, has been either flat or falling in the past two years. (See the box "Developments Related to Financial Stability" on pages 24–25 of the July 2017 *Monetary Policy Report*.)

Monetary Policy

Interest rate policy. Over the first half of 2017, the FOMC continued to gradually reduce the amount of monetary policy accommodation. Specifically, the Committee decided to raise the target range for the federal funds rate in March and in June, bringing it to the current range of 1 to 1¼ percent. Even with these rate increases, the stance of monetary policy remains accommodative, supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.

The FOMC continues to expect that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace and labor market conditions will strengthen somewhat further. Inflation on a 12-month basis is expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee's 2 percent objective over the medium term. The federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. Consistent with this outlook, in the most recent Summary of Economic Projections (SEP), compiled at the time of the June FOMC meeting, most participants projected that the appropriate level of the federal funds rate would be below its longer-run level through 2018. (The June SEP is presented in Part 3 on pages 41–57 of the July 2017 *Monetary Policy Report*; it is also included in section 9 of this report.) However, as the Committee has continued to emphasize, monetary policy is not on a preset course; the actual path of the federal funds rate will depend on the evolution of the economic outlook as informed by incoming data. In particular, the Committee is monitoring inflation developments closely.

Balance sheet policy. To help maintain accommodative financial conditions, the Committee has continued its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and rolling over maturing Treasury securities at auction. In June, the FOMC issued an Addendum to the Policy Normalization Principles and Plans that provides additional details regarding the approach the FOMC intends to follow to reduce the Federal Reserve's holdings of Treasury and agency securities in a gradual and predictable manner. The Committee currently expects to begin implementing the balance sheet normalization program this year provided that the economy evolves broadly as anticipated. (See the box "Addendum to the Policy Normalization Principles and Plans" on page 40 of the July 2017 *Monetary Policy Report*.)

Special Topics

Education and climbing the economic ladder. Education, particularly a college degree, is often seen as a path to improved economic opportunities. However, despite the fact that young blacks and Hispanics have increased their educational attainment over the past quarter-century, their representation in the top 25 percent of the income distribution for young people has not materially increased. In part, this outcome has occurred because educational attainment has increased for young non-Hispanic whites and Asians as well. While education continues to be an important determinant of whether one can climb the economic ladder, sizable differences in economic outcomes across race and ethnicity remain even after controlling for educational attainment. (See the box "Does Education Determine Who Climbs the Economic Ladder?" on pages 8–9 of the July 2017 *Monetary Policy Report*.)

The global productivity slowdown. Over the past decade, labor productivity growth both in the United States and in other advanced economies has slowed markedly. This slowdown may reflect a waning of the effects from advances in information technology in the 1990s and early 2000s. Productivity growth may also be low because of the severity of the Global Financial Crisis, in part because spending for research and development was muted. Some of the factors restraining productivity growth may eventually fade, but it is difficult to ascertain whether the recent subdued performance of productivity represents a new normal. (See the box "Productivity Developments in the Advanced Economies" on pages 12–13 of the July 2017 *Monetary Policy Report*.)

Liquidity in the corporate bond market. A series of changes, including regulatory reforms, since the Global Financial Crisis have likely altered financial institutions' incentives to provide liquidity. Many market participants are particularly concerned with liquidity in markets for corporate bonds. However, the available evidence suggests that financial markets have performed well in recent years, with minimal impairment in liquidity, either in the market for corporate bonds or in markets for other assets. (See the

box "Recent Developments in Corporate Bond Market Liquidity" on pages 26–28 of the July 2017 *Monetary Policy Report*.)

Monetary policy rules. Monetary policymakers consider a wide range of information on current economic conditions and the outlook before deciding on a policy stance they deem most likely to foster the FOMC's statutory mandate of maximum employment and stable prices. They also routinely consult monetary policy rules that connect prescriptions for the policy interest rate with variables associated with the dual mandate. The use of such rules requires careful judgments about the choice and measurement of the inputs into these rules as well as the implications of the many considerations these rules do not take into account. (See the box "Monetary Policy Rules and Their Role in the Federal Reserve's Policy Process" on pages 36–39 of the July 2017 *Monetary Policy Report*.)

Part 1: Recent Economic and Financial Developments

Domestic Developments

The labor market tightened further during the first half of the year . . .

Labor market conditions continued to strengthen in the first five months of this year. On average, payrolls expanded 162,000 per month between January and May, a little slower than the average monthly employment gain in 2016 but still more than enough to absorb new entrants to the labor force and therefore consistent with a further tightening of the labor market. The unemployment rate has declined 0.4 percentage point since December 2016, and in May it stood at 4.3 percent, its lowest level since late 2000 and modestly below the median of Federal Open Market Committee (FOMC) participants' estimates of its longer-run normal level.

The labor force participation rate (LFPR)—that is, the share of adults either working or actively looking for work—was 62.7 percent in May and is little changed, on net, since early 2014. Along with other factors, the aging of the population implies a downward trend in participation, so the flattening out of the LFPR during the past few years is consistent with an overall picture of improving labor market conditions. The employment-to-population ratio—that is, the share of the population that is working—was 60 percent in May and has been increasing for the past couple of years, reflecting the combination of the declining unemployment rate and the flat LFPR.

The strengthening condition of the labor market is evident in other measures as well. The number of people filing initial claims for unemployment insurance has fallen to the lowest level in decades. In addition, as reported in the Job Openings and Labor Turnover Survey, the rate of job openings remained elevated in the first part of the year, while the rate of layoffs remained low; both are signs that firms' demand for labor is still solid. In addition, the rate of quits stayed high, an indication that workers are confident in their ability to obtain a new job. Another measure, the share of workers who are working part time but would prefer to be employed full time—which is part of the U-6 measure of underutilization from the Bureau of Labor Statistics—fell noticeably further in the first five months of 2017.

. . . though unemployment rates remain elevated for some demographic groups

Although the aggregate unemployment rate was at a 16-year low in May, there are substantial disparities across demographic groups. Notably, the unemployment rate for whites averaged 4 percent during the first five months of the year, and the rate for Asians was about 3½ percent. However, the unemployment rates for Hispanics (5.4 percent) and African Americans (7.8 percent) were substantially higher. The differences in the unemployment rates across racial and ethnic groups are long-standing, and they also vary over the business cycle. Indeed, the unemployment rates for blacks and Hispanics both rose considerably more than the rates for whites and Asians during the Great Recession, and their subsequent declines have been more rapid. On balance, however, the differences in unemployment rates across the groups have not narrowed relative to the pre-recession period. (For additional discussion on differences in economic outcomes by race and ethnicity, see the box "Does Education Determine Who Climbs the Economic Ladder?" on pages 8–9 of the July 2017 *Monetary Policy Report*.)

Growth of labor compensation has been modest . . .

Indicators of hourly compensation suggest that wage growth has remained modest. Growth of compensation per hour in the business sector—a broad-based measure of wages, salaries, and benefits—has slowed

in recent quarters and was 2¼ percent over the four quarters ending in 2017:Q1.[13] This measure can be quite volatile even at annual frequencies (and a smoothed version is shown in figure 5 for that reason). The employment cost index—which also measures both wages and the cost to employers of providing benefits—also was up 2¼ percent in the first quarter relative to its year-ago level, about ½ percentage point faster than its gain of a year earlier. Among measures limited to wages, average hourly earnings growth—at 2½ percent through May—was little changed from a year ago, and a compensation measure computed by the Federal Reserve Bank of Atlanta that tracks median 12-month wage growth of individuals reporting to the Current Population Survey was about 3½ percent in May, also similar to its reading from a year earlier.

. . . and likely restrained by slow growth of labor productivity

These modest rates of compensation gain likely reflect the offsetting influences of a tightening labor market and persistently weak productivity growth. Since 2008, labor productivity has increased only about 1 percent per year, on average, well below the average pace from 1996 through 2007 and also below the gains in the 1974–95 period. For most of the period since 2011, labor productivity growth has been particularly weak, although it has turned up in recent quarters. The longer-term softness in productivity growth may be partly attributable to the sharp pullback in capital investment during the most recent recession and the relatively modest rebound that followed. But there may be other explanations, too, and considerable debate remains about the reasons for the general slowdown in productivity growth. (For a more comprehensive discussion of productivity, see the box "Productivity Developments in the Advanced Economies" on pages 12 –13 of the July 2017 *Monetary Policy Report*.)

Price inflation moved up but softened in the spring and remains below 2 percent

In the early months of 2017, consumer price inflation, as measured by the 12-month change in the price index for personal consumption expenditures (PCE), continued its climb from the very low levels that prevailed in 2015 and early 2016 when it was held down by falling oil and import prices. Indeed, consumer price inflation briefly reached the FOMC's 2 percent objective earlier this year before falling back to 1.4 percent in May. Core inflation, which typically provides a better indication than the headline measure of where overall inflation will be in the future, also was 1.4 percent over the 12 months ending in May, a slightly slower rate than a year earlier. As is the case with headline inflation, the 12-month measure of core inflation had been higher earlier this year, reaching 1.8 percent. Both measures of inflation have recently been held down by steep and likely idiosyncratic price declines for a few specific categories, including wireless telephone services and prescription drugs, which do not appear to be related to the overall trends in consumer prices. The 12-month change in the trimmed mean PCE price index—an alternative indicator of underlying inflation produced by the Federal Reserve Bank of Dallas—slowed by less than overall or core PCE price inflation over the past several months.

Oil prices declined somewhat but remain well above their early 2016 lows . . .

After rebounding from their early 2016 lows, oil prices leveled off early this year. Since then they have declined somewhat, despite OPEC's decision in late May to renew its November 2016 agreement to reduce its oil production, thereby extending the November production cuts through early 2018. Reflecting lower crude oil prices as well as smaller retail margins, seasonally adjusted retail gasoline prices have also declined since the beginning of the year. Nevertheless, prices of both crude oil and retail gasoline remain above their early 2016 lows, and futures prices suggest that market participants expect oil prices to rise gradually in coming years.

. . . while prices of imports other than energy have been bolstered by higher commodity prices

Throughout 2015, nonfuel import prices declined because of appreciation of the dollar and declines in nonfuel commodity prices. Nonfuel import prices stabilized last year and have risen since then, as the dollar stopped appreciating and supply disruptions boosted world prices of some nonfuel commodities, especially industrial supplies and metals. In recent months, depreciation of the dollar has further

[13] The recent data on compensation per hour reflect a decline in wages and salaries at the end of 2016, which might be the result of a shifting of bonuses or other types of income into 2017 in anticipation of a possible cut in personal income tax rates. If that is the case, the current estimate of compensation growth in the first quarter might be revised up once full data become available later this summer.

pushed up non-oil import prices, which are now slightly higher than in mid-2016.

Survey-based measures of inflation expectations are little changed this year . . .

Expectations of inflation likely influence actual inflation by affecting wage- and price-setting decisions. Survey-based measures of inflation expectations at medium- and longer-term horizons have remained relatively stable so far in 2017. In the second-quarter Survey of Professional Forecasters conducted by the Federal Reserve Bank of Philadelphia, the median expectation for the annual rate of increase in the PCE price index over the next 10 years was 2.1 percent, the same as in the first quarter and little changed from the readings during 2016. In the University of Michigan Surveys of Consumers, the median value for inflation expectations over the next 5 to 10 years—which has been drifting downward for the past few years—has held about flat at a low level since late last year.

. . . while market-based measures of inflation compensation fell back somewhat

Inflation expectations can also be gauged by market-based measures of inflation compensation, though the inference is not straightforward because inflation compensation can be importantly affected by changes in premiums associated with risk and liquidity. Measures of longer-term inflation compensation—derived either from differences between yields on nominal Treasury securities and those on comparable Treasury Inflation-Protected Securities (TIPS) or from inflation swaps—have fallen back somewhat this year after having moved up in late 2016.[14] The TIPS-based measure of 5-to-10-year-forward inflation compensation is now 1¾ percent, and the analogous measure of inflation swaps is now about 2 percent. Both measures are well below the 2½ to 3 percent range that persisted for most of the 10 years before 2014.

[14] Inflation compensation implied by the TIPS breakeven inflation rate is based on the difference, at comparable maturities, between yields on nominal Treasury securities and yields on TIPS, which are indexed to the headline consumer price index (CPI). Inflation swaps are contracts in which one party makes payments of certain fixed nominal amounts in exchange for cash flows that are indexed to cumulative CPI inflation over some horizon. Focusing on inflation compensation 5 to 10 years ahead is useful, particularly for monetary policy, because such forward measures encompass market participants' views about where inflation will settle in the long term after developments influencing inflation in the short term have run their course.

Real gross domestic product growth slowed in the first quarter, but spending by households and businesses appears to have picked up in recent months

After having moved up at an annual rate of 2¾ percent in the second half of 2016, real gross domestic product (GDP) is reported to have increased about 1½ percent in the first quarter of this year.[15] The step-down in first-quarter growth was largely attributable to soft inventory investment and a lull in the growth of consumer spending; in contrast, net exports increased a bit, residential investment grew robustly, and spending by businesses surged. Indeed, business investment was strong enough that overall private domestic final purchases—that is, final purchases by U.S. households and businesses, which tend to carry more signal for future GDP growth than most other components of overall spending—moved up at an annual rate of about 3 percent in the first quarter. For more recent months, indicators of spending by consumers and businesses have been strong and suggest that growth of economic activity rebounded in the second quarter; thus, overall activity appears to have expanded moderately, on average, over the first half of the year.

The economic expansion continues to be supported by accommodative financial conditions, including the low cost of borrowing and easy access to credit for many households and businesses, continuing job gains, rising household wealth, and favorable consumer and business sentiment.

Gains in income and wealth continue to support consumer spending . . .

After increasing strongly in the second half of 2016, consumer spending in the first quarter of this year was tepid. Unseasonably warm weather depressed spending on energy services, and purchases of motor vehicles slowed from an unusually high pace late last year. However, household spending seems to have picked up in more recent months, as purchases of energy services returned to seasonal norms and retail sales firmed. All told, consumer spending increased at an annual rate of 2 percent over the first five months of this year, only a bit slower than in the past couple of years.

[15] Real gross domestic income (GDI), which is conceptually the same as GDP but is constructed from different source data, had been rising at roughly the same rate as real GDP for most of 2016. However, real GDI was held down by the very weak reading for personal income in the fourth quarter of last year, which may prove to have been transitory.

Beyond spending, other indicators of consumers' economic well-being have been strong in the aggregate. The ongoing improvement in the labor market has supported further gains in real disposable personal income (DPI), a measure of income after accounting for taxes and adjusting for inflation. Real DPI increased at a solid annual rate of 3 percent over the first five months of this year.

Gains in the stock market and in house prices over the first half of the year have boosted household net wealth. Broad measures of U.S. equity prices have continued to increase in recent months after moving up considerably late last year and in the first quarter. House prices have also continued to climb, adding to the balance sheet strength of homeowners. Indeed, nominal house price indexes are close to their peaks of the mid-2000s. However, while the ratio of house prices to rents has edged higher, it remains well below its previous peak. As a result of the increases in home and equity prices, aggregate household net worth has risen appreciably. In fact, at the end of the first quarter of 2017, household net worth was more than six times the value of disposable income, the highest-ever reading for that ratio.

Consumer spending has also been supported by low burdens from debt service payments. The household debt service burden—the ratio of required principal and interest payments on outstanding household debt to disposable income, measured for the household sector as a whole—has remained at a very low level by historical standards. As interest rates rise, the debt burden will move up only gradually, as most household debt is in fixed-interest products.

. . . as does credit availability

Consumer credit has continued to expand this year but more moderately than in 2016. Financing conditions are generally favorable, with auto and student loans remaining widely available and outstanding balances continuing to expand at a robust, albeit somewhat reduced, pace. Even though delinquency rates on most types of consumer debt have remained low by historical standards, credit card and auto loan delinquencies among subprime borrowers have drifted up some. Possibly in response to this deteriorating credit performance, banks have tightened standards for credit cards and auto lending. Mortgage credit has remained readily available for households with solid credit profiles, but it was still difficult to access for households with low credit scores or harder-to-document incomes.

Consumer confidence is strong

Consumers have remained optimistic about their financial situation. As measured by the Michigan survey, consumer sentiment was solid through most of 2016, likely reflecting rising income and job gains. Sentiment moved up appreciably after the presidential election last November and has remained at a high level so far this year. Furthermore, the share of households expecting real income to rise over the next year or two has gone up markedly in the past few months and is now in line with its prerecession level.

Activity in the housing sector has improved modestly

Several indicators of housing activity have continued to strengthen gradually this year. Sales of existing homes have gained, on net, while house prices have continued to rise and mortgage rates have remained low, even though they are up from last year. In addition, single-family housing starts registered a slight increase, on average, in the first five months of the year, although multifamily housing starts have slipped. Despite the modest increase in construction activity, the months' supply of homes for sale has remained near the low levels seen in 2016, and the aggregate vacancy rate has fallen back to levels observed in the mid-2000s. Lean inventories are likely to support further gains in homebuilding activity going forward.

Business investment has turned up after a period of weakness . . .

Led by a surge in spending on drilling and mining structures, real outlays for business investment—that is, private nonresidential fixed investment—rose robustly at the beginning of the year after having been about flat for 2016 as a whole. The sharp gains in drilling and mining in the first quarter mark a turnaround for the sector; energy-sector investment had declined noticeably following the drop in oil prices that began in mid-2014 and ran through early 2016. More recently, rapid increases in the number of drilling rigs in operation suggest that investment in this area remained strong in the second quarter of this year.

Moreover, business spending on equipment and intangibles (such as research and development) advanced solidly at the beginning of the year after having been roughly flat in 2016. Furthermore, indicators of business spending are generally upbeat: Orders and shipments of capital goods have posted

net gains in recent months, and indexes of business sentiment and activity remain elevated after having improved significantly late last year.

. . . while corporate financing conditions have remained accommodative

Aggregate flows of credit to large nonfinancial firms have remained solid, supported in part by continued low interest rates. The gross issuance of corporate bonds was robust during the first half of 2017, and yields on both speculative- and investment-grade corporate bonds remained low by historical standards. Gross equity issuance by nonfinancial firms stayed solid, on average, as seasoned equity offerings continued at a robust pace and the pace of initial public offerings picked up from the low levels seen in 2016.

Despite the pickup in business investment, demand for business loans was subdued early this year, and outstanding commercial and industrial (C&I) loans on banks' books contracted in the first quarter. In the April Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS), banks reported a broad-based decline in demand for C&I loans during the first quarter of 2017 even as lending standards on such loans were reported to be basically unchanged.[16] Banks also reported weaker demand for commercial real estate loans as well as a continued tightening of standards on such loans. However, lending to large nonfinancial firms appeared to be strengthening somewhat during the second quarter. Meanwhile, measures of small business credit demand remained weak amid stable supply.

U.S. exports grew at a faster pace

In the first quarter of 2017, U.S. real exports increased briskly and broadly following moderate growth in the second half of last year that was driven by a surge in agricultural exports. At the same time, real import growth declined somewhat from its strong pace in the second half of last year. As a result, real net exports contributed slightly to U.S. real GDP growth in the first quarter. Available trade data through May suggest that the growth of real exports slowed to a modest pace in the second quarter. Nevertheless, the average pace of export growth appears to have stepped up in the first half of 2017 compared with last year, partly reflecting stronger growth abroad and a diminishing drag from earlier dollar appreciation. All told, the available data for the first half of this year suggest that net exports added a touch to U.S. real GDP growth and that the nominal trade deficit widened slightly relative to GDP.

Federal fiscal policy had a roughly neutral effect on economic growth . . .

Federal purchases moved sideways in 2016, and policy actions had little effect on federal taxes or transfers. Under currently enacted legislation, federal fiscal policy will likely again have a roughly neutral influence on the growth in real GDP this year.

After narrowing significantly for several years, the federal unified deficit has widened from about 2½ percent of GDP in fiscal year 2015 to 3¼ percent currently. Although expenditures as a share of GDP have been relatively stable over this period at a little under 21 percent, receipts moved lower in 2016 and have edged down further so far this year to roughly 17½ percent of GDP. The ratio of federal debt held by the public to nominal GDP is quite elevated relative to historical norms. Nevertheless, the deficit remains small enough to roughly stabilize this ratio in the neighborhood of 75 percent.

. . . and the fiscal position of most state and local governments is stable

The fiscal position of most state and local governments is stable, although there is a range of experiences across these governments. Many state governments are experiencing lackluster revenue growth, as income tax collections have been only edging up, on average, in recent quarters. In contrast, house price gains have continued to push up property tax revenues at the local level. Employment growth in the state and local government sector has been anemic so far this year following a pace of hiring in 2016 that was the strongest since 2008. Outlays for construction by these governments have been declining.

Financial Developments

The expected path for the federal funds rate flattened

The path for the expected federal funds rate implied by market quotes on interest rate derivatives has flattened, on net, since the end of December, moving higher for 2017 but slightly lower further out. The expected policy path moved up at the beginning of the year, reportedly reflecting investor perceptions that expansionary fiscal policy would likely be forthcoming over the near term, but subsequently fell amid some waning of these expectations as well as FOMC communications that were interpreted as sig-

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[16] The SLOOS is available on the Board's website at https://www.federalreserve.gov/data/sloos/sloos.htm.

naling a somewhat slower pace of policy rate increases than had been anticipated.

Survey-based measures of the expected path of policy also moved up for 2017. Most of the respondents to the Federal Reserve Bank of New York's Survey of Primary Dealers and Survey of Market Participants—which were conducted just before the June FOMC meeting—projected an additional 25 basis point increase in the FOMC's target range for the federal funds rate, relative to what they projected in surveys conducted before the December FOMC meeting, as the most likely outcome for this year. Expectations for the number of rate hikes in 2018 were about unchanged. Market-based measures of uncertainty about the policy rate approximately one to two years ahead decreased slightly, on balance, from their year-end levels.

Longer-term nominal Treasury yields remain low

After rising significantly during the second half of 2016, yields on medium- and longer-term nominal Treasury securities have decreased 5 to 25 basis points, on net, so far in 2017. The decrease in longer-term nominal yields since the beginning of the year largely reflects declines in inflation compensation due in part to soft incoming data on inflation, with real yields little changed on net. Consistent with the changes in Treasury yields, yields on 30-year agency mortgage-backed securities (MBS)—an important determinant of mortgage interest rates—decreased slightly over the first half of the year. Treasury and MBS yields picked up somewhat in late June, driven in part by increases in government yields overseas. However, yields remain quite low by historical standards.

Broad equity price indexes increased further . . .

Broad U.S. equity indexes continued to increase during the period. Equity prices were reportedly supported by lower interest rates and increased optimism that corporate earnings will continue to strengthen this year. Stock prices of companies in the technology sector increased notably on net. After rising significantly toward the end of last year, stock prices of banks performed about in line with the broader market during the first half of 2017. The implied volatility of the S&P 500 index one month ahead—the VIX—decreased, on net, ending the period close to the bottom of its historical range. (For a discussion of financial stability issues, see the box "Developments Related to Financial Stability" on pages 24–25 of the July 2017 *Monetary Policy Report*.)

. . . and risk spreads on corporate bonds decreased

Bond spreads for investment- and speculative-grade firms decreased, and spreads for speculative-grade firms now stand near the bottom of their historical ranges.

Treasury and mortgage securities markets have functioned well

Available indicators of Treasury market functioning remained stable over the first half of 2017. A variety of liquidity metrics—including bid-ask spreads, bid sizes, and estimates of transaction costs—either improved or remained unchanged over the period, displaying no notable signs of liquidity pressures. The agency MBS market also continued to function well. (For a detailed discussion of corporate bond market functioning, see the box "Recent Developments in Corporate Bond Market Liquidity" on pages 26–28 of the July 2017 *Monetary Policy Report*.)

Money market rates have moved up in line with increases in the FOMC's target range

Conditions in domestic short-term funding markets have remained stable so far in 2017. Yields on a broad set of money market instruments moved higher in response to the FOMC's policy actions in March and June. The effective federal funds rate generally traded near the middle of the target range and was closely tracked by the overnight Eurodollar rate. The spread between the three-month LIBOR (London interbank offered rate) and the OIS (overnight index swap) rate has returned to historical norms over the first half of 2017, declining from the elevated levels that prevailed at the end of last year around the implementation of the Securities and Exchange Commission money market fund reform.

Bank credit continued to expand, though at a slower pace than in 2016, and bank profitability improved

Aggregate credit provided by commercial banks continued to increase through the first quarter of 2017, though at a slower pace than in 2016, leaving the ratio of total commercial bank credit to nominal GDP slightly lower. The expansion of core loans slowed during 2017, consistent with banks' reports in the April SLOOS of weakened demand for most loan categories and tighter lending standards for commercial real estate loans. However, the growth of core loans appeared to be picking up somewhat during the second quarter. Measures of bank profitability have

continued to improve so far this year but remained below their historical averages.

Credit conditions in municipal bond markets have generally been stable

Credit conditions in municipal bond markets have generally remained stable since year-end. Over that period, yield spreads on 20-year general obligation municipal bonds over comparable-maturity Treasury securities were little changed on balance. Puerto Rico filed to enter a court-supervised process to restructure its debt after it failed to reach an agreement with bondholders, and several credit rating agencies downgraded the bond ratings of the state of Illinois. However, these events have had no noticeable effect on broader municipal bond markets.

International Developments

Foreign financial market conditions eased

Financial market conditions in both the advanced foreign economies (AFEs) and the emerging market economies (EMEs) have generally eased since January. Better-than-expected data releases, robust corporate earnings, and the passage of risk events—such as national elections in some European countries—boosted investor confidence. Broad equity indexes in advanced and emerging foreign economies rose further. In addition, spreads of emerging market sovereign bonds over U.S. Treasury securities narrowed, and capital flows into emerging market mutual funds picked up. Government bond yields in the AFEs generally remained very low, partly reflecting investor expectations that substantial monetary policy accommodation would be required for some time. In the United Kingdom, softer macroeconomic data and uncertainty about future policies and growth as the country begins the process of exiting the European Union also weighed on yields. However, AFE government bond yields picked up somewhat in late June, partly reflecting investors' focus on remarks by officials from some AFE central banks suggesting possible shifts toward less accommodative policy stances. In the euro area, bank supervisors intervened to prevent the disorderly failure of a few small to medium-sized lenders in Italy and Spain; business disruptions were minimal, and spillovers to other European banks were limited.

The dollar depreciated somewhat

Since the start of the year, the broad dollar index—a measure of the trade-weighted value of the dollar against foreign currencies—has depreciated about 5 percent, on balance, after rising more than 20 percent between mid-2014 and late 2016. The weakening since the start of the year partly reflected growing uncertainty about prospects for more expansionary U.S. fiscal policy as well as mounting confidence in the foreign economic outlook. The euro rose against the dollar following the French presidential election, and the Mexican peso appreciated substantially as the Mexican central bank tightened monetary policy and as investor concerns about the potential for substantial disruptions of U.S.–Mexico trade appeared to ease.

Economic activity in the AFEs grew at a solid pace

In the first quarter, real GDP grew at a solid pace in Canada, the euro area, and Japan, partly reflecting robust growth in fixed investment in all three economies. In contrast, economic growth slowed to a tepid pace in the United Kingdom, reflecting weaker consumption growth and a decline in exports. In most AFEs, economic survey indicators, such as purchasing manager surveys, generally remained consistent with continued economic growth at a solid pace during the second quarter.

Inflation leveled off in most AFEs...

In late 2016, consumer price inflation (measured as a 12-month percent change) rose substantially in most AFEs, partly reflecting increases in energy prices. Since then, inflation has leveled off in Japan and declined somewhat in the euro area as upward pressure from energy prices eased, core inflation stayed low, and wage growth was subdued even as unemployment rates declined further in both economies. In contrast, in the United Kingdom, headline inflation rose well above the Bank of England's (BOE) 2 percent target, largely reflecting upward pressure from the substantial sterling depreciation since the Brexit referendum in June 2016.

. . . and AFE central banks maintained highly accommodative monetary policies

AFE central banks kept their policy rates at historically low levels, and the Bank of Japan kept its target range for 10-year government bond yields near zero. The European Central Bank (ECB) maintained its asset purchase program, though it slightly reduced the pace of purchases, and the BOE completed the bond purchase program it announced last August. However, the Bank of Canada, BOE, and ECB have recently suggested that if growth continues to reduce resource slack, some policy accommodation could be withdrawn. The ECB remarked that the forces holding down inflation could be temporary. The BOE

indicated that some monetary accommodation might need to be removed if the tradeoff between supporting employment and expediting the return of inflation to its target is reduced.

In EMEs, Asian growth was solid . . .

Chinese economic activity was robust in the first quarter of 2017 as a result of solid domestic and external demand. More recent indicators suggest that growth moderated in the second quarter as Chinese authorities tightened financial conditions and as export growth slowed. In some other emerging Asian economies, growth picked up in early 2017 as a result of stronger external demand and manufacturing activity. However, growth of the region's exports, especially to China, slowed so far in the second quarter.

. . . and many Latin American economies continue their tepid recovery

In Mexico, growth decelerated a touch in the first quarter of 2017, partly reflecting a slowdown in private consumption following sharp hikes in domestic fuel prices. These price hikes, together with the effects of earlier peso depreciation on import prices, contributed to a sharp rise in Mexican inflation, which prompted the Bank of Mexico to further tighten monetary policy. Following a prolonged period of contraction, the Brazilian economy posted solid growth in the first quarter of 2017, partly reflecting a surge in exports and a strong harvest. However, domestic demand has remained very weak amid high unemployment and heightened political tensions, and indicators of economic activity have stepped down recently. In Brazil and some other South American economies, declining inflation has led central banks to reduce their policy interest rates.

Part 2: Monetary Policy

The Federal Open Market Committee raised the federal funds rate target range in March and June

Over the past year and a half, the Federal Open Market Committee (FOMC) has been gradually increasing its target range for the federal funds rate as the economy continued to make progress toward the Committee's objectives of maximum employment and price stability. After having raised the target range for the federal funds rate last December, the Committee decided to raise the target range again in March and in June, bringing it to 1 to 1¼ percent.[17] The FOMC's decisions reflected the progress the economy has made, and is expected to make, toward the Committee's objectives.

When the Committee met in March, it decided to raise the target range for the federal funds rate to ¾ to 1 percent. Available information suggested that the labor market had continued to strengthen even as growth in economic activity slowed during the first quarter. Inflation measured on a 12-month basis had moved up appreciably and was close to the Committee's 2 percent longer-run objective. Core inflation, which excludes volatile energy and food prices, continued to run somewhat below 2 percent.

The data available at the time of the June FOMC meeting suggested a rebound in economic activity in the second quarter, leaving the projected average pace of growth over the first half of the year at a moderate level. The labor market had continued to strengthen, with the unemployment rate falling nearly ½ percentage point since the beginning of the year to 4.3 percent in May, a low level by historical standards and modestly below the median of FOMC participants' estimates of its longer-run normal level. Inflation measured on a 12-month basis had declined over the previous few months but was still up significantly since last summer. Like the headline inflation measure, core inflation was running somewhat below 2 percent. With employment expected to remain near its maximum sustainable level, the Committee continued to expect that inflation would move up and stabilize around 2 percent over the next couple of years, in line with the Committee's longer-run objective. In view of realized and expected labor market conditions and inflation, the Committee decided to raise the target another ¼ percentage point to a range of 1 to 1¼ percent.

Monetary policy continues to support economic growth

Even with the gradual reductions in the amount of policy accommodation to date, the Committee judges that the stance of monetary policy remains accom-

[17] See Board of Governors of the Federal Reserve System (2017), "Federal Reserve Issues FOMC Statement," press release, March 15, https://www.federalreserve.gov/newsevents/pressreleases/monetary20170315a.htm; and Board of Governors of the Federal Reserve System (2017), "Federal Reserve Issues FOMC Statement," press release, June 14, https://www.federalreserve.gov/newsevents/pressreleases/monetary20170614a.htm.

modative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation. In particular, the federal funds rate appears to remain somewhat below its neutral level—that is, the level of the federal funds rate that is neither expansionary nor contractionary.

In evaluating the stance of monetary policy, policymakers routinely consult prescriptions from a variety of policy rules, which can serve as useful benchmarks. However, the use and interpretation of such prescriptions require careful judgments about the choice and measurement of the inputs to these rules as well as the implications of the many considerations these rules do not take into account. (See the box "Monetary Policy Rules and Their Role in the Federal Reserve's Policy Process" on pages 36–39 of the July 2017 *Monetary Policy Report*.)

Future changes in the federal funds rate will depend on the economic outlook as informed by incoming data

The FOMC has continued to emphasize that, in determining the timing and size of future adjustments to the target range for the federal funds rate, it will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal.

The Committee currently expects that the ongoing strength in the economy will warrant gradual increases in the federal funds rate, and that the federal funds rate will likely remain, for some time, below the levels that the Committee expects to prevail in the longer run. Consistent with this outlook, in the most recent Summary of Economic Projections, which was compiled at the time of the June FOMC meeting, most FOMC participants projected that the appropriate level of the federal funds rate would be below its longer-run level through 2018.[18]

The size of the Federal Reserve's balance sheet has remained stable so far this year

To help maintain accommodative financial conditions, the Committee has continued its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and rolling over maturing Treasury securities at auction. Consequently, the Federal Reserve's total assets have held steady at around $4.5 trillion, with holdings of U.S. Treasury securities at $2.5 trillion and holdings of agency debt and agency mortgage-backed securities at approximately $1.8 trillion. Total liabilities on the Federal Reserve's balance sheet were also mostly unchanged over the first half of 2017.

The Committee intends to implement a balance sheet normalization program

In June, policymakers augmented the Committee's Policy Normalization Principles and Plans issued in September 2014 by providing additional details regarding the approach the FOMC intends to use to reduce the Federal Reserve's holdings of Treasury and agency securities once normalization of the federal funds rate is well under way.[19] The Committee intends to gradually reduce the Federal Reserve's securities holdings by decreasing its reinvestment of the principal payments it receives from the securities held in the System Open Market Account. Specifically, such payments will be reinvested only to the extent that they exceed gradually rising caps. Initially, these caps will be set at relatively low levels to limit the volume of securities that private investors will have to absorb. The Committee currently expects that, provided the economy evolves broadly as anticipated, it would likely begin to implement the program this year. In addition, the Committee affirmed that changing the target range for the federal funds rate remains its primary means of adjusting the stance of monetary policy. (See the box "Addendum to the Policy Normalization Principles and Plans" on page 40 of the July 2017 *Monetary Policy Report*.)

The Federal Reserve's implementation of monetary policy has continued smoothly

The Federal Reserve successfully raised the effective federal funds rate in March and June of 2017 by increasing the interest rate paid on reserve balances along with the interest rate offered on overnight

[18] See the June 2017 Summary of Economic Projections, which appeared as an addendum to the minutes of the June 13–14, 2017, meeting of the Federal Open Market Committee and is included as Part 3 of the July 2017 *Monetary Policy Report*.

[19] See Board of Governors of the Federal Reserve System (2017), "FOMC Issues Addendum to the Policy Normalization Principles and Plans," press release, June 14, https://www.federalreserve.gov/newsevents/pressreleases/monetary20170614c.htm.

reverse repurchase agreements (ON RRPs). Specifically, the Federal Reserve increased the interest rate paid on required and excess reserve balances to 1.00 percent in March and 1.25 percent in June while increasing the ON RRP offering rate to 0.75 percent in March and 1.00 percent in June. In addition, the Board of Governors approved ¼ percentage point increases in the discount rate (the primary credit rate) in March and June. In both March and June, the effective federal funds rate rose near the middle of its new target range amid orderly trading conditions in money markets, closely tracked by most other overnight money market rates.

Usage of the ON RRP facility, which had increased late last year as a result of higher demand by government money market funds in the wake of last October's money fund reform, has declined some, on average, in recent months. However, usage has remained somewhat above its levels of one year ago.

3 Financial Stability

A stable financial system promotes economic welfare through many channels: It facilitates household savings to purchase a home, finance a college education, and smooth consumption in response to job loss and other adverse developments; it promotes responsible risk-taking and economic growth by channeling savings to firms to start new businesses and expand existing businesses; and it spreads risk across investors.

A financial system is considered stable when financial institutions—banks, savings and loans, and other financial product and service providers—and financial markets are able to provide households, communities, and businesses with the resources, services, and products they need to invest, grow, and participate in a well-functioning economy. Disruptions to these activities of the financial system have arisen during, and contributed to, stressed macroeconomic environments, and financial stability in its most basic form could be thought of as a condition in which financial institutions and markets are able to support consumers, communities, and businesses during such stressed conditions. Accordingly, the Federal Reserve's objective to promote financial stability strongly complements the goals of price stability and full employment. In pursuit of continued financial stability, the Federal Reserve monitors the potential buildup of risks to financial stability; uses such analyses to inform Federal Reserve responses, including the design of stress-test scenarios and decisions regarding other policy tools such as the countercyclical capital buffer (CCyB); works with other domestic agencies directly and through the Financial Stability Oversight Council (FSOC); and engages with the global community in monitoring, supervision, and regulation that mitigate the risks and consequences of financial instability domestically and abroad.

Moreover, the Federal Reserve promotes financial stability through its supervision and regulation of financial institutions. A central tenet of the Federal Reserve's efforts in promoting financial stability is the adoption of an approach to supervision and regulation that accounts for the stability of the financial system as a whole, in addition to a traditional, microprudential approach, which focuses on the safety and soundness of individual institutions. In particular, the first approach informs the supervision of systemically important financial institutions (SIFIs), including large bank holding companies (BHCs), the U.S. operations of certain foreign banking organizations, and financial market utilities (FMUs). In addition, the Federal Reserve serves as a "consolidated supervisor" of nonbank financial companies designated by the FSOC as institutions whose distress or failure could pose a threat to the stability of the U.S. financial system as a whole (see "Financial Stability Oversight Council Activities" later in this section). Enhanced standards for the largest, most systemic firms promote the safety of the overall system and minimize the regulatory burden on smaller, less systemic institutions.

This section discusses key financial stability activities undertaken by the Federal Reserve over 2017, which include monitoring risks to financial stability; promoting a perspective on the supervision and regulation of large, complex financial institutions that accounts for the potential spillovers from distress at such institutions to the financial system and broader economy; and engaging in domestic and international cooperation and coordination. Each of these activities is informed by research into financial stability issues (see box 1 for a summary of some recent research by Federal Reserve Board staff on financial stability topics).

Some of these activities are also discussed elsewhere in this annual report. A broader set of economic and financial developments are discussed in section 2, "Monetary Policy and Economic Developments," with the discussion that follows concerning surveillance of economic and financial developments focused on financial stability. The full range of activities associated with supervision of SIFIs, designated nonbank companies, and designated FMUs is discussed in section 4, "Supervision and Regulation."

Box 1. 2017 Research on Financial Stability

The Federal Reserve's approach to promoting financial stability builds on a substantial and growing body of research on the factors that create vulnerabilities in the financial system and how prudential policies can mitigate such vulnerabilities.

Understanding of the array of factors affecting financial stability is incomplete and evolving. Consequently, Federal Reserve staff participate actively in research on financial stability and related issues. This research engages the broader research community in policy issues and often involves collaboration with academia and researchers at other domestic and international institutions.

The research efforts by Federal Reserve staff reflect their attempts to identify and address the topics of concern to the Federal Reserve, and the views expressed are those of the individual authors and not those of the Federal Reserve. Examples of staff research on financial stability in 2017 include the following:

- **Theoretical and empirical studies on financial regulation design**
  - A working paper analyzes optimal bank regulation in the presence of credit and run risk.[1]
  - A working paper studies optimal regulation in primary credit markets and secondary over-the-counter markets.[2]
  - A note presents an empirical framework to evaluate stress-test scenarios.[3]
- **The financial sector and the macroeconomy**
  - A working paper provides a macro model incorporating bank runs and panics.[4]
  - A published paper documents the importance of occasionally binding financial frictions in understanding the nonlinear behavior of macroeconomic aggregates.[5]

[1] See Anil K. Kashyap, Dimitrios P. Tsomocos, and Alexandros P. Vardoulakis (2017), "Optimal Bank Regulation in the Presence of Credit and Run Risk," Finance and Economics Discussion Series 2017-097 (Washington: Board of Governors of the Federal Reserve System, September), https://dx.doi.org/10.17016/FEDS.2017.097.

[2] See David M. Arseneau, David E. Rappoport, and Alexandros P. Vardoulakis (2017), "Private and Public Liquidity Provision in Over-the-Counter Markets," Finance and Economics Discussion Series 2017-033 (Washington: Board of Governors of the Federal Reserve System, March), https://dx.doi.org/10.17016/FEDS.2017.033.

[3] See Bora Durdu, Rochelle Edge, and Daniel Schwindt (2017), "Measuring the Severity of Stress-Test Scenarios," FEDS Notes (Washington: Board of Governors of the Federal Reserve System, May 5), https://dx.doi.org/10.17016/2380-7172.1970.

[4] See Mark Gertler, Nobuhiro Kiyotaki, and Andrea Prestipino (2017), "A Macroeconomic Model with Financial Panics," International Finance Discussion Papers 1219 (Washington: Board of Governors of the Federal Reserve System, December), https://dx.doi.org/10.17016/IFDP.2017.1219.

[5] See Luca Guerrieri and Matteo Iacoviello (2017), "Collateral Constraints and Macroeconomic Asymmetries," *Journal of Monetary Economics,* vol. 90 (October), pp. 28–49.

(continued on next page)

Monitoring Risks to Financial Stability

Financial institutions are linked together through a complex set of relationships, and their condition depends on the economic condition of the nonfinancial sector. In turn, the condition of the nonfinancial sector hinges on the strength of financial institutions' balance sheets, as the nonfinancial sector obtains funding through the financial sector. Monitoring risks to financial stability is aimed at better understanding these complex linkages and has been an important part of Federal Reserve efforts in pursuit of overall economic stability.

In order to understand the interaction between the financial and nonfinancial sectors and develop appropriate policy responses, the Federal Reserve maintains a flexible, forward-looking financial stability monitoring program to help inform policymakers of the financial system's vulnerabilities to a wide range of potential adverse shocks. Such a monitoring program is a critical part of a broader program in the Federal Reserve System to assess and address vulnerabilities in the U.S. financial system.

Each quarter, Federal Reserve Board staff assess a set of vulnerabilities relevant for financial stability, including but not limited to asset valuations and risk appetite, leverage in the financial system, liquidity risks and maturity transformation by the financial system, and borrowing by the nonfinancial sector (households and nonfinancial businesses). These monitoring efforts inform internal discussions con-

Box 1. 2017 Research on Financial Stability—*continued*

- —A published paper discusses the coordination of monetary and macroprudential policymaking.[6]
- —A published paper examines the effects of credit default swaps on firm debt issuance and investment decisions.[7]

- **Financial markets and financial stability**
  - —A published paper analyzes the trading activities of high-frequency traders.[8]
  - —An essay discusses the advent of fintech (emerging financial technologies) and its connections with financial stability.[9]
  - —A working paper looks at reversals in global financial integration through the funding liquidity lens.[10]
  - —A working paper studies the effect of the Fed's Treasury portfolio composition on Treasury yields.[11]

- **Bank lending behavior**
  - —A working paper analyzes the effects of quantitative easing on bank lending standards.[12]
  - —A working paper uses a macro model to analyze the risk channel of monetary policy.[13]
  - —A working paper documents that banks more exposed to regions with high house-price-to-income ratios before the Great Recession had higher mortgage delinquency and charge-off rates during the recession.[14]

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6 See Bianca De Paoli and Matthias Paustian (2017), "Coordinating Monetary and Macroprudential Policies," *Journal of Money, Credit and Banking,* vol. 49 (March–April), pp. 319–49.

7 See Matthew Darst and Ehraz Refayet (forthcoming), "Credit Default Swaps in General Equilibrium: Endogenous Default and Credit Spread Spillovers," *Journal of Money, Credit and Banking*.

8 See Evangelos Benos, James Brugler, Erik Hjalmarsson, and Filip Zikes (2017), "Interactions among High-Frequency Traders," *Journal of Financial and Quantitative Analysis,* vol. 52 (August), pp. 1375–1402.

9 See John Schindler (2017), "FinTech and Financial Innovation: Drivers and Depth," Finance and Economics Discussion Series 2017-081 (Washington: Board of Governors of the Federal Reserve System, August), https://dx.doi.org/10.17016/FEDS.2017.081.

10 See Amir Akbari, Francesca Carrieri, and Aytek Malkhozov (2017), "Reversals in Global Market Integration and Funding Liquidity," International Finance Discussion Papers 1202 (Washington: Board of Governors of the Federal Reserve System, March), https://dx.doi.org/10.17016/IFDP.2017.1202.

11 See Jeffrey Huther, Jane Ihrig, and Elizabeth Klee (2017), "The Federal Reserve's Portfolio and Its Effect on Interest Rates," Finance and Economics Discussion Series 2017-075 (Washington: Board of Governors of the Federal Reserve System, July), https://dx.doi.org/10.17016/FEDS.2017.075.

12 See Robert Kurtzman, Stephan Luck, and Tom Zimmermann (2017), "Did QE Lead Banks to Relax Their Lending Standards? Evidence from the Federal Reserve's LSAPs," Finance and Economics Discussion Series 2017-093 (Washington: Board of Governors of the Federal Reserve System, September), https://dx.doi.org/10.17016/FEDS.2017.093.

13 See Elena Afanasyeva and Jochen Güntner (2018), "Bank Market Power and the Risk Channel of Monetary Policy," Finance and Economics Discussion Series 2018-006 (Washington: Board of Governors of the Federal Reserve System, January), https://www.federalreserve.gov/econres/feds/files/2018006pap.pdf.

14 See Gazi I. Kara and Cindy M. Vojtech (2017), "Bank Failures, Capital Buffers, and Exposure to the Housing Market Bubble," Finance and Economics Discussion Series 2017-115 (Washington: Board of Governors of the Federal Reserve System, November), https://dx.doi.org/10.17016/FEDS.2017.115.

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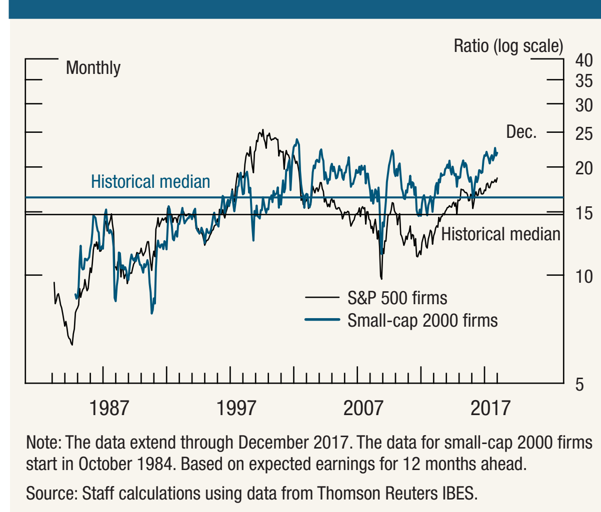
cerning policies to promote financial stability, such as supervision and regulatory policies as well as monetary policy. They also inform Federal Reserve interactions with broader monitoring efforts, such as those by the FSOC and the Financial Stability Board (FSB).

Asset Valuations and Risk Appetite

Overvalued assets are a fundamental source of vulnerability because the unwinding of high prices can be destabilizing, especially if the assets are widely held and the values are supported by excessive leverage, maturity transformation, or risk opacity. Moreover, stretched asset valuations are likely to be an indicator of a broader buildup in risk-taking. Nonetheless, it is very difficult to judge whether an asset price is overvalued relative to fundamentals. As a result, analysis typically includes a broad range of possible valuation metrics and tracks developments in areas in which asset prices are rising particularly rapidly, into which investor flows have been considerable, or where volatility has been at unusually low or high levels.

Across markets, valuation pressures remained elevated and continued to edge up. In equity markets, the forward price-to-earnings ratio increased noticeably, in particular for large firms (figure 1). At the same time, estimates of the equity risk premium—for example, the gap between the expected return on equity and the long-term Treasury yield—declined, and such measures suggest that investors demanded a relatively low premium to bear the risk of holding equities. Moreover, both realized and expected volatility in equity markets declined over 2017 to very low

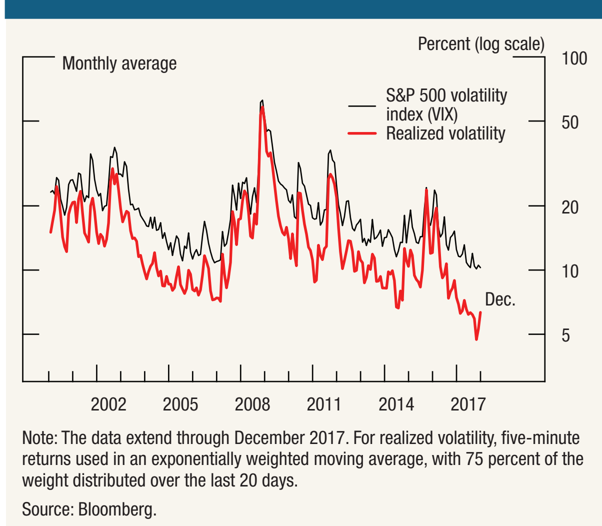
Figure 1. Forward price-to-earnings ratio, 1983–2017



Note: The data extend through December 2017. The data for small-cap 2000 firms start in October 1984. Based on expected earnings for 12 months ahead.

Source: Staff calculations using data from Thomson Reuters IBES.

Figure 2. S&P 500 volatility, 2000–17



Note: The data extend through December 2017. For realized volatility, five-minute returns used in an exponentially weighted moving average, with 75 percent of the weight distributed over the last 20 days.

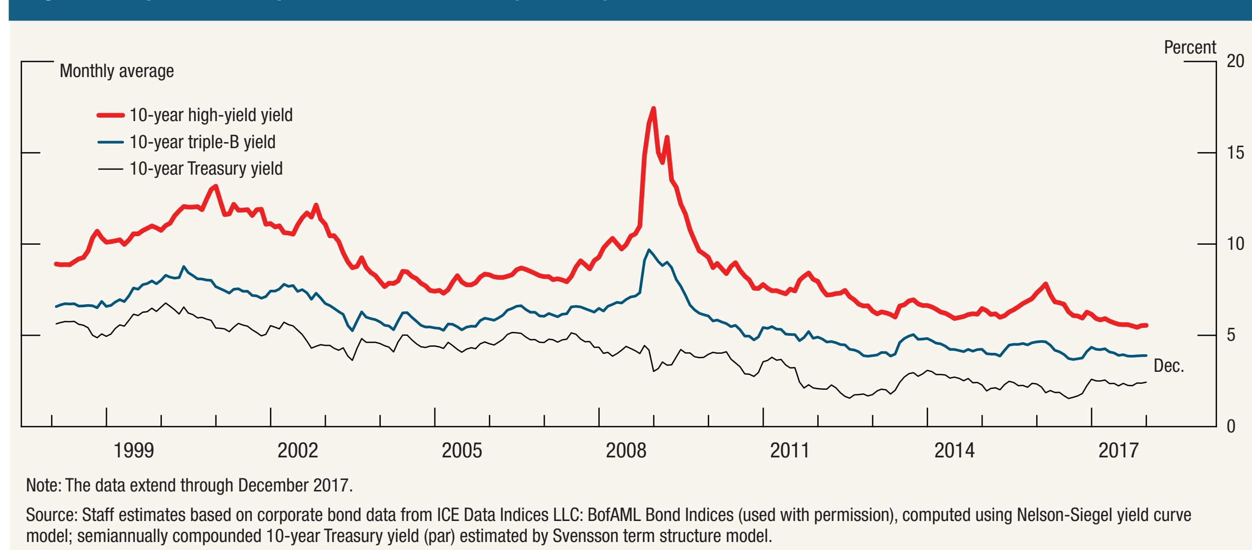
Source: Bloomberg.

levels by historical standards, although realized volatility picked up late in the year (figure 2).

Throughout 2017, yields on Treasury securities remained below historical averages; however, they were higher than in 2016. In the corporate bond market, spreads of high-yield and investment-grade bonds relative to comparable-maturity Treasury yields, a gauge of the compensation that investors demand for exposure to corporate credit risk, narrowed over the year (figure 3). Strong demand for exposure to corporate credit risk was also apparent in the further increase in leveraged lending with limited degrees of investor protection—termed "covenant lite" loans. Such loans continue to account for a high fraction of market volume (figure 4).

An area of ongoing valuation pressures over the past year was commercial real estate (CRE), with prices increasing faster than the historical trend and, for industrial and multifamily properties, with net operating income relative to property prices (capitalization rates) continuing to decline from already low levels. Residential home prices also continued to rise in 2017, although price increases nationally in that year were not outsized relative to improvements in fundamentals. For example, house prices relative to rents—one measure of valuations—rose moderately in 2017,

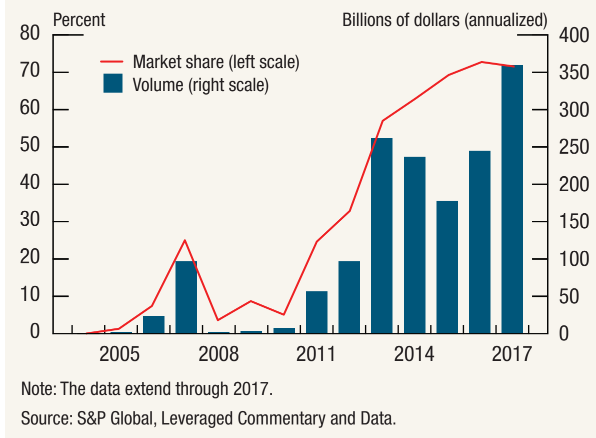
Figure 3. Corporate bond spreads to similar-maturity Treasury securities, 1998–2017



Note: The data extend through December 2017.

Source: Staff estimates based on corporate bond data from ICE Data Indices LLC: BofAML Bond Indices (used with permission), computed using Nelson-Siegel yield curve model; semiannually compounded 10-year Treasury yield (par) estimated by Svensson term structure model.

Figure 4. Volume of covenant-lite loans and share of such loans in the leveraged lending market, 2004–17



Note: The data extend through 2017.

Source: S&P Global, Leveraged Commentary and Data.

with an increase similar to annual changes over the previous five years.

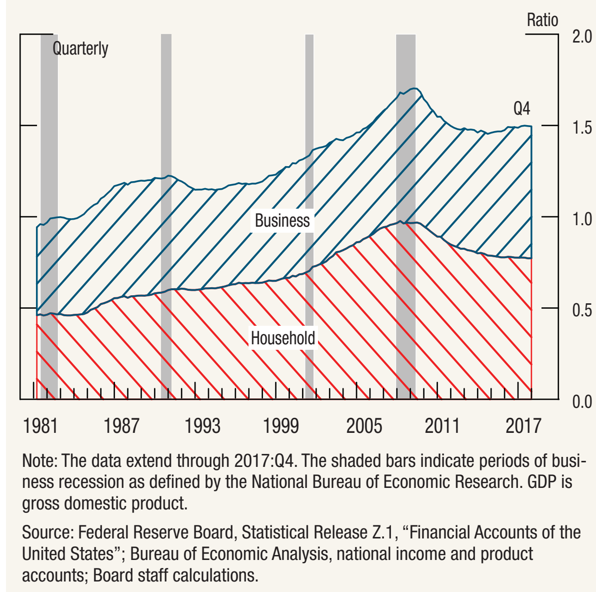
Borrowing by the Nonfinancial Sector

Excessive borrowing by the private nonfinancial sector has been an important contributor to past financial crises. Highly indebted households and nonfinancial businesses may be vulnerable to negative shocks to incomes or asset values and may be forced to curtail spending, which could amplify the effects of financial shocks. In turn, losses among households and businesses can lead to mounting losses at financial institutions, creating an adverse feedback loop in which weakness among households, nonfinancial businesses, and financial institutions causes further declines in income and accelerated financial losses, potentially leading to financial instability and a sharp contraction in economic activity.

Vulnerabilities associated with nonfinancial-sector leverage remained moderate overall in 2017. Nominal private nonfinancial-sector credit grew a bit less than 5 percent over 2017 and a shade faster than nominal gross domestic product (GDP), leaving the private nonfinancial-sector credit-to-GDP ratio elevated but stable at approximately 150 percent, a level similar to that in the mid-2000s (figure 5).

While borrowing by the total nonfinancial private sector remained moderate, leverage among riskier corporate borrowers has stayed at or near multidecade highs, particularly for speculative-grade and unrated firms (figure 6). Despite high leverage, interest expense ratios were low by historical standards, even among higher-risk firms, as were measures of

Figure 5. Nonfinancial-sector credit-to-GDP ratio, 1981–2017



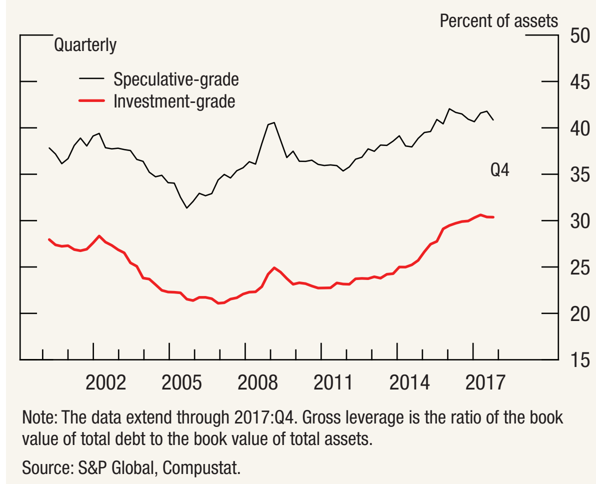
Note: The data extend through 2017:Q4. The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research. GDP is gross domestic product.

Source: Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States"; Bureau of Economic Analysis, national income and product accounts; Board staff calculations.

expected default based on accounting and stock return data, especially outside the oil sector. Nonetheless, high leverage could leave some parts of the corporate sector vulnerable to difficulties should adverse shocks materialize.

Gross issuance of high-yield corporate bonds was strong throughout 2017, and gross issuance of leveraged loans was the strongest over the past decade (figure 7). A sizable fraction of leveraged loan issuance, however, was used for refinancing purposes.

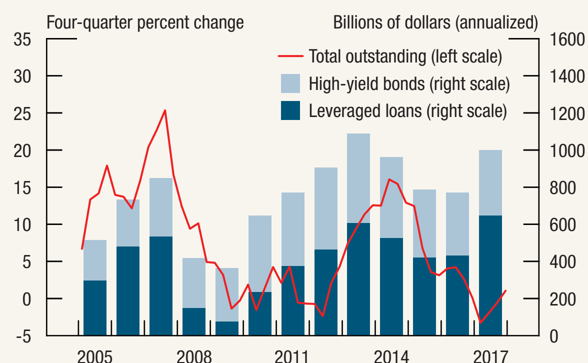
Figure 6. Gross leverage for speculative-grade and investment-grade firms, 2000–17



Note: The data extend through 2017:Q4. Gross leverage is the ratio of the book value of total debt to the book value of total assets.

Source: S&P Global, Compustat.

Figure 7. Leveraged loan and high-yield bond issuance, 2005–17



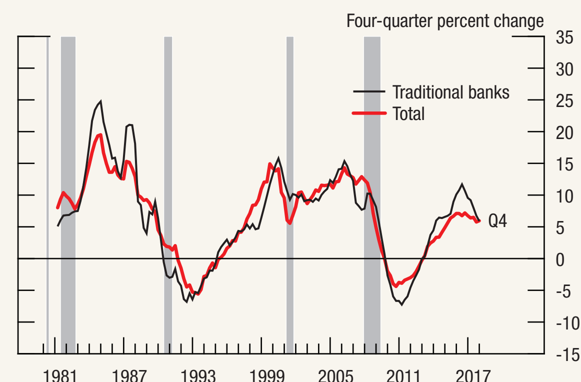
Note: Total outstanding is quarterly data, starting in 2005:Q1. It includes bonds and loans to financial and nonfinancial companies, as well as unrated bonds and loans.

Source: S&P Global, Leveraged Commentary and Data; Mergent Corporate Fixed Income.

The four-quarter percent change in net issuance of risky debt increased throughout the year.

CRE loan growth remained strong over the past year (figure 8). CRE-related loan growth at banks also continued to be strong but began to decline from its peak in 2016. This decline in bank loan growth rates was likely due to a tightening of CRE lending standards. Issuance of commercial mortgage-backed securities, however, remained robust through the fourth quarter.

Figure 8. Total holdings of CRE debt, by holder, 1981–2017



Note: The data extend through 2017:Q4. Total consists of insurance companies, asset-backed securities issuers, real estate investment trusts, government-sponsored enterprises, finance companies, pension funds, and the rest of the world (all entities not residing in the United States that engage in transactions with U.S. residents). The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research.

Source: Federal Reserve Board, Statistical Release Z.1, "Financial Accounts of the United States"; Bureau of Economic Analysis, national income and product accounts.

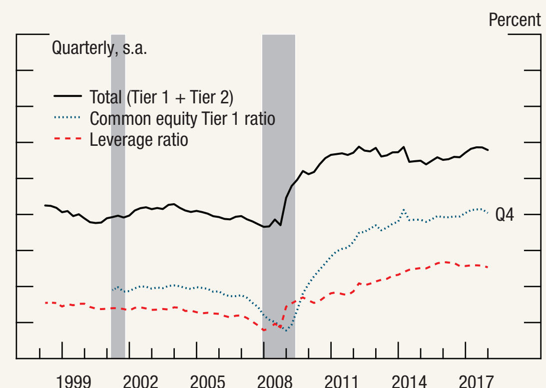
Household debt growth continued to be modest over the past year, and the debt-to-income ratio for households continued to inch down. Aggregate borrowing relative to income in the household sector declined significantly from its peak, and recent borrowing remained skewed toward low-risk households.

Leverage in the Financial System

Vulnerabilities related to financial-sector leverage appear low. The financial strength of the banking sector continued to improve in 2017, and stronger capital positions at domestic banking organizations contributed to the improved resilience of the U.S. financial system. Regulatory capital remained at historically high levels for most large domestic banks. The ratio of Tier 1 common equity to risk-weighted assets stayed near 12 percent, on average, for BHCs in 2017 (figure 9). Moreover, the leverage ratio, which looks at common equity relative to total assets without adjusting for risk, also remained at levels substantially above pre-crisis norms. Finally, all 34 firms participating in the Federal Reserve's supervisory stress tests for 2017 were able to maintain capital ratios above required minimums to absorb losses from a severe macroeconomic shock.[1]

[1] The 2017 supervisory stress-test methodology and results are available on the Board's website at https://www.federalreserve.gov/publications/2017-june-dodd-frank-act-stress-test-preface.htm.

Figure 9. Regulatory capital ratios, all BHCs, 1998–2017



Note: The data extend through 2017:Q4. Prior to 2014:Q1, the numerator of the common equity Tier 1 ratio is Tier 1 common capital. Beginning in 2014:Q1 for advanced-approaches bank holding companies (BHCs) and in 2015:Q1 for all other BHCs, the numerator is common equity Tier 1 capital. The data for the common equity Tier 1 ratio start in 2001:Q1. An advanced-approaches BHC is defined as a large internationally active banking organization, generally with at least $250 billion in total consolidated assets or at least $10 billion in total on-balance-sheet foreign exposure. The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research.

Source: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies.

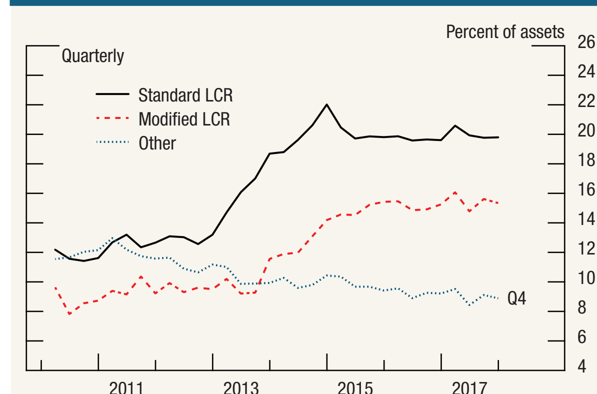
Overall, leverage at nonbank financial firms remains significant. While, in the aggregate, dealers continue to shrink their on-balance-sheet leverage to levels far below those seen leading up to and during the financial crisis, there are signs that nonbank financial leverage has been increasing in some areas. For example, the provision of margin credit to equity investors such as hedge funds has risen substantially. Insurance companies' capital levels are robust, and overall risk exposures are generally lower than those typical of commercial banks.

Liquidity Risks and Maturity Transformation by the Financial System

Vulnerabilities associated with liquidity risks and maturity transformation remained low in 2017, partly reflecting regulations introduced since the 2008 financial crisis. In the banking sector, the largest banks hold high levels of high-quality liquid assets (figure 10). The reliance of global systemically important banks (G-SIBs) on short-term wholesale funding is near post-crisis lows. At the same time, the share of core deposits in total liabilities for G-SIBs is historically high.

In the nonbanking sector, the amount of assets managed by money market mutual funds (also referred to as money market funds, or MMFs) increased marginally throughout 2017, with little change to portfolio composition. More than one year after the MMF reform, assets under management at prime MMFs edged up only modestly.[2] The weighted-average maturity of assets held by government and agency MMFs declined noticeably throughout 2017, resulting in lower maturity transformation.

Figure 10. High-quality liquid assets, by BHC type, 2010–17



Note: The data extend through 2017:Q4. High-quality liquid assets (HQLA) are estimated by adding excess reserves to an estimate of securities that qualify for HQLA. Securities are estimated from Form FR Y-9C. Haircuts and Level 2 asset limitations are incorporated into the estimate (Level 2 assets can represent only a limited share of the HQLA stock). LCR is liquidity coverage ratio; BHC is bank holding company. Other is defined as BHCs not subject to the LCR.

Source: Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies, and Form FR 2900, Report of Transaction Accounts, Other Deposits, and Vault Cash.

Overall issuance of securitized products remained below pre-crisis levels for most asset classes, although the issuance of asset-backed securities (ABS) was strong. ABS issuance partly reflected the securitization of assets that were not typically securitized in previous years, including aircraft leases and mobile phone contracts. Currently, securitized products incorporate less maturity transformation than before the financial crisis, with volumes of asset-backed commercial paper being particularly low. Nontraditional liabilities of insurance companies, including funding-agreement-backed securities, grew significantly in 2017 even if outstanding amounts remained relatively small.

Liquidity transformation at open-end funds that hold less-liquid assets continues to pose a moderate amplification risk, because investors can typically redeem shares daily while the underlying assets may trade in less-liquid markets. Liquidity-transformation risk is also pronounced at exchange-traded funds that invest in certain asset classes, including bank loans, and that provide leveraged and inverse payoffs relative to benchmark indexes. While the limited size of these products suggests that their behavior may not have long-lasting effects on asset prices, their leverage and reliance on markets in which liquidity may be limited during stress periods entail that such products could amplify price swings across markets for short periods.

Financial Stability and the Supervision and Regulation of Large, Complex Financial Institutions

Large, complex financial institutions interact with financial markets and the broader economy in a manner that may—during times of stress and in the absence of an appropriate regulatory framework and effective supervision—lead to financial instability.[3]

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[2] For additional information, see Securities and Exchange Commission (2014), "Money Market Fund Reform; Amendments to Form PF," final rule (Release No. 33-9616), July 23, https://www.sec.gov/rules/final/2014/33-9616.pdf.

[3] For more on the Federal Reserve's supervision and regulation of large institutions, especially related to the integration of the microprudential objective of safety and soundness of individual institutions with the macroprudential efforts outlined later in this section, see section 4, "Supervision and Regulation."

Key Supervisory Activities

One essential element of enhanced supervision of large banking organizations is the stress-testing process, which includes the stress tests mandated by the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act) and the Comprehensive Capital Analysis and Review (CCAR). In addition to fostering the safety and soundness of the participating institutions, stress tests embed elements focused on the stability of the financial system as a whole by incorporating the following:

- Examining the loss-absorbing capacity of institutions under a common macroeconomic scenario that has features similar to the strains experienced in a severe recession and which includes, as appropriate, identified salient risks
- Conducting a simultaneous exercise across large institutions to understand the potential for correlated exposures
- Considering the effects of counterparty distress on the largest, most interconnected firms

The results from the 2017 supervisory stress tests conducted as part of the Dodd-Frank Act stress tests (DFAST) and CCAR were released in June 2017.[4] Thirteen of the largest and most complex banks were required, for the first time, to meet the minimum supplementary leverage ratio of 3 percent as part of the quantitative assessment. The DFAST and CCAR results suggest that all of the firms evaluated have sufficient capital to remain above minimum requirements through a severely adverse macroeconomic scenario. The severely adverse scenario featured a severe global recession that was accompanied by a period of heightened stress in corporate loan and CRE markets. The level of severity reflected the Board's scenario design framework for stress testing, which includes countercyclical elements. The international part of the scenario featured severe recessions in the euro area, the United Kingdom, and Japan and a marked growth slowdown in developing Asia.

Key Regulatory Activities

Over the course of 2017, the Federal Reserve took a number of steps to continue improving the resilience of financial institutions and the overall financial system. This section summarizes steps that bear most directly on financial stability.

In December 2017, the Federal Reserve Board voted to reaffirm the CCyB at the current level of 0 percent.[5] The CCyB is a tool that the Board can use to increase the resilience of the financial system by raising capital requirements on internationally active banking organizations when there is an elevated risk of above-normal losses in the future. In evaluating the appropriate size of the U.S. CCyB, the Board monitors a wide range of financial and economic indicators and considers their implications for financial system vulnerabilities, including but not limited to asset valuation pressures, risk appetite, leverage in the financial and nonfinancial sectors, and maturity and liquidity transformation in the financial sector.

The Board also issued a final rule that improved the resolvability and resilience of systemically important U.S. banking organizations and systemically important foreign banking organizations. Covered entities would be subject to restrictions related to the terms of their noncleared qualified financial contracts.

In order to increase the transparency of its stress-testing program while maintaining its ability to test the resilience of the nation's largest and most complex banking organizations, the Board requested comments on a set of proposals that relate to the disclosure of details about supervisory stress-test models; to the Board's approach to model development, validation, and use; and to the framework for the design of the annual hypothetical economic scenarios.

The proposals on which the Board requested comments included expanding the descriptions of supervisory models and communicating the loss rates that supervisory models assign to subgroups of loans.[6] In

[4] For additional information on DFAST, see Board of Governors of the Federal Reserve System (2017), "Federal Reserve Board Releases Results of Supervisory Bank Stress Tests," press release, June 22, https://www.federalreserve.gov/newsevents/pressreleases/bcreg20170622a.htm. For more details on CCAR, see Board of Governors of the Federal Reserve System (2017), "Federal Reserve Releases Results of Comprehensive Capital Analysis and Review (CCAR)," press release, June 28, https://www.federalreserve.gov/newsevents/pressreleases/bcreg20170628a.htm.

[5] See Board of Governors of the Federal Reserve System (2017), "Federal Reserve Board Announces It Has Voted to Affirm Countercyclical Capital Buffer (CCyB) at Current Level of 0 Percent," press release, December 1, https://www.federalreserve.gov/newsevents/pressreleases/bcreg20171201a.htm.

[6] For the notice of enhanced model disclosure, see Board of Governors of the Federal Reserve System (2017), "Enhanced Disclosure of the Models Used in the Federal Reserve's Supervisory Stress Test," notification with request for public comment (Docket No. OP-1586), *Federal Register,* vol. 82 (December 15),

addition, the Board built on previous disclosures and detailed the principles and policies that underpin the development of its stress-testing models.[7] Finally, the Board proposed to enhance the transparency of the stress-testing economic scenarios by providing a quantitative discussion of the hypothetical path of house prices and by providing notice that the Board is considering incorporating variables related to funding risks into the hypothetical scenarios.

For more information on the Board's regulatory activities, see section 4, "Supervision and Regulation."

Domestic and International Cooperation and Coordination

The Federal Reserve cooperated and coordinated with both domestic and international institutions in 2017 to promote financial stability.

Financial Stability Oversight Council Activities

As mandated by the Dodd-Frank Act, the FSOC was created in 2010 and is chaired by the Treasury Secretary (box 2). It establishes an institutional framework for identifying and responding to sources of systemic risk. The Federal Reserve Chairman is a member of the FSOC. Through collaborative participation in the FSOC, U.S. financial regulators monitor not only institutions, but also the financial system as a whole. The Federal Reserve, in conjunction with other participants, assists in monitoring financial risks, analyzes the implications of those risks for financial stability, and identifies steps that can be taken to mitigate those risks. In addition, when an institution is designated by the FSOC as systemically important, the Federal Reserve assumes responsibility for supervising that institution.

In 2017, the Federal Reserve worked, in conjunction with other FSOC participants, on the following major initiatives:

- **Review of asset management products and activities**. Following the release of a public statement on April 18, 2016, that provided an update on the FSOC's review of potential risks to U.S. financial stability that may arise from asset management products and activities, the FSOC continued its work to assess the potential for financial stability risks to arise from certain asset management products and activities.[8] The FSOC's discussion on liquidity and redemption risks resulted in several suggestions being passed to the Securities and Exchange Commission (SEC) for consideration on the risk-management and disclosure practices of mutual funds. The council further conducted analysis on the use of leverage in investment vehicles; specifically, the analysis focused on the potential vulnerability of assets purchased with borrowed short-term funds to selling pressures in stress conditions, as well as the exposures to other market participants created by leverage.
- **Nonbank designations process.** On September 29, 2017, the FSOC voted to rescind its determination that material financial distress at American International Group, Inc. (AIG), could pose a threat to U.S. financial stability, and that the company should be subject to supervision by the Federal

Box 2. Regular Reporting on Financial Stability Oversight Council Activities

The Federal Reserve cooperated and coordinated with domestic agencies in 2017 to promote financial stability, including through the activities of the Financial Stability Oversight Council (FSOC).

Meeting minutes. In 2017, the FSOC met eight times, including at least once a quarter. The minutes for each meeting are available on the U.S. Treasury website (https://www.treasury.gov/initiatives/fsoc/council-meetings/Pages/meeting-minutes.aspx).

FSOC annual report. On December 14, 2017, the FSOC released its seventh annual report (https://www.treasury.gov/initiatives/fsoc/studies-reports/Documents/FSOC_2017_Annual_Report.pdf), which includes a review of key developments in 2017 and a set of recommended actions that could be taken to ensure financial stability and to mitigate systemic risks that affect the economy.

For more on the FSOC, see https://www.treasury.gov/initiatives/fsoc/Pages/home.aspx.

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pp. 59547-55, https://www.gpo.gov/fdsys/pkg/FR-2017-12-15/pdf/2017-26856.pdf.

[7] For the proposed statement of stress-testing policy, see Board of Governors of the Federal Reserve System (2017), "Stress Testing Policy Statement," proposed rule (Docket No. OP-1587), *Federal Register,* vol. 82 (December 15), pp. 59528-33, https://www.gpo.gov/fdsys/pkg/FR-2017-12-15/pdf/2017-26857.pdf.

[8] For more details, see U.S. Department of the Treasury (2016), "Financial Stability Oversight Council Releases Statement on Review of Asset Management Products and Activities," press release, April 18, https://www.treasury.gov/press-center/press-releases/Pages/jl0431.aspx.

Reserve and enhanced prudential standards.[9] The FSOC made the decision that AIG's potential to pose material financial distress to U.S. financial stability was substantially reduced after the company had decreased its overall exposures to capital markets, and the FSOC reevaluated the potential for the liquidation of certain products to disrupt market functioning since its determination in June 2013.

Financial Stability Board Activities

The Federal Reserve participates in international bodies, such as the FSB, given the interconnected global financial system and the global activities of large U.S. financial institutions. The FSB is an international body that monitors the global financial system and promotes financial stability through the adoption of sound policies across countries. The Federal Reserve participates in the FSB, along with the SEC and the U.S. Treasury.

In 2017, the Federal Reserve continued its active participation in the FSB. The FSB is engaged in several issues, including monitoring of shadow banking activities, coordination of regulatory standards for global systemically important financial institutions, asset management, fintech (emerging financial technologies), evaluating the effects of reforms, and development of effective resolution regimes for large financial institutions. In January, the FSB released for consultation proposed guidance for central counterparty resolution and resolution planning.[10]

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9 See U.S. Department of the Treasury (2017), "Financial Stability Oversight Council Announces Rescission of Nonbank Financial Company Designation," press release, September 29, https://home.treasury.gov/news/press-releases/sm0169.

10 See Financial Stability Board (2017), "FSB Consults on Guidance for CCP Resolution and Resolution Planning," press release, February 1, www.fsb.org/2017/02/fsb-consults-on-guidance-for-ccp-resolution-and-resolution-planning.

4 Supervision and Regulation

The Federal Reserve has supervisory and regulatory authority over a variety of financial institutions and activities with the goal of promoting a safe, sound, and efficient financial system that supports the growth and stability of the U.S. economy. As described in this report, the Federal Reserve carries out its supervisory and regulatory responsibilities and supporting functions primarily by

- promoting the safety and soundness of individual financial institutions supervised by the Federal Reserve;
- taking a macroprudential approach to the supervision of the largest, most systemically important financial institutions (SIFIs);[1]
- developing supervisory policy (rulemakings, supervision and regulation letters (SR letters), policy statements, and guidance);
- identifying requirements and setting priorities for supervisory information technology initiatives;
- ensuring ongoing staff development to meet evolving supervisory responsibilities;
- regulating the U.S. banking and financial structure by acting on a variety of proposals; and
- enforcing other laws and regulations.

2017 Developments

During 2017, the U.S. banking system and financial markets continued to improve following their recovery from the financial crisis that started in mid-2007.

Performance of bank holding companies. Bank holding company (BHC) earnings declined in 2017, largely due to the one-time effect of the 2017 Tax Cuts and Jobs Act, which resulted in certain BHCs paying taxes on overseas profits and writing down the value of deferred tax assets. U.S. BHCs, in aggregate, reported net income of $140 billion for 2017, down from $162 billion for the year ending December 31, 2016. The proportion of unprofitable BHCs was 2.7 percent, up slightly from 2.3 percent in 2016. Assets from unprofitable BHCs increased to 12.3 percent in 2017, up from 3.1 percent in 2016. Provisions were 0.26 percent of average assets, unchanged from 2016 and near historic lows. Nonperforming assets continued to decline, falling to 2.0 percent of loans and foreclosed assets from 2.4 percent as of year-end 2016. (See "Bank Holding Companies" later in this section.)

Performance of state member banks. The performance of state member banks improved from 2016 to 2017. In aggregate, state member banks reported profits of $27.5 billion for 2017, up 12.7 percent from $24.4 billion in 2016. Return-on-assets and return-on-equity both improved year-over-year, but both measures continue to lag pre-crisis levels. The percentage of unprofitable state member banks remained flat, as 2.7 percent of firms reported a loss for the year. Problem loans declined in 2017 to 1.3 percent, but problem loans increased in state member bank commercial and industrial and agricultural loan portfolios. Provisions as a share of average loans were unchanged at 0.28 percent. The total risk-based capital ratio for state members decreased slightly from 14.5 percent in 2016 to 14.4 percent in 2017. In 2017, one state member bank, with $34.4 million in assets, failed. (See "State Member Banks" later in this section.)

Enhanced prudential standards. The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act) directs the Board, in part, to establish prudential standards in order to prevent or mitigate risks to U.S. financial stability that could arise from the material financial distress or failure, or ongoing activities of, large, interconnected financial institutions. In January 2017, the Board issued a final rule that modified its capital plan and stress testing rules for the 2017 capital planning cycle, which reduces significant burden on large and noncomplex

[1] For a detailed discussion of macroprudential supervision and regulation, refer to section 3, "Financial Stability."

firms by eliminating the qualitative element of the Comprehensive Capital Analysis and Review (CCAR) of such firms. In addition, while the Federal Reserve publicly discloses a significant amount of information regarding its supervisory stress tests, in December 2017, the Board requested comment on a package that would increase the transparency of its stress testing program while maintaining the Board's ability to test the resilience of the nation's largest and most complex banking organizations. (See "Enhanced Prudential Standards" later in this section and see box 1 for details.)

Tailoring of supervision and regulation. The Federal Reserve seeks to tailor its regulations, guidance, and supervisory programs to an institution's size, risk, and complexity. The Federal Reserve took a number of steps in 2017 to tailor regulation and supervision across community, regional, and large banking organizations, including continuing to apply the most stringent requirements to the most systemically important firms, implementing a new risk-focused supervisory program for certain smaller institutions, tailoring capital planning and stress testing requirements, and reducing regulatory reporting requirements for smaller financial institutions. (See box 2 for more information on tailoring.)

Completion of the Basel III Post-Crisis Reforms. In 2017, the Federal Reserve contributed to the finalization of the international Basel III reform package, which establishes a framework that increases the robustness and reliability of the regulatory capital requirements for banking organizations. This reform package is intended to improve risk sensitivity, reduce regulatory capital variability, and level the

Box 1. Transparency of the Supervisory Stress Test

Through the Dodd-Frank Act supervisory stress test exercise, among other supervisory programs, the Federal Reserve promotes soundness and stability in the financial system and the U.S. economy. Regular, public disclosure of the supervisory stress test models, methodologies, and results enhances the credibility of the stress test. In addition, more transparency around the results and processes can lead to improvements in the Federal Reserve's approaches and provide information to the public that furthers the goal of maintaining market and public confidence in the financial system. For these reasons, the Federal Reserve publishes detailed information about its stress tests every year. Those disclosures include the Federal Reserve's projections of revenue, expenses, losses, pre-tax net income, and capital ratios estimated to result under two sets of adverse economic conditions, as well as details about the supervisory models used to make those projections.

The annual disclosures of the stress test results and description of supervisory models represent a significant increase in the public transparency of large bank supervision in the United States as compared to the pre-crisis period. In addition to those public disclosures, the Federal Reserve has also published information about its scenario design framework and annual letters detailing material model changes, and hosts an annual symposium in which supervisors and financial industry practitioners share best practices in modeling, model risk management, and governance.

The Federal Reserve is committed to finding additional ways to increase the transparency of its stress test to help the public better understand the workings of the stress test and thereby increase the credibility of the stress testing process and output. In December 2017, the Federal Reserve Board invited comment on a proposal designed to increase the transparency of the supervisory stress test while maintaining the Federal Reserve's ability to test the resilience of the nation's largest and most complex banks.[1]

The proposal has three elements. First, the proposed enhanced model disclosure would include the release of more detailed information about supervisory models, including the publication of portfolios of hypothetical loans and loss rates for those portfolios. Second, a proposed Stress Testing Policy Statement describes the Board's approach to the development, implementation, use, and validation of the supervisory stress test models and methodologies. Third, proposed amendments to the Scenario Design Policy Statement (originally published in November 2013) would increase countercyclicality in scenario design, clarify the Board's approach to setting the path of the unemployment rate and house prices in the macroeconomic scenario, and provide notice that the Federal Reserve is exploring the possibility of incorporating stress to the cost of wholesale funding in the supervisory stress test scenarios. Together, these three elements of the proposal represent a notable increase in the transparency of the Federal Reserve's stress test.

The Board received comments on the proposal in the first quarter of 2018, and is currently reviewing comments and considering ways to amend the proposals to be responsive to those comments.

[1] See www.federalreserve.gov/newsevents/pressreleases/bcreg20171207a.htm.

Box 2. Tailoring of Supervision

Building upon its risk-focused approach to supervision, the Federal Reserve continues its ongoing work to tailor its regulations, supervisory guidance, and supervisory programs to an institution's asset size, risk profile, and complexity. Further tailoring to size, risk, and complexity was done in 2017 in the Federal Reserve's examination programs, capital planning and stress testing, and regulatory reporting requirements.

Tailoring of Examination Programs

The Federal Reserve approach to supervising smaller, less-complex banks is distinct from that for large banks. The largest, most systemically important firms are supervised through the Federal Reserve's Large Institution Supervision Coordinating Committee (LISCC) program and are subject to the most stringent supervisory expectations. Bank holding companies and foreign banking organizations with assets of $50 billion or more are supervised through the Federal Reserve's large and foreign banking organization program. These firms are held to supervisory expectations that are higher than those applied to community and regional banking organizations, but examinations are more targeted and less frequent than those applied to LISCC firms.

For community and regional state member banks that are smaller and less complex, the Federal Reserve makes a particular effort to tailor its approach.[1] The Federal Reserve has implemented a new risk-focused supervisory program—the Bank Exams Tailored to Risk (BETR) program. BETR aims to (1) identify low-risk activities within state member banks and apply appropriately streamlined examination work programs to these activities, and (2) target high-risk activities within state member banks for prompt supervisory attention. This enhanced tailoring of supervision minimizes regulatory burden for the many community and regional banks that are well-managed and directs supervisory resources to higher-risk activities where they are most needed in order to contain the risks that can result from aggressive banking strategies.

[1] For supervisory purposes, the Federal Reserve generally defines community banking organizations as those with $10 billion or less in total assets, and regional banking organizations as those with total assets between $10 billion and $50 billion.

Tailoring of Capital Planning and Stress Testing

In 2017, the Federal Reserve significantly tailored its capital planning and stress testing requirements.[2] Large firms that are noncomplex were exempted from the qualitative assessment of their capital plans through the Comprehensive Capital Analysis and Review (CCAR) program, reducing significant burden on these firms. This subset of firms undergo instead a narrower-scope horizontal review of specific capital planning areas, referred to as the Horizontal Capital Review program. As a result of this tailoring, the number of firms fully subject to CCAR in 2017 fell from 33 to 13.

For firms with consolidated assets between $10 billion and $50 billion, the Federal Reserve has reduced to once every three years the frequency of full-scope assessments of these firms' Dodd-Frank Act Company-Run Stress Test submissions, with only limited-scope assessments in the intervening years.

Tailoring of Regulatory Reporting Requirements

Continuing efforts to reduce data reporting and other burdens for small financial institutions, the Federal Reserve discontinued the collection of the Liquidity Monitoring Report (FR 2052b) for firms with consolidated assets between $10 billion and $50 billion effective December 18, 2017. In addition, the Federal Reserve, in conjunction with the other banking agencies represented on the Federal Financial Institutions Examination Council, implemented a new and streamlined Call Report for small financial institutions. Specifically, for firms with less than $1 billion in total assets (which represents approximately 90 percent of all institutions required to file Call Reports), the Call Report was reduced from 85 to 61 pages due to the removal of approximately 40 percent of the nearly 2,400 data items.

[2] See www.gpo.gov/fdsys/pkg/FR-2017-02-03/pdf/2017-02257.pdf.

playing field among internationally active banks. (See box 3 for more information on the Basel III post-crisis reforms.)

Supervision

The Federal Reserve is the federal supervisor and regulator of all U.S. BHCs, including financial holding companies (FHCs), savings and loan holding companies (SLHCs), and state-chartered commercial banks that are members of the Federal Reserve System. The Federal Reserve also has responsibility for supervising the operations of all Edge Act and agreement corporations, the international operations of state member banks and U.S. BHCs, and the U.S. operations of foreign banking organizations. Furthermore, through the Dodd-Frank Act, the Federal Reserve has been assigned responsibilities for non-

Box 3. Completion of the Basel III Post-Crisis Reforms

In 2010, the Basel Committee on Banking Supervision (BCBS) issued the first set of reforms to the global prudential framework in response to the global financial crisis. Its suite of post-crisis reforms were completed in December 2017. The Federal Reserve Board is a member of the BCBS, a standard-setting body for internationally active banks that includes supervisors and central bankers from 27 countries.

The earliest post-crisis reforms were focused on raising the level and quality of capital that banks hold. Capital positions of banks across the world, including in the United States, have strengthened meaningfully in the interim, making the global financial system significantly more resilient. The introduction of a leverage capital ratio into the global capital framework has provided a credible backstop to the risk-based capital regime. A global systemically important bank (G-SIB) is now subject to a risk-based capital surcharge based on its systemic risk profile. As of year-end 2017, there were 30 G-SIBs, including eight U.S. banks, which are subject to risk-based capital surcharges ranging from 100 to 250 basis points, depending on the degree of the G-SIB's measured systemic footprint.[1] Under the final Basel III reforms, these banks also will be subject to a leverage capital ratio surcharge.

An important innovation of the Basel III reforms was the introduction of a standard for bank liquidity. One measure, the liquidity coverage ratio (LCR), is aimed at ensuring that banks have sufficient liquidity to fund themselves during a 30-day stress period. The goal of the second liquidity measure, the net stable funding ratio (NSFR), which was proposed in the United States in May 2016 but has not yet been finalized, is for banks to have a balance sheet that is soundly structured to provide adequate liquidity for their activities over a one-year horizon.

The final package of Basel III reforms that was completed in 2017 is intended to improve risk sensitivity, reduce excessive variability of risk-weighted assets (RWAs), and level the playing field among internationally active banks. Studies by the BCBS have identified wide variability across banks that use internal models rather than a standardized approach to measuring RWAs. In the final Basel III package, limits were placed on inputs used in internal models, as well as on the scope of portfolios that could be modeled. The standardized approach to credit RWAs was revised to introduce greater risk sensitivity. In addition, the internal models approach to measuring operational risk was eliminated and replaced with a new standardized approach. Further, banks that use internal models to measure credit or market risk RWAs will be subject to a standardized floor on its RWAs.

The Federal Reserve and the other U.S. banking agencies will consider how to appropriately apply the final package of Basel III reforms in the United States. Any proposed changes will be made through the standard notice-and-comment rulemaking process.

[1] The list of G-SIBs is available at www.fsb.org/wp-content/uploads/P211117-1.pdf.

bank financial firms and financial market utilities (FMUs) designated by the Financial Stability Oversight Council (FSOC) as systemically important.

In overseeing the institutions under its authority, the Federal Reserve seeks primarily to promote safety, soundness, and efficiency, including compliance with laws and regulations.

Safety and Soundness

The Federal Reserve uses a range of supervisory activities to promote the safety and soundness of financial institutions and maintain a comprehensive understanding and assessment of each firm. These activities include horizontal reviews, firm-specific examinations and inspections, continuous monitoring and surveillance activities, and implementation of enforcement or other supervisory actions as necessary. The Federal Reserve also provides training and technical assistance to foreign supervisors and minority-owned and de novo depository institutions.

Examinations and Inspections

The Federal Reserve conducts examinations of state member banks, FMUs, the U.S. branches and agencies of foreign banks, and Edge Act and agreement corporations. In a process distinct from examinations, it conducts inspections of holding companies and their nonbank subsidiaries. Whether an examination or an inspection is being conducted, the review of financial performance and operations entails

- an evaluation of the adequacy of governance provided by the board and senior management, including an assessment of internal policies, procedures, risk limits, and controls;

- an assessment of the risk-management and internal control processes in place to identify, measure, monitor, and control risks;
- analysis of the key financial factors of capital, asset quality, earnings, and liquidity; and
- a review for compliance with applicable laws and regulations.

Table 1 provides information on examinations and inspections conducted by the Federal Reserve during the past five years.

Consolidated Supervision

Consolidated supervision, a method of supervision that encompasses the parent company and its subsidiaries, allows the Federal Reserve to understand the organization's structure, activities, resources, risks, and financial and operational resilience. Working with other relevant supervisors and regulators, the Federal Reserve seeks to ensure that financial, operational, or other deficiencies are addressed before they pose a danger to the consolidated organization, its banking offices, or to the broader economy.[2]

Large financial institutions increasingly operate and manage their integrated businesses across corporate boundaries. Financial trouble in one part of a financial institution can spread rapidly to other parts of the institution. Risks that cross legal entities or that are managed on a consolidated basis cannot be monitored properly through supervision that is directed at only one of the legal entity subsidiaries within the overall organization.

To strengthen its supervision of the largest, most complex financial institutions, the Federal Reserve created a centralized, multidisciplinary body called the Large Institution Supervision Coordinating Committee (LISCC). The LISCC coordinates the Federal Reserve's supervision of domestic bank hold-

[2] "Banking offices" are defined as U.S. depository institution subsidiaries as well as the U.S. branches and agencies of foreign banking organizations.

Table 1. State member banks and bank holding companies, 2013–17

Entity/item	2017	2016	2015	2014	2013
State member banks					
Total number	815	829	839	858	850
Total assets (billions of dollars)	2,729	2,577	2,356	2,233	2,060
Number of examinations	643	663	698	723	745
By Federal Reserve System	354	406	392	438	459
By state banking agency	289	257	306	285	286
Top-tier bank holding companies					
Large (assets of more than $1 billion)					
Total number	583	569	547	522	505
Total assets (billions of dollars)	18,762	17,593	16,961	16,642	16,269
Number of inspections	597	659	709	738	716
By Federal Reserve System1[1]	574	646	669	706	695
On site	394	438	458	501	509
Off site	180	208	211	205	186
By state banking agency	23	13	40	32	21
Small (assets of $1 billion or less)					
Total number	3,448	3,682	3,719	3,902	4,036
Total assets (billions of dollars)	931	914	938	953	953
Number of inspections	2,318	2,597	2,783	2,824	3,131
By Federal Reserve System	2,252	2,525	2,709	2,737	2,962
On site	101	126	123	142	148
Off site	2,151	2,399	2,586	2,595	2,814
By state banking agency	66	72	74	87	169
Financial holding companies					
Domestic	492	473	442	426	420
Foreign	42	42	40	40	39

[1] For large bank holding companies subject to continuous, risk-focused supervision, includes multiple targeted reviews.

ing companies and foreign banking organizations that pose elevated risk to U.S. financial stability as well as other nonbank financial institutions designated as systemically important by the FSOC.

The framework for the consolidated supervision of LISCC firms and other large financial institutions was issued in December 2012.[3] This framework strengthens traditional microprudential supervision and regulation to enhance the safety and soundness of individual firms and incorporates macroprudential considerations to reduce potential threats to the stability of the financial system. The framework has two primary objectives:

1. **Enhancing resiliency of a firm to lower the probability of its failure or inability to serve as a financial intermediary.** Each firm is expected to ensure that the consolidated organization (or the combined U.S. operations in the case of foreign banking organizations) and its core business lines can survive under a broad range of internal or external stresses. This requires financial resilience by maintaining sufficient capital and liquidity, and operational resilience by maintaining effective corporate governance, risk management, and recovery planning.
2. **Reducing the impact on the financial system and the broader economy in the event of a firm's failure or material weakness.** Each firm is expected to ensure the sustainability of its critical operations and banking offices under a broad range of internal or external stresses. This requires, among other things, effective resolution planning that addresses the complexity and the interconnectivity of the firm's operations.

The framework is designed to support a tailored supervisory approach that accounts for the unique risk characteristics of each firm, including the nature and degree of potential systemic risk inherent in a firm's activities and operations, and is being implemented in a multi-stage approach.

The Federal Reserve uses a range of supervisory activities to maintain a comprehensive understanding and assessment of each large financial institution:

- **Coordinated horizontal reviews**. These reviews involve examining several institutions simultaneously and encompass firm-specific supervision and the development of cross-firm perspectives. In addition, the Federal Reserve uses a multidisciplinary approach to draw on a wide range of perspectives, including those from supervisors, examiners, economists, financial experts, payments systems analysts, and other specialists. Examples include analysis of capital adequacy and planning through CCAR as well as horizontal evaluations of resolution plans and incentive compensation practices.
- **Firm-specific examinations and/or inspections and continuous monitoring activities**. These activities are designed to maintain an understanding and assessment across the core areas of supervisory focus. These activities include review and assessment of changes in strategy, inherent risks, control processes, and key personnel, and follow-up on previously identified concerns (for example, areas subject to enforcement actions) or emerging vulnerabilities.
- **Interagency information sharing and coordination**. In developing and executing a detailed supervisory plan for each firm, the Federal Reserve generally relies to the fullest extent possible on the information and assessments provided by other relevant supervisors and functional regulators. The Federal Reserve actively participates in interagency information sharing and coordination, consistent with applicable laws, to promote comprehensive and effective supervision and limit unnecessary duplication of information requests. Supervisory agencies continue to enhance formal and informal discussions to jointly identify and address key vulnerabilities and to coordinate supervisory strategies for large financial institutions.
- **Internal audit and control functions**. In certain instances, supervisors may be able to rely on a firm's internal audit or internal control functions in developing a comprehensive understanding and assessment.

The Federal Reserve uses a risk-focused approach to supervision, with activities directed toward identifying the areas of greatest risk to financial institutions and assessing the ability of institutions' management processes to identify, measure, monitor, and control those risks. For medium- and small-sized financial institutions, the risk-focused, consolidated supervision program provides that examination and inspection procedures are tailored to each organization's size, complexity, risk profile, and condition. The supervisory program for an institution, regardless of its asset size, entails both off-site and on-site work,

[3] For more information about the supervisory framework, see the Board's press release and SR letter 12-17/CA 12-14 at www.federalreserve.gov/newsevents/press/bcreg/20121217a.htm.

including development of supervisory plans, pre-examination visits, detailed documentation of the examination process, and preparation of examination reports tailored to the scope and findings of the review.

Capital Planning and Stress Tests

Since the financial crisis, the Board has led a series of initiatives to strengthen the capital positions of the largest banking organizations. Two related initiatives are the CCAR and the Dodd-Frank Act stress tests (DFAST).

CCAR is a supervisory exercise to evaluate capital adequacy, internal capital planning processes, and planned capital distributions simultaneously at all large and complex BHCs. In CCAR, the Federal Reserve assesses whether these BHCs have sufficient capital to withstand highly stressful operating environments and be able to continue operations, maintain ready access to funding, meet obligations to creditors and counterparties, and serve as credit intermediaries. Capital is central to a BHC's ability to absorb losses and continue to lend to creditworthy businesses and consumers. Through CCAR, a BHC's capital adequacy is evaluated on a forward-looking, post-stress basis as the BHC is required to demonstrate in its capital plan how it will maintain, throughout a very stressful period, capital above minimum regulatory capital requirements. From a microprudential perspective, CCAR provides a structured means for supervisors to assess not only whether these BHCs hold enough capital, but also whether they are able to rapidly and accurately determine their risk exposures, including how those might evolve under stress, which is an essential element of effective risk management. From a macroprudential perspective, the use of a common scenario allows the Federal Reserve to assess not just individual institutions, but also how a particular risk or combination of risks might affect the banking system as a whole under stressful conditions. The 2017 CCAR results are available at www.federalreserve.gov/publications/files/2017-ccar-assessment-framework-results-20170628.pdf.

DFAST is a supervisory stress test conducted by the Federal Reserve to evaluate whether large BHCs have sufficient capital to absorb losses resulting from stressful economic and financial market conditions. The Dodd-Frank Act also requires BHCs and other financial companies supervised by the Federal Reserve to conduct their own stress tests. Together, the Dodd-Frank Act supervisory stress tests and the company-run stress tests are intended to provide company management and boards of directors, the public, and supervisors with forward-looking information to help gauge the potential effect of stressful conditions on the capital adequacy of these large banking organizations. The 2017 DFAST results are available at www.federalreserve.gov/publications/files/2017-dfast-methodology-results-20170622.pdf.

State Member Banks

At the end of 2017, a total of 1,688 banks (excluding nondepository trust companies and private banks) were members of the Federal Reserve System, of which 815 were state chartered. Federal Reserve System member banks operated 54,344 branches, and accounted for 34 percent of all commercial banks in the United States and for 70 percent of all commercial banking offices. State-chartered commercial banks that are members of the Federal Reserve, commonly referred to as state member banks, represented approximately 16 percent of all insured U.S. commercial banks and held approximately 17 percent of all insured commercial bank assets in the United States.

Under section 10 of the Federal Deposit Insurance Act, as amended by section 111 of the Federal Deposit Insurance Corporation Improvement Act of 1991 and by the Riegle Community Development and Regulatory Improvement Act of 1994, the Federal Reserve must conduct a full-scope, on-site examination of state member banks at least once a year.[4] However, qualifying well-capitalized, well-managed state member banks with less than $1 billion in total assets are eligible for an 18-month examination cycle.[5] The Federal Reserve conducted 354 examinations of state member banks in 2017.

Bank Holding Companies

At year-end 2017, a total of 4,470 U.S. BHCs were in operation, of which 3,984 were top-tier BHCs. These organizations controlled 4,223 insured commercial banks and held approximately 97 percent of all insured commercial bank assets in the United States.

Federal Reserve guidelines call for annual inspections of large BHCs and complex smaller companies. In judging the financial condition of the subsidiary banks owned by holding companies, Federal Reserve examiners consult examination reports prepared by the federal and state banking authorities that have

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[4] The Office of the Comptroller of the Currency examines nationally chartered banks, and the Federal Deposit Insurance Corporation examines state-chartered banks that are not members of the Federal Reserve.

[5] 81 Fed. Reg. 90,949 (December 16, 2016).

primary responsibility for the supervision of those banks, thereby minimizing duplication of effort and reducing the supervisory burden on banking organizations.

Inspections of BHCs, including FHCs, are built around a rating system introduced in 2005. The system reflects the shift in supervisory practices away from a historical analysis of financial condition toward a more dynamic, forward-looking assessment of risk-management practices and financial factors. Under the system, known as RFI but more fully termed RFI/C(D), holding companies are assigned a composite rating (C) that is based on assessments of three components: Risk Management (R), Financial Condition (F), and the potential Impact (I) of the parent company and its nondepository subsidiaries on the subsidiary depository institution. The fourth component, Depository Institution (D), is intended to mirror the primary supervisor's rating of the subsidiary depository institution.[6] Noncomplex BHCs with consolidated assets of $1 billion or less are subject to a special supervisory program that permits a more flexible approach.[7] See the "Other Rulemakings" section for proposed changes to the rating system for firms with $50 billion or more in total assets. In 2017, the Federal Reserve conducted 574 inspections of large BHCs and 2,252 inspections of small, noncomplex BHCs.

Financial Holding Companies

Under the Gramm-Leach-Bliley Act, BHCs that meet certain capital, managerial, and other requirements may elect to become FHCs and thereby engage in a wider range of financial activities, including full-scope securities underwriting, merchant banking, and insurance underwriting and sales. As of year-end 2017, a total of 492 domestic BHCs and 42 foreign banking organizations had FHC status. Of the domestic FHCs, 27 had consolidated assets of $50 billion or more; 44, between $10 billion and $50 billion; 149, between $1 billion and $10 billion; and 272, less than $1 billion.

Savings and Loan Holding Companies

The Dodd-Frank Act transferred responsibility for supervision and regulation of SLHCs from the former Office of Thrift Supervision to the Federal Reserve in July 2011. At year-end 2017, a total of 414 SLHCs were in operation, of which 223 were top-tier SLHCs. These SLHCs control 227 thrift institutions and include 18 companies engaged primarily in nonbanking activities, such as insurance underwriting (11 SLHCs), securities brokerage (3 SLHCs), and commercial activities (4 SLHCs). The 25 largest SLHCs accounted for more than $1.5 trillion of total combined assets. Approximately 90 percent of SLHCs engage primarily in depository activities. These firms hold approximately 14 percent ($251 billion) of the total combined assets of all SLHCs. The Office of the Comptroller of the Currency (OCC) is the primary regulator for most of the subsidiary savings associations of the firms engaged primarily in depository activities. Table 2 provides information on examinations of SLHCs for the past five years.

Several complex policy issues continue to be addressed by the Board, including those related to consolidated capital requirements for insurance SLHCs, issues pertaining to intermediate holding companies for commercial SLHCs, and the adoption of formal rating systems.[8] A request for public comment on the adoption of the formal rating system for certain SLHCs closed on February 13, 2017. The proposal would not apply the formal rating system to SLHCs engaged in significant insurance or commercial activities.

Savings and loan holding companies primarily engaged in insurance underwriting activities. The Federal Reserve supervises 11 insurance SLHCs (ISLHCs), with $1.04 trillion in estimated total combined assets, and $151 billion in thrift assets. Of the eleven, four firms have total assets greater than $50 billion, three firms have total assets between $10 billion and $50 billion, and four firms have total assets less than $10 billion. With the exception of one ISLHC, which owns a thrift subsidiary that comprises more than half of the firm's total assets, thrift subsidiary assets for most ISLHCs represent less than 25 percent of total assets.

As the consolidated supervisor of ISLHCs, the Federal Reserve evaluates the organization's risk-

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6 Each of the first two components has four subcomponents: Risk Management—(1) Board and Senior Management Oversight; (2) Policies, Procedures, and Limits; (3) Risk Monitoring and Management Information Systems; and (4) Internal Controls. Financial Condition—(1) Capital, (2) Asset Quality, (3) Earnings, and (4) Liquidity.

7 The special supervisory program was implemented in 1997, most recently modified in 2013. See SR letter 13-21 for a discussion of the factors considered in determining whether a BHC is complex or noncomplex (www.federalreserve.gov/bankinforeg/srletters/sr1321.htm).

8 A request for comment on consolidated capital requirements for Insurance Savings and Loan Holding Companies (ISLHCs) closed on September 16, 2016.

management practices, the financial condition of the overall organization, and the impact of the nonbank activities on the depository institution. The Federal Reserve focuses supervisory attention on legal entities and activities that are not directly supervised or regulated by state insurance regulators, including intercompany transactions between the depository institution and its affiliates. The Federal Reserve relies to the fullest extent possible on the work of state insurance regulators as part of the overall supervisory assessment of ISLHCs. The Federal Reserve has been active in engaging with the state departments of insurance and the National Association of Insurance Commissioners (NAIC) on general insurance supervision matters.

Financial Market Utilities

FMUs manage or operate multilateral systems for the purpose of transferring, clearing, or settling payments, securities, or other financial transactions among financial institutions or between financial institutions and the FMU. Under the Federal Reserve Act, the Federal Reserve supervises FMUs that are chartered as member banks or Edge Act corporations and coordinates with other federal banking supervisors to supervise FMUs considered bank service providers under the Bank Service Company Act.

In July 2012, the FSOC voted to designate eight FMUs as systemically important under title VIII of the Dodd-Frank Act. As a result of these designations, the Board assumed an expanded set of responsibilities related to these designated FMUs that include promoting uniform risk-management standards, playing an enhanced role in the supervision of designated FMUs, reducing systemic risk, and supporting the stability of the broader financial system. For certain designated FMUs, the Board established risk-management standards and expectations that are articulated in the Board's Regulation HH. In addition to setting minimum risk-management standards, Regulation HH establishes requirements for the advance notice of proposed material changes to the rules, procedures, or operations of a designated FMU for which the Board is the supervisory agency under title VIII. Finally, Regulation HH also establishes minimum conditions and requirements for a Federal Reserve Bank to establish and maintain an account for, and provide services to, a designated FMU.[9]

The Federal Reserve's risk-based supervision program for FMUs is administered by the FMU Supervision Committee (FMU-SC). The FMU-SC is a multidisciplinary committee of senior supervision, payment policy, and legal staff at the Board of Governors and Reserve Banks who are responsible for, and knowledgeable about, supervisory issues for FMUs. The FMU-SC's primary objective is to provide senior-level oversight, consistency, and direction to the Federal Reserve's supervisory process for FMUs. The FMU-SC coordinates with the LISCC on issues related to the roles of LISCC firms in FMUs as well as the payment, clearing, and settlement activities of LISCC firms and the FMU activities and implications for financial institutions in the LISCC portfolio.

[9] The Federal Reserve Banks maintain accounts for and provide services to several designated FMUs.

Table 2. Savings and loan holding companies, 2013–17

Entity/item	2017	2016	2015	2014	2013
Top-tier savings and loan holding companies					
Large (assets of more than $1 billion)					
Total number	59	67	67	76	81
Total assets (billions of dollars)	1,696	1,664	1,525	1,493	1,500
Number of inspections	46	54	58	83	72
By Federal Reserve System	52	54	57	82	71
On site	31	34	31	45	58
Off site	21	20	26	37	13
Small (assets of $1 billion or less)					
Total number	164	171	194	221	251
Total assets (billions of dollars)	47	50	55	65	76
Number of inspections	165	181	187	212	258
By Federal Reserve System	165	181	187	212	258
On site	9	9	13	10	21
Off site	156	172	174	202	237

In an effort to promote greater financial market stability and mitigate systemic risk, the Board works closely with the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC), both of which also have supervisory authority for certain FMUs. The Federal Reserve's work with these agencies under title VIII, including the sharing of appropriate information and participation in designated FMU examinations, aims to improve consistency in FMU supervision, promote robust FMU risk management, and improve regulators' ability to monitor and mitigate systemic risks.

Designated Nonbank Financial Companies

The Federal Reserve's supervisory approach for designated companies is tailored to account for different material characteristics of a firm. The Dodd-Frank Act requires the Board to apply enhanced prudential standards to the nonbank financial companies designated by the FSOC for supervision by the Board. The act authorizes the Board to tailor the application of these standards and requirements to different companies on an individual basis or by category.

In June 2016, the Board issued an advance notice of proposed rulemaking (ANPR) inviting comment on conceptual frameworks for capital standards that could apply to companies with significant insurance activities.[10] The Board also issued a proposed rule to apply enhanced prudential standards relating to corporate governance, risk management, and liquidity risk-management standards to such companies. Additionally, the Federal Reserve monitors developments of a designated nonbank financial company and exercises its supervisory authority to foster safe and sound practices and to promote financial stability. Currently only Prudential Financial, Inc., is subject to Federal Reserve supervision.

International Activities

The Federal Reserve supervises the foreign branches and overseas investments of state member banks, Edge Act and agreement corporations, and BHCs (including the investments by BHCs in export trading companies). In addition, it supervises the activities that foreign banking organizations conduct through entities in the United States, including branches, agencies, representative offices, and subsidiaries.

Foreign operations of U.S. banking organizations. In supervising the international operations of state member banks, Edge Act and agreement corporations, and BHCs, the Federal Reserve generally conducts its examinations or inspections at the U.S. head offices of these organizations, where the ultimate responsibility for the foreign offices resides. Examiners also visit the overseas offices of U.S. banking organizations to obtain financial and operating information and, in some instances, to test their adherence to safe and sound banking practices and compliance with rules and regulations. Examinations abroad are conducted with the cooperation of the supervisory authorities of the countries in which they take place; for national banks, the examinations are coordinated with the OCC.

At the end of 2017, a total of 31 member banks were operating 329 branches in foreign countries and overseas areas of the United States; 16 national banks were operating 278 of these branches, and 15 state member banks were operating the remaining 51. In addition, 7 nonmember banks were operating 15 branches in foreign countries and overseas areas of the United States.

Edge Act and agreement corporations. Edge Act corporations are international banking organizations chartered by the Board to provide all segments of the U.S. economy with a means of financing international business, especially exports. Agreement corporations are similar organizations, state or federally chartered, that enter into agreements with the Board to refrain from exercising any power that is not permissible for an Edge Act corporation. Sections 25 and 25A of the Federal Reserve Act grant Edge Act and agreement corporations permission to engage in international banking and foreign financial transactions. These corporations, most of which are subsidiaries of member banks, may (1) conduct a deposit and loan business in states other than that of the parent, provided that the business is strictly related to international transactions, and (2) make foreign investments that are broader than those permissible for member banks.

At year-end 2017, out of 36 banking organizations chartered as Edge Act or agreement corporations, 3 operated 7 Edge Act and agreement branches. These corporations are examined annually.

U.S. activities of foreign banks. Foreign banks continue to be significant participants in the U.S. banking system. As of year-end 2017, a total of 144 foreign banks from 48 countries operated 157 state-licensed branches and agencies, of which 6 were

[10] The ANPR is available at www.gpo.gov/fdsys/pkg/FR-2016-06-14/pdf/2016-14004.pdf.

insured by the FDIC, and 57 OCC-licensed branches and agencies, of which 4 were insured by the FDIC. These foreign banks also owned 7 Edge Act and agreement corporations. In addition, they held a controlling interest in 42 U.S. commercial banks. Altogether, the U.S. offices of these foreign banks controlled approximately 21 percent of U.S. commercial banking assets. These 144 foreign banks also operated 86 representative offices; an additional 37 foreign banks operated in the United States through a representative office. The Federal Reserve—in coordination with appropriate state regulatory authorities—examines state-licensed, non-FDIC-insured branches and agencies of foreign banks on-site at least once every 18 months.[11] In most cases, on-site examinations are conducted at least once every 12 months, but the period may be extended to 18 months if the branch or agency meets certain criteria. As part of the supervisory process, a review of the financial and operational profile of each organization is conducted to assess the organization's ability to support its U.S. operations and to determine what risks, if any, the organization poses to the banking system through its U.S. operations. The Federal Reserve conducted or participated with state and federal regulatory authorities in 590 examinations of foreign banks in 2017.

Compliance with Regulatory Requirements

The Federal Reserve examines institutions for compliance with a broad range of legal requirements, including anti-money-laundering (AML) and consumer protection laws and regulations, and other laws pertaining to certain banking and financial activities. Most compliance supervision is conducted under the oversight of the Board's Division of Supervision and Regulation (S&R), but consumer compliance supervision is conducted under the oversight of the Division of Consumer and Community Affairs (DCCA).[12] The two divisions coordinate their efforts with each other and also with the Board's Legal Division to ensure consistent and comprehensive Federal Reserve supervision for compliance with legal requirements.

Anti-Money-Laundering Examinations

The Treasury regulations implementing the Bank Secrecy Act (BSA) generally require banks and other types of financial institutions to file certain reports and maintain certain records that are useful in criminal, tax, or regulatory proceedings. The BSA and separate Board regulations require banking organizations supervised by the Board to file reports on suspicious activity related to possible violations of federal law, including money laundering, terrorism financing, and other financial crimes. In addition, BSA and Board regulations require that banks develop written BSA compliance programs and that the programs be formally approved by bank boards of directors. The Federal Reserve is responsible for examining institutions for compliance with applicable AML laws and regulations and conducts such examinations in accordance with the Federal Financial Institutions Examination Council's (FFIEC's) *Bank Secrecy Act/Anti-Money Laundering Examination Manual*.[13]

Specialized Examinations

The Federal Reserve conducts specialized examinations of supervised financial institutions in the areas of information technology, fiduciary activities, transfer agent activities, and government and municipal securities dealing and brokering. The Federal Reserve also conducts specialized examinations of certain nonbank entities that extend credit subject to the Board's margin regulations.

Information Technology Activities

As part of its role in ensuring the safe and sound operations of financial institutions, the Federal Reserve conducted reviews of the information technology activities of supervised financial institutions and their technology service providers (TSPs). In February 2017, the Federal Reserve released the Information Technology Risk Examination Program (InTREx). In general, InTREx applies to state member and non-member banks with less than $50 billion in total consolidated assets. The Federal Reserve also applies InTREx to foreign banking organizations' U.S. branches and agencies with less than $50 billion in assets as well as certain BHCs and SLHCs with less than $50 billion in total consolidated assets. InTREx was developed in collaboration with the FDIC and state banking agencies, and provides Federal Reserve examiners risk-focused and tailored examination procedures for conducting information

[11] The OCC examines federally licensed branches and agencies, and the FDIC examines state-licensed FDIC-insured branches in coordination with the appropriate state regulatory authority.

[12] For a detailed discussion of consumer compliance supervision, refer to section 5, "Consumer and Community Affairs."

[13] The FFIEC is an interagency body of financial regulatory agencies established to prescribe uniform principles, standards, and report forms and to promote uniformity in the supervision of financial institutions. The council has six voting members: the Board of Governors of the Federal Reserve System, the FDIC, the National Credit Union Administration, the OCC, the Consumer Financial Protection Bureau, and the chair of the State Liaison Committee.

technology reviews and assessing information technology risks at supervised institutions.

The Federal Reserve also contributed to FFIEC information technology supervisory matters, emerging technology issues, and updates to the FFIEC's IT Examination Handbook. The Federal Reserve chaired the FFIEC's IT Subcommittee, the primary interagency group responsible for coordination across member agencies on information technology activities. The IT Subcommittee conducted a conference for IT examiners from all of the FFIEC member agencies, which highlighted current and emerging technology issues affecting supervised institutions and their service providers. Additionally, the Federal Reserve contributed to handbook updates to incorporate a more enterprise-wide risk-management approach to the assessment of information technology risks at supervised institutions.

In July 2017, the IT Subcommittee and Cybersecurity and Critical Infrastructure Working Group (CCIWG) hosted an FFIEC Industry Outreach webinar to provide information on the update to the handbook and the Cybersecurity Assessment Tool. The webinar also provided financial institutions the opportunity to ask clarifying questions about other information technology-related matters. In addition, the FFIEC hosted an Examiner Exchange webinar to provide supervisory staff the opportunity to address specific questions on emerging issues in a peer-to-peer learning environment.

Fiduciary Activities

The Federal Reserve has supervisory responsibility for state member banks and state member nondepository trust companies, which hold assets in various fiduciary and custodial capacities. On-site examinations of fiduciary and custodial activities are risk-focused and entail the review of an organization's compliance with laws, regulations, and general fiduciary principles, including effective management of conflicts of interest; management of legal, operational, and compliance risk exposures; the quality and level of earnings; the management of fiduciary assets; and audit and control procedures. In 2017, Federal Reserve examiners conducted 115 fiduciary examinations—excluding transfer agent examinations—of state member banks.

Transfer Agents

As directed by the Securities Exchange Act of 1934, the Federal Reserve conducts specialized examinations of those state member banks and BHCs that are registered with the Board as transfer agents. Among other things, transfer agents countersign and monitor the issuance of securities, register the transfer of securities, and exchange or convert securities. On-site examinations focus on the effectiveness of an organization's operations and its compliance with relevant securities regulations. During 2017, the Federal Reserve conducted transfer agent examinations at four state member banks that were registered as transfer agents.

Government and Municipal Securities Dealers and Brokers

The Federal Reserve is responsible for examining state member banks and foreign banks for compliance with the Government Securities Act of 1986 and with the Treasury regulations governing dealing and brokering in government securities. Fourteen state member banks and six state branches of foreign banks have notified the Board that they are government securities dealers or brokers not exempt from the Treasury's regulations. During 2017, the Federal Reserve conducted four examinations of broker-dealer activities in government securities at these organizations. These examinations are generally conducted concurrently with the Federal Reserve's examination of the state member bank or branch.

The Federal Reserve is also responsible for ensuring that state member banks and BHCs that act as municipal securities dealers comply with the Securities Act Amendments of 1975. Municipal securities dealers are examined, pursuant to the Municipal Securities Rulemaking Board's rule G-16, at least once every two calendar years. Three entities supervised by the Federal Reserve that dealt in municipal securities were examined during 2017.

Securities Credit Lenders

Under the Securities Exchange Act of 1934, the Board is responsible for regulating credit in certain transactions involving the purchasing or carrying of securities. As part of its general examination program, the Federal Reserve examines the banks under its jurisdiction for compliance with the Board's Regulation U. In addition, the Federal Reserve maintains a registry of persons other than banks, brokers, and dealers who extend credit subject to Regulation U. The Federal Reserve may conduct specialized examinations of these lenders if they are not already subject to supervision by the Farm Credit Administration (FCA) or the National Credit Union Administration (NCUA).

Cybersecurity and Critical Infrastructure

The Federal Reserve collaborated with other financial regulators, the U.S. Treasury, private industry, and international partners to promote appropriate and cost-effective safeguards against cyber threats to the financial services sector and to bolster the sector's cyber resiliency. Federal Reserve examiners continued to conduct targeted cybersecurity assessments of the largest, most systemically important financial institutions, FMUs, and TSPs. The Federal Reserve worked with the OCC and FDIC to develop and implement common examination procedures for the cybersecurity assessments of TSPs. Federal Reserve examiners also continued to conduct cybersecurity assessments at community and regional banking organizations that were tailored to their specific risk profiles. As part of these efforts, the Federal Reserve coordinated with other financial regulators to align supervisory expectations and examination approaches with the National Institute for Standards and Technology's Cybersecurity Framework and other best practices in the financial sector.

In 2017, the Federal Reserve contributed to interagency groups such as the FFIEC's CCIWG, the Financial and Banking Information Infrastructure Committee (FBIIC), and the Cybersecurity Forum for Independent and Executive Branch Regulators to share information and collaborate on cybersecurity and critical infrastructure issues impacting the financial sector. In coordination with FBIIC members, the Federal Reserve collaborated with government and industry partners to plan and execute sector-wide and regional tabletop exercises focused on identifying areas where sector resiliency, information sharing, and public-private collaboration can be enhanced with respect to potential cybersecurity incidents. The exercises focused on tactical, strategic, operational, and financial stability considerations that tested both government and private sector processes and capabilities for addressing cyber incidents across the financial services sector.

The Federal Reserve also contributed to key cybersecurity areas that were identified during the FFIEC's 2014 pilot assessment of cybersecurity readiness, including risk management and oversight, threat intelligence and collaboration, cybersecurity controls, external dependency management, and cyber incident management and resilience. Through participation in the CCIWG, the Federal Reserve also contributed to a May 2017 update of the Cybersecurity Assessment Tool. The update addressed changes to the FFIEC IT Examination Handbook by providing a revised mapping to the updated Information Security and Management booklets. The updated tool also provided additional response options, allowing financial institution management to include supplementary or complementary behaviors, practices, and processes that represent current practices of an institution in supporting its cybersecurity activity assessment (www.ffiec.gov/press/pr053117.htm). In October 2017, the Federal Reserve participated in an FFIEC Examiner Exchange webinar to provide examiners an opportunity to collaborate with industry professionals on cyber-related risks.

In addition, the Federal Reserve was actively involved in international policy coordination on approaches to address cyber-related risks and efforts to bolster cyber resiliency. The Federal Reserve supported the Group of Seven (G-7) Fundamental Elements of Cybersecurity for the Financial Sector and other activities to enhance international coordination and knowledge sharing. The Federal Reserve also supported the Financial Stability Board's (FSB's) stocktake of regulations, guidance, and supervisory activities in order to explore the degree of uniformity and gaps that exist across jurisdictions (www.fsb.org/2017/10/fsb-publishes-stocktake-on-cybersecurity-regulatory-and-supervisory-practices/).

Enforcement Actions

The Federal Reserve has enforcement authority over the financial institutions it supervises and their affiliated parties. Enforcement actions may be taken to address unsafe and unsound practices or violations of any law or regulation. Formal enforcement actions include cease and desist orders, written agreements, prompt corrective action directives, removal and prohibition orders, and civil money penalties. In 2017, the Federal Reserve completed 83 formal enforcement actions. Civil money penalties totaling $690,320,000 were assessed. As directed by statute, all civil money penalties are remitted to either the Treasury or the Federal Emergency Management Agency. Enforcement orders and prompt corrective action directives, which are issued by the Board, and written agreements, which are executed by the Reserve Banks, are made public and are posted on the Board's website (www.federalreserve.gov/apps/enforcementactions/search.aspx).

In 2017, the Reserve Banks completed 89 informal enforcement actions. Informal enforcement actions

include memoranda of understanding (MOU), commitment letters, and board of directors' resolutions.

Surveillance and Off-Site Monitoring

The Federal Reserve uses automated screening systems to monitor the financial condition and performance of state member banks and BHCs in the period between on-site examinations. Such monitoring and analysis helps direct examination resources to institutions that have higher risk profiles. Screening systems also assist in the planning of examinations by identifying companies that are engaging in new or complex activities.

The primary off-site monitoring tool used by the Federal Reserve is the Supervision and Regulation Statistical Assessment of Bank Risk (SR-SABR) model. Drawing mainly on the financial data that banks report on their Reports of Condition and Income (Call Reports), SR-SABR uses econometric techniques to identify banks that report financial characteristics weaker than those of other banks assigned similar supervisory ratings. To supplement the SR-SABR screening, the Federal Reserve also monitors various market data, including equity prices, debt spreads, agency ratings, and measures of expected default frequency, to gauge market perceptions of the risk in banking organizations. In addition, the Federal Reserve prepares quarterly Bank Holding Company Performance Reports (BHCPRs) for use in monitoring and inspecting supervised banking organizations. The BHCPRs, which are compiled from data provided by large BHCs in quarterly regulatory reports (FR Y-9C and FR Y-9LP), contain, for individual companies, financial statistics and comparisons with peer companies. BHCPRs are made available to the public on the National Information Center (NIC) website, which can be accessed at www.ffiec.gov.

Federal Reserve analysts use Performance Report Information and Surveillance Monitoring (PRISM), a querying tool, to access and display financial, surveillance, and examination data. In the analytical module, users can customize the presentation of institutional financial information drawn from Call Reports, Uniform Bank Performance Reports, FR Y-9 statements, BHCPRs, and other regulatory reports. In the surveillance module, users can generate reports summarizing the results of surveillance screening for banks and BHCs. During 2017, one major and five minor upgrades to the web-based PRISM application were completed to enhance the user's experience and provide the latest technology.

The Federal Reserve works through the FFIEC Task Force on Surveillance Systems to coordinate surveillance activities with the other federal banking agencies.

Training and Technical Assistance

The Federal Reserve provides training and technical assistance to foreign supervisors and minority-owned depository institutions.

International Training and Technical Assistance

In 2017, the Federal Reserve continued to provide training and technical assistance on supervisory matters to foreign central banks and supervisory authorities. Technical assistance involves visits by Federal Reserve staff members to foreign authorities as well as consultations with foreign supervisors who visit the Board of Governors or the Reserve Banks.

The Federal Reserve offered a number of training programs for the benefit of foreign supervisory authorities, which were held both in the United States and in many foreign jurisdictions. Federal Reserve staff took part in technical assistance and training assignments led by the International Monetary Fund, the World Bank, and the Financial Stability Institute. The Federal Reserve also contributed to the regional training provided under the Asia-Pacific Economic Cooperation Financial Regulators Training Initiative. Other training partners that collaborated with the Federal Reserve during 2017 to organize regional training programs included the South East Asian Central Banks Research and Training Centre, the Caribbean Group of Banking Supervisors, the Banque de France, the Reserve Bank of India, the Central Bank of the United Arab Emirates, and the Association of Supervisors of Banks of the Americas.

Efforts to Support Minority-Owned Depository Institutions

The Federal Reserve System implements its responsibilities under section 367 of the Dodd-Frank Act primarily through its Partnership for Progress (PFP) program. Established in 2008, this program promotes the viability of minority depository institutions (MDIs) by facilitating activities designed to strengthen their business strategies, maximize their resources, and increase their awareness and understanding of supervisory expectations. In addition, the Federal Reserve continues to maintain the PFP website, which supports MDIs by providing them with technical information and links to useful resources (www.fedpartnership.gov). Representatives from each

of the 12 Federal Reserve Districts, along with staff from the S&R and DCCA divisions at the Board of Governors, continue to offer technical assistance tailored to MDIs by providing targeted supervisory guidance, identifying additional resources, and fostering mutually beneficial partnerships between MDIs and community organizations. As of year-end 2017, the Federal Reserve's MDI portfolio included 16 state member banks.

Throughout 2017, the Federal Reserve System continued to support MDIs through the following activities:

- Co-organized the biannual Interagency Minority Depository Institutions and Community Development Financial Institutions (CDFI) Bank Conference that took place April 5-6, 2017, in Los Angeles, California. The meeting was hosted at the Los Angeles branch of the Federal Reserve Bank of San Francisco, and all planning was done in conjunction with staff from the OCC and FDIC. The theme of the conference was "Expanding the Impact: Increasing Capacity & Influence," and attendance included over 175 people, mostly consisting of MDI bank leadership.
- Co-organized a post-conference workshop with the CDFI Fund to educate non-CDFI MDIs about the benefits of and application process for CDFI certification.
- Strengthened the partnership between the Board's DCCA and S&R divisions to share management of the PFP program and diversify the resources and programing available to MDIs. The Federal Reserve System also worked to encourage partnership between examination and community development staff at the Federal Reserve Banks to bring additional resources to MDIs around the country.
- Attended the annual National Bankers Association meeting in Washington, D.C., and hosted an exhibit table.
- Provided technical assistance to MDIs on a wide variety of topics, including improving regulatory ratings, navigating the regulatory applications process, understanding changes to the Community Reinvestment Act, and refining capital planning practices.
- Co-sponsored the "Forum for Minority Bankers" with the Federal Reserve Banks of Kansas City (lead sponsor), Atlanta, Richmond, Philadelphia, and St. Louis. The forum is a national program that provides minority bank leaders with industry knowledge and professional development and was held in September 2017 in Kansas City, Missouri.
- Facilitated in-person meetings between Federal Reserve and MDI leaders to better understand the challenges and opportunities facing Federal Reserve-regulated MDIs.
- Presented Federal Reserve-commissioned research on MDIs at the biannual interagency conference in Los Angeles (see above). The Federal Reserve has commissioned additional studies for 2018 to broaden the body of research material available to MDIs.

Supervisory Policy

The Federal Reserve's supervisory policy function, carried out by the Board, is responsible for developing regulations and guidance for financial institutions under the Federal Reserve's supervision as well as guidance for examiners. The Board, often in concert with the OCC and the FDIC (together, the federal banking agencies), issues rulemakings, public SR letters, and other policy statements and guidance in order to carry out its supervisory policies. Federal Reserve staff also take part in supervisory and regulatory forums, provide support for the work of the FFIEC, and participate in international policymaking forums, including the Basel Committee on Banking Supervision (BCBS), the Financial Stability Board (FSB), the Committee on Payments and Market Infrastructures (CPMI), and the International Association of Insurance Supervisors (IAIS).

Consistent with the Federal Reserve's risk-focused approach to supervision and as provided by law, the Federal Reserve tailors supervisory rules and guidance in a way that applies the most stringent requirements to the largest, most complex banking organizations that pose the greatest risk to the financial system.

Enhanced Prudential Standards

The Board, sometimes in conjunction with other federal agencies, is responsible for issuing a number of rules and guidance statements under the Dodd-Frank Act. Listed below are the initiatives undertaken by the Board in 2017.

- In January, the Board issued a final rule that modified its capital plan and stress testing rules for the 2017 capital planning cycle. Among other changes, the final rule removed large and noncomplex firms from the qualitative component of the Federal

Reserve's CCAR assessment, reducing significant burden on these firms. The final rule defines large and noncomplex firms as firms that have total consolidated assets of at least $50 billion but less than $250 billion, have total consolidated nonbank assets of less than $75 billion, and are not identified as global systemically important banks (G-SIBs). These firms continue to be subject to the quantitative requirements of CCAR as well as normal supervision by the Federal Reserve regarding their capital planning. The final rule also reduces certain reporting requirements for these firms. The final rule is available at www.gpo.gov/fdsys/pkg/FR-2017-02-03/pdf/2017-02257.pdf.

- In September, the Board issued a final rule that improved the resolvability and resilience of systemically important U.S. banking organizations and systemically important foreign banking organizations. Under the final rule, any U.S. top-tier BHC identified by the Board as a G-SIB, the subsidiaries of any U.S. G-SIB (other than national banks, federal savings associations, state nonmember banks, and state savings associations), and the U.S. operations of any foreign G-SIB (other than national banks, federal savings associations, state nonmember banks, and state savings associations) would be subject to restrictions regarding the terms of their non-cleared qualified financial contracts (QFCs). The final rule also amends certain definitions in the Board's capital and liquidity rules; these amendments are intended to ensure that the regulatory capital and liquidity treatment of QFCs to which a covered entity is party is not affected by the final rule's restrictions on such QFCs. The final rule is available at www.gpo.gov/fdsys/pkg/FR-2017-09-12/pdf/2017-19053.pdf.
- In December, the Board requested comment on a package that would increase the transparency of its stress testing program while maintaining the Board's ability to test the resilience of the nation's largest and most complex banking organizations. The package includes the following three elements:
  —A notice of enhanced model disclosure that describes three proposals to disclose additional detail about supervisory stress test models and how they function. The Board proposed to expand and standardize descriptions of supervisory models; to publish loss rates assigned by supervisory models to subgroups of loans and summary statistics associated with the loans in each subgroup; and to publish portfolios of hypothetical loans along with estimated loss rates assigned to these hypothetical portfolios. The notice of enhanced model disclosure includes an example of these proposals for the corporate loan supervisory model. The notice of enhanced model disclosure is available at www.gpo.gov/fdsys/pkg/FR-2017-12-15/pdf/2017-26856.pdf.

  —A proposed Stress Testing Policy Statement describing the Board's approach to model development, implementation, use, and validation. This statement elaborates on prior disclosures and provides details on the principles and policies that guide the Board's development of its stress testing models. The proposed statement is available at www.gpo.gov/fdsys/pkg/FR-2017-12-15/pdf/2017-26857.pdf.

  —A proposal to modify the Board's framework for the design of the annual hypothetical economic scenarios. The modifications aim to enhance transparency and to further promote the resilience of the banking system throughout the economic cycle. In particular, the revisions include a quantitative guide for the hypothetical path of house prices, as well as notice that the Board is exploring the addition of variables to test for funding risks in the hypothetical scenarios. The proposal is available at www.gpo.gov/fdsys/pkg/FR-2017-12-15/pdf/2017-26858.pdf.

Other Rulemakings

In 2017, the Board issued several other rulemakings and guidance documents related to liquidity and regulatory capital, as listed below.

- In July, the federal banking agencies issued a proposed rule that would raise the threshold for commercial real estate transactions requiring an appraisal from $250,000 to $400,000. Instead of an appraisal, the proposal would require that a commercial real estate transaction at or below the threshold receive an evaluation that provides a market value estimate of the real estate pledged as collateral, which is less detailed than an appraisal and does not require completion by a state licensed or certified appraiser. The proposal is available at www.gpo.gov/fdsys/pkg/FR-2017-07-31/pdf/2017-15748.pdf.
- In August, the Board issued proposed guidance that addresses supervisory expectations of boards of directors at institutions that are regulated by the Board. The proposal would refocus the Board's supervisory expectations for the larg-

est firms' boards of directors on their core responsibilities, which include overseeing the types and levels of risk a firm may take and aligning the firm's business strategy with decisions on how to address such risk. Additionally, the proposal would reduce unnecessary burden for the boards of smaller institutions. The proposed guidance is available at www.gpo.gov/fdsys/pkg/FR-2017-08-09/pdf/2017-16735.pdf.

- In August, the Board issued a proposed rule to better align the Board's rating system for large financial institutions with the post-crisis supervisory program for these firms. The proposed changes to the rating system would incorporate recent changes related to capital and liquidity requirements, and to expectations regarding the effectiveness of governance and controls, including firms' compliance with laws and regulations. The proposed rating system would only apply to large financial institutions, such as domestic BHCs and SLHCs with $50 billion or more in total consolidated assets as well as intermediate holding companies of foreign banking organizations. The proposed rule is available at www.gpo.gov/fdsys/pkg/FR-2017-08-17/pdf/2017-16736.pdf.
- In September, the federal banking agencies proposed a rule intended to reduce regulatory burden by simplifying several requirements in the agencies' regulatory capital rule. Specifically, the proposed rule would simplify the capital treatment for certain acquisition, development, and construction loans; mortgage servicing assets; certain deferred tax assets; investments in the capital of unconsolidated financial institutions; and minority interest. The proposed rule is consistent with the Economic Growth and Regulatory Paperwork Reduction Act (EGRPRA) report issued by the agencies in 2017 whereby the federal banking agencies committed to meaningfully reduce regulatory burden, especially on community banking organizations, while at the same time maintaining safety and soundness and the quality and quantity of regulatory capital in the banking system. The proposed rule is available at www.federalreserve.gov/newsevents/pressreleases/files/bcreg20170927a1.pdf.
- In October, the federal banking agencies issued guidance regarding frequently asked questions (FAQs) on implementation of the liquidity coverage ratio (LCR) and modified LCR rules, published by the Board in SR letter 17-11, "Interagency Frequently Asked Questions on Implementation of the Liquidity Coverage Ratio Rule." The purpose of the FAQs is to clarify certain aspects of the existing LCR and modified LCR rules based on questions received since the rules were published. The FAQs do not represent new rules or regulations, nor do they amend any of the existing requirements of the rules. The FAQs are available at www.federalreserve.gov/supervisionreg/srletters/sr1711.htm.
- In November, the federal banking agencies issued a final rule that extended for certain banking organizations the transitional capital requirements applicable during 2017 for certain items (e.g., mortgage servicing assets, certain deferred tax assets, and minority interest). The final rule prevents certain requirements from taking full effect for these items while the agencies consider broader simplifications of the capital rules. The final rule is available at www.gpo.gov/fdsys/pkg/FR-2017-11-21/pdf/2017-25172.pdf.

International Coordination on Supervisory Policies

As a member of several international financial standard-setting bodies, the Federal Reserve actively participates in efforts to advance sound supervisory policies for internationally active financial organizations and to enhance the strength and stability of the international financial system.

Basel Committee on Banking Supervision

During 2017, the Federal Reserve contributed to supervisory policy recommendations, reports, and papers issued for consultative purposes or finalized by the BCBS that are designed to improve the supervision of banking organizations' practices and to address specific issues that emerged during the financial crisis. Of note, the Federal Reserve contributed to the finalization of the Basel III reform package—a central element of the BCBS's response to the financial crisis—which establishes a framework that increases the robustness and reliability of the regulatory capital requirements for banking organizations. The Federal Reserve also participated in ongoing international initiatives to track the progress of implementation of the BCBS framework in member countries.

Final BCBS documents issued in 2017 include

- *Frequently asked questions on market risk capital requirements* (issued in January and available at www.bis.org/bcbs/publ/d395.pdf).

- *Basel III — The Net Stable Funding Ratio: frequently asked questions* (issued in February and available at www.bis.org/bcbs/publ/d396.pdf).
- *Pillar 3 disclosure requirements — consolidated and enhanced framework* (issued in March and available at www.bis.org/bcbs/publ/d400.pdf).
- *Regulatory treatment of accounting provisions—interim approach and transitional arrangements* (issued in March and available at www.bis.org/bcbs/publ/d401.pdf).
- *Basel III — The Liquidity Coverage Ratio framework: frequently asked questions* (issued in June and available at www.bis.org/bcbs/publ/d406.pdf).
- *Implementation of Basel standards* (issued in July and available at www.bis.org/bcbs/publ/d412.pdf).
- *Basel III definition of capital — Frequently asked questions* (issued in September and available at www.bis.org/bcbs/publ/d417.pdf).
- *Basel III: Finalizing post-crisis reforms* (issued in December and available at www.bis.org/bcbs/publ/d424.pdf).
- *Supervisory and bank stress testing: range of practices* (issued in December and available at www.bis.org/bcbs/publ/d427.pdf).

Consultative BCBS documents issued in 2017 include

- *Global systemically important banks — revised assessment framework* (issued in March and available at www.bis.org/bcbs/publ/d402.pdf).
- *Simplified alternative to the standardised approach to market risk capital requirements* (issued in June and available at www.bis.org/bcbs/publ/d408.pdf).
- *Capital treatment for simple, transparent and comparable short-term securitisations* (issued in July and available at www.bis.org/bcbs/publ/d413.pdf).
- *Sound Practices: Implications of fintech developments for banks and bank supervisors* (issued in August and available at www.bis.org/bcbs/publ/d415.pdf).
- *The regulatory treatment of sovereign exposures* (issued in December and available at www.bis.org/bcbs/publ/d425.pdf).
- *Stress testing principles* (issued in December and available at www.bis.org/bcbs/publ/d428.pdf).

Financial Stability Board

In 2017, the Federal Reserve continued its participation in the activities of the FSB, an international group that helps coordinate the work of national financial authorities and international standard-setting bodies, and develops and promotes the implementation of financial sector policies in the interest of financial stability.

FSB publications issued in 2017 include

- *Guidance on Central Counterparty Resolution and Resolution Planning* (issued in July and available at www.fsb.org/wp-content/uploads/P050717-1.pdf).
- *Analysis of Central Clearing Interdependencies* (issued in July jointly with the BCBS, CPMI, and IOSCO and available at www.fsb.org/wp-content/uploads/P050717-2.pdf).
- *Guiding Principles on the Internal Total Loss-absorbing Capacity of G-SIBs ("Internal TLAC")* (issued in July and available at www.fsb.org/wp-content/uploads/P060717-1.pdf).

Committee on Payments and Market Infrastructures

In 2017, the Federal Reserve continued its active participation in the activities of the CPMI, a forum in which central banks promote the safety and efficiency of payment, clearing, settlement, and related arrangements. In conducting its work on financial market infrastructures and market-related reforms, the CPMI often coordinates with the International Organization of Securities Commissions (IOSCO). Over the course of 2017, CPMI-IOSCO continued to monitor implementation of the *Principles for Financial Market Infrastructures* and published further guidance on these principles to enhance the resilience of central counterparties and strengthen recovery arrangements for financial market infrastructures. Additionally, CPMI-IOSCO produced a consultative framework for supervisory stress testing of central counterparties. This framework is designed to support supervisory stress tests that examine the potential macro-level impact of a common stress event affecting multiple central counterparties. The CPMI also produced a consultative note in 2017 outlining a strategy to help focus industry efforts in addressing the increasing threat of wholesale payments fraud related to endpoint

security. Additional information is available at www.bis.org.

International Association of Insurance Supervisors

The Federal Reserve continued its participation in 2017 in the development of international supervisory standards and guidance to ensure that they are appropriate for the U.S. insurance market. The Federal Reserve continues to participate actively in standard setting at the IAIS in consultation and collaboration with state insurance regulators, the NAIC, and the Federal Insurance Office to present a coordinated U.S. voice in these processes. The Federal Reserve's participation focuses on those aspects most relevant to the supervision of FSOC-designated insurance firms and in research and analysis related to capital frameworks and financial stability topics.

In 2017, the IAIS issued for public consultation the revised text of 14 Insurance Core Principles (ICPs) as well as certain associated standards and guidance specific to the supervision of internationally active insurance groups.[14]

The IAIS also issued a version of its developing Insurance Capital Standard for extended field testing in August 2017. In addition, the IAIS issued several final and consultative reports as well as research reports in 2017.[15]

Final papers and reports:

- *FinTech Developments in the Insurance Industry* (issued in March and available at www.iaisweb.org/page/news/other-papers-and-reports/file/65625/report-on-fintech-developments-in-the-insurance-industry).
- *Application Paper on the Regulation and Supervision of Mutuals, Cooperatives and Community-Based Organizations in Increasing Access to Insurance Markets* (issued in September and available at www.iaisweb.org/page/supervisory-material/application-papers/file/68822/application-paper-on-mutuals-cooperatives-and-community-based-organisations-september-2017).
- *Application Paper on Group Corporate Governance* (issued in November and available at www.iaisweb.org/page/supervisory-material/application-papers/file/69940/application-paper-on-group-corporate-governance).
- *Application Paper on Product Oversight in Inclusive Insurance* (issued in November and available at www.iaisweb.org/page/supervisory-material/application-papers/file/70163/application-paper-on-product-oversight-in-inclusive-insurance).

Consultative papers:

- *Issues Paper on Index Based Insurances* (issued in December and available at www.iaisweb.org/page/consultations/closed-consultations/2018/draft-issues-paper-on-index-based-insurances).
- *Activities-Based Approach to Systemic Risk* (issued in December and available at https://www.iaisweb.org/page/consultations/closed-consultations/2018/activities-based-approach-to-systemic-risk/file/70440/interim-aba-cp-final-for-launch).

Accounting Policy

The Federal Reserve supports sound corporate governance and effective accounting and auditing practices for all regulated financial institutions. Accordingly, the Federal Reserve's accounting policy function is responsible for providing expertise in policy development and implementation efforts, both within and outside the Federal Reserve System, on issues affecting the banking and insurance industries in the areas of accounting, auditing, internal controls over financial reporting, financial disclosure, and supervisory financial reporting.

Federal Reserve staff regularly consult with key constituents in the accounting and auditing professions, including domestic and international standard-setters, accounting firms, accounting and financial sector trade groups, and other financial sector regulators to facilitate the Board's understanding of domestic and international practices; proposed accounting, auditing, and regulatory standards; and the interactions between accounting standards and regulatory reform efforts. The Federal Reserve also participates in various accounting, auditing, and regulatory forums in order to both formulate and communicate its views.

The Financial Accounting Standards Board (FASB) issued an accounting standard in 2016 that overhauls the accounting for credit losses with a new impairment model based on "expected credit

[14] In this revision, two additional ICPs were removed after their subject matter was integrated into other ICPs.

[15] Additional information is available at www.iaisweb.org.

losses methodology" (CECL). CECL's implementation will affect a broad range of supervisory activities, including regulatory reports, examinations, and examiner training. During 2017, the Federal Reserve together with the other federal banking agencies continued to monitor the industry's implementation efforts, and provided comments on significant interpretations as observers of the FASB's Transition Resource Group and through outreach and routine discussions with standard setters and other stakeholders, as described above. In September, the Federal Reserve issued the third supervisory guidance related to CECL, SR letter 17-8, "Frequently Asked Questions on the Current Expected Credit Losses Methodology (CECL)," on an interagency basis to further aid institutions in their implementation of CECL.[16]

During 2017, the Federal Reserve together with the federal banking agencies issued comment letters on the Public Accounting Oversight Board's proposed amendments to auditing standards for auditor's use of the work of specialists and on proposed auditing standard on auditing accounting estimates were issued during the past year.

Federal Reserve staff continued to participate in meetings of the BCBS Accounting Experts Group and the IAIS Accounting and Auditing Working Group. These groups represent their respective organizations at international meetings on accounting, auditing, and disclosure issues affecting global banking and insurance organizations. Working with international bank supervisors, Federal Reserve staff contributed to the development of publications that were issued by the BCBS, including guidelines on identification and management of step-in risk and frequently asked questions on changes to lease accounting. In collaboration with international insurance supervisors, Federal Reserve staff also made contributions to work related to enhancing IAIS standards on valuation, disclosures, and expectations for external audit-related matters.

Additionally, Federal Reserve staff provided their accounting and business expertise through participation in other supervisory activities during the past year. These activities included supporting Dodd-Frank Act initiatives related to stress testing of banks as well as various regulatory capital-related issues.

Credit-Risk Management

The Federal Reserve works with the other federal banking agencies to develop guidance on the management of credit risk; to coordinate the assessment of regulated institutions' credit-risk management practices; and to ensure that institutions properly identify, measure, and manage credit risk.

Real Estate Appraisals

In May 2017, the federal banking agencies and the NCUA issued joint guidance concerning real estate appraisals in response to concerns raised by institutions in rural areas about appraiser availability. "The Interagency Advisory on the Availability of Appraisers" highlighted two existing options that could help insured depository institutions experiencing appraiser shortages by increasing the universe of individuals eligible to prepare appraisals and facilitating the timely consideration of loan applications. The advisory discusses temporary practice permits, which are issued by state appraiser regulatory agencies and allow states to recognize appraiser credentials issued by another state on a temporary basis for federally related transactions. Institutions may also request temporary waivers, which can set aside certain or all requirements relating to the certification or licensing of individuals to perform appraisals under title XI of the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 in states or geographic or political subdivisions where certain conditions are met. The advisory can be found at www.federalreserve.gov/supervisionreg/srletters/sr1704.htm.

Shared National Credit Program

The Shared National Credit (SNC) program is a key supervisory program employed by the Federal Reserve and the other federal banking agencies to ensure the safety and soundness of the financial system. SNC is a long-standing program used to assess credit risk and trends as well as underwriting and risk-management practices associated with the largest and most complex loans shared by multiple regulated financial institutions. The program also provides for uniform treatment and increased efficiency in shared credit risk analysis and classification.

A SNC is any loan or formal loan commitment—and any asset, such as other real estate, stocks,

[16] The guidance is available at www.federalreserve.gov/supervisionreg/srletters/sr1708.htm.

notes, bonds, and debentures taken as debts previously contracted—extended to borrowers by a supervised institution, its subsidiaries, and affiliates, which has the following characteristics: an original loan amount that aggregates to $20 million or more[17] and either (1) is shared by three or more unaffiliated supervised institutions under a formal lending agreement, or (2) a portion of which is sold to two or more unaffiliated supervised institutions with the purchasing institutions assuming their pro rata share of the credit risk.

At the 2017 first quarter examination, the SNC portfolio totaled $4.3 trillion, with 11,350 credit facilities to 6,902 borrowers. Summary examination findings showed the percentages of non-pass (aggregate special mention and classified) assets decreased slightly from 2016.[18] Despite the improvement in the percentage of non-pass commitments, the overall level of criticized assets remained elevated and continued to be higher than observed in previous periods of economic expansion, such that losses could rise considerably in the event of an economic downturn. The high level of credit risk in the portfolio stemmed primarily from distressed borrowers in the oil and gas sector and other industry sector borrowers exhibiting excessive leverage. During prior cycles, non-investment-grade borrowers relied more heavily on the high-yield bond market to finance operations. Today, those borrowers, especially when controlled by financial sponsors, tend to favor the syndicated loan market for their financing needs. As a result, the current portfolio reflects a larger volume of riskier paper in aggregate.

Leveraged lending accounts for a substantial portion of the SNC portfolio and remains a key focus in the agencies' broader effort to evaluate overall safety and soundness of bank underwriting and risk-management practices. As observed in the first 2017 examination, agent bank underwriting and risk-management processes to reduce and manage the risk of leveraged lending exposures continued to improve. In particular, most agent banks were better equipped to project future cash flows to assess borrower repayment capacity and enterprise valuations, resulting in better alignment with basic safety and soundness principles. Despite this progress, the frequent use of incremental debt facility provisions in loan agreements, which rarely limit use of proceeds, often resulted in increased credit risk when utilized for non-cash generating purposes such as dividends. Leveraged loan transactions typically exhibited limited financial flexibility due to a combination of elevated financial risk and weak loan structure regardless of risk rating. Any downturn in the economy could result in a significant increase in the already considerable adversely rated leveraged lending exposures.

The severe and prolonged decline in energy prices since 2014 caused financial stress to many energy companies, particularly non-investment-grade and unrated exploration and production (E&P) and energy service companies. Increasing credit risk from reduced revenue was exacerbated by the high leverage of some E&P companies, primarily resulting from debt-funded acquisitions during recent drilling expansion activity, and corresponding reductions in liquidity. Many energy companies responded by taking actions to reduce operating costs and overhead, while preserving liquidity through asset sales, issuance of additional debt and equity instruments, and drawing on remaining senior bank commitments. The U.S. oil and gas industry experienced a slow, albeit volatile, recovery in late 2016 and into the first quarter of 2017. U.S. E&P companies increased capital spending for 2017, a reversal of the production declines in 2016. The industry also reduced operating costs and experienced increased merger and acquisition activity, as companies continued to rationalize and optimize their operations. Risk in the energy portfolio is concentrated in non-investment-grade and unrated E&P and energy service companies and is predominantly held by regulated entities, though banks are primarily in a senior secured position with the lowest risk of loss.

For more information on the 2017 SNC review, visit the Board's website at www.federalreserve.gov/newsevents/pressreleases/bcreg20170802a.htm.

Compliance Risk Management

The Federal Reserve works with international and domestic supervisors to develop guidance that promotes compliance with Bank Secrecy Act and anti-money-laundering compliance (BSA/AML) and counter-terrorism (CFT) laws.

[17] In December 2017, the agencies issued a press release and amended the SNC definition to raise the qualifying threshold from $20 million to $100 million from 2018 onwards. See www.federalreserve.gov/newsevents/pressreleases/bcreg20171221c.htm.

[18] Results discussed here are based on examinations conducted in the third quarter of 2016 and first quarter of 2017, and reflect data submitted by all reporting banks as of September 30, 2016.

Bank Secrecy Act and Anti-Money-Laundering Compliance

In 2017, the Federal Reserve continued to actively promote the development and maintenance of effective BSA/AML compliance risk-management programs, including developing supervisory strategies and providing guidance to the industry on trends in BSA/AML compliance. For example, the Federal Reserve supervisory staff participated in a number of industry conferences to continue to communicate regulatory expectations and policy interpretations for financial institutions.

The Federal Reserve is a member of the Treasury-led BSA Advisory Group, which includes representatives of regulatory agencies, law enforcement, and the financial services industry and covers all aspects of the BSA. The Federal Reserve also participated in Treasury-led private/public sector dialogues with financial institutions, regulators, and supervisors from Mexico, the United Kingdom, and the People's Republic of China. These dialogues were designed to promote information sharing and understanding of BSA/AML issues between U.S. and country-specific financial sectors. In addition, the Federal Reserve participated in meetings during the year to discuss BSA/AML issues with delegations from Estonia, Singapore, and the Seychelles.

The Federal Reserve also participates in the FFIEC BSA/AML working group, a monthly forum for the discussion of pending BSA policy and regulatory matters. In addition to the FFIEC agencies, the BSA/AML working group includes the Financial Crimes Enforcement Network (FinCEN) and, on a quarterly basis, the SEC, the CFTC, the Internal Revenue Service, and the Office of Foreign Assets Control (OFAC). The FFIEC BSA/AML working group is responsible for updating the FFIEC *Bank Secrecy Act/Anti-Money Laundering Examination Manual*. The FFIEC developed this manual as part of its ongoing commitment to provide current and consistent interagency guidance on risk-based policies, procedures, and processes for financial institutions to comply with the BSA and safeguard their operations from money laundering and terrorist financing.

Throughout 2017, the Federal Reserve continued to regularly share examination findings and enforcement proceedings with FinCEN as well as with OFAC under the interagency MOUs finalized in 2004 and 2006.

International Coordination on Sanctions, Anti-Money-Laundering, and Counter-Terrorism Financing

The Federal Reserve participates in a number of international coordination initiatives related to sanctions, money laundering, and terrorism financing. The Federal Reserve has a long-standing role in the U.S. delegation to the intergovernmental Financial Action Task Force (FATF) and its working groups, contributing a banking supervisory perspective to the formulation of international standards. The Federal Reserve participated in the development of FATF Guidance on Private Sector Information Sharing issued in November 2017. In addition, the Federal Reserve participated in the development of FATF Guidance on Customer Due Diligence and Financial Inclusion issued in November 2017, as a supplement to the 2013 FATF Guidance on AML/CFT Measures and Financial Inclusion.

The Federal Reserve also continues to participate in committees and subcommittees through the Bank for International Settlements. Specifically, the Federal Reserve actively participates in the AML Experts Group under the BCBS that focuses on AML and CFT issues, as well as the CPMI. With respect to the AML Experts Group, the Federal Reserve contributed to updating the *Correspondent Banking* annex issued in June 2017, which supplements previous guidance on the sound management of risks related to money laundering and financing of terrorism.

Incentive Compensation

To foster improved incentive compensation practices in the financial industry, the Federal Reserve along with the other federal banking agencies adopted interagency guidance oriented to the risk-taking incentives created by incentive compensation arrangements in June 2010. The guidance is based on the principles that incentive compensation arrangements at a banking organization should provide employees incentives that appropriately balance risk and financial results; be compatible with effective controls and risk management; and be supported by strong corporate governance. The guidance recognizes that the methods used to achieve appropriately risk-sensitive compensation arrangements likely will differ significantly across and within firms.

To implement the guidance, the Board developed a robust supervisory program focusing on the largest

banking organizations because they are significant users of incentive compensation. Based in part on our supervisory efforts, these institutions have made progress in developing programs and policies and procedures that incorporate these three core principles.

Section 956 of the Dodd-Frank Act requires the Board, OCC, FDIC, SEC, NCUA, and FHFA to jointly develop regulations or guidelines implementing disclosures and prohibitions concerning incentive-based compensation at covered financial institutions with at least $1 billion in assets. The agencies published a revised proposed rule in June 2016. The agencies received over 100 comments on the 2016 proposed rule and are considering the comments.

Other Policymaking Initiatives

- In July, the Board, along with four other financial regulatory agencies, issued a policy statement announcing that they are coordinating their respective reviews of the treatment of certain foreign funds under section 619 of the Dodd-Frank Act, commonly known as the Volcker rule, and the agencies' implementing regulations. These foreign funds are investment funds organized and offered outside of the United States and generally are not subject to the Volcker rule ("foreign excluded funds"). However, complexities in the Volcker rule and the implementing regulations may result in certain foreign excluded funds becoming subject to regulation. The federal banking agencies, which generally oversee foreign banks, would not take action under the Volcker rule for qualifying foreign excluded funds, subject to certain conditions, for a period of one year. The statement is available at www.federalreserve.gov/newsevents/pressreleases/files/bcreg20170721a1.pdf.
- In July, the Board issued SR letter 17-5, "Procedures for a Banking Entity to Request an Extension of the One-Year Seeding Period for a Covered Fund," which provides guidance on how banking entities may seek an extension to conform an investment to the Volcker rule. Under the Volcker rule, a banking entity is permitted to acquire and retain an ownership interest in a covered fund in connection with organizing and offering the covered fund as long as certain requirements are met. The Volcker rule also requires a banking entity to actively seek unaffiliated investors to reduce within one year its investment in the covered fund to an amount that is not more than 3 percent of the total outstanding ownership interests in the fund (referred to as the "per-fund limitation"). A banking entity may request the Board's approval for an extension of time beyond the one-year period, for up to two additional years, to conform an investment to the per-fund limitation. The supervisory guidance is available at www.federalreserve.gov/supervisionreg/srletters/sr1705.htm.
- In August, the Board and the other federal banking agencies issued guidance on the regulatory capital treatment of certain centrally cleared derivative contracts in light of changes to the rulebooks of certain central counterparties. Specifically, the agencies provided guidance on the treatment of cleared settled-to-market contracts under the federal banking agencies' regulatory capital rules. The supervisory guidance is available at www.federalreserve.gov/supervisionreg/srletters/sr1707.htm.
- In September, the Board, along with the other federal banking agencies and the NCUA, issued "Frequently Asked Questions on the Current Expected Credit Loss Methodology (CECL)," which provides guidance to institutions as they implement the new accounting standard for credit losses recently issued by the FASB. These FAQs expand upon the agencies' June 2016 *Joint Statement on the New Accounting Standard on Financial Instruments—Credit Losses*. The letter also announces that the agencies plan to issue a series of FAQs until the implementation date of the new standard to address questions on the implementation of CECL. The supervisory guidance is available at www.federalreserve.gov/supervisionreg/srletters/sr1708.htm.

Regulatory Reports

The Federal Reserve and the other U.S. federal banking agencies have the authority to require banks and holding companies to submit information, on both a solo and a consolidated basis, on their financial condition, performance, and risks, at regular intervals. The Federal Reserve's data collections, reporting, and governance function is responsible for developing, coordinating, and implementing regulatory reporting requirements for various financial reporting forms filed by domestic and foreign financial institutions subject to Federal Reserve supervision. Federal Reserve staff members interact with other federal agencies, state supervisors, and, as needed, foreign bank

supervisors, to recommend and implement appropriate and timely revisions to the reporting forms and the attendant instructions.

Holding Company Regulatory Reports

The Federal Reserve requires that U.S. holding companies (HCs) periodically submit reports that provide information about their financial condition and structure.[19] This information is essential to formulating and conducting financial institution regulation and supervision. It is also used to respond to information requests by Congress and the public about HCs and their nonbank subsidiaries. Foreign banking organizations also are required to periodically submit reports to the Federal Reserve. For more information on the various reporting forms, see www.federalreserve.gov/apps/reportforms/default.aspx.

During 2017, the following reporting forms were revised:

- **FR Y-9C**—to implement a number of revisions, which were consistent with changes to the FFIEC Call Reports. The revisions, effective March 2017, included deleting certain existing data items, increasing the existing reporting threshold for time deposits, and clarifying the reporting of certain data items.
- **FR Y-9LP**—to add a new line item, effective March 2017, for total nonbank assets of a holding company subject to the Federal Reserve Board's capital plan rule for purposes of identifying large and noncomplex firms. This new line item was related to amendments to the capital plan and stress test rules (Regulations Y and YY) published in February 2017.
- **FR Y-14**—to modify the scope of the global market shock component of the Federal Reserve's stress tests in a manner that would include certain U.S. IHCs of foreign banking organizations, which are subject to the same capital and stress testing standards that apply to domestic BHCs. U.S. IHCs that will become subject to the global market shock in CCAR 2019 as a result of the modified threshold will be subject to an interim market risk component in CCAR 2018. Also, the Federal Reserve modified report forms and instructions to clarify certain data definitions and improve alignment with certain data items reported on other report schedules or reports, and to eliminate two schedules from the FR Y-14A to reduce reporting burden.

FFIEC Regulatory Reports

The law establishing the FFIEC and defining its functions requires the FFIEC to develop uniform reporting systems for federally supervised financial institutions. The Federal Reserve, along with the other member FFIEC agencies, requires financial institutions to submit various uniform regulatory reports. This information is essential to formulating and conducting supervision and regulation and for the ongoing assessment of the overall soundness of the nation's financial system. During 2017, the following FFIEC reporting forms were implemented or revised:

- **FFIEC 101**—to remove two credit valuation adjustment items.
- **FFIEC 031, 041, and 051**—to implement a new streamlined version of the Call Report (FFIEC 051) for eligible small institutions and to make certain burden-reducing revisions to the FFIEC 031 and FFIEC 041 Call Reports (filed by larger institutions). See section below on the Call Report Burden Reduction Initiative for more details.

Call Report Burden Reduction Initiative for Community Institutions

In September 2015, the FFIEC announced detailed steps regulators are taking to streamline and simplify regulatory reporting requirements for community banks and reduce their reporting burden. The objectives of the community bank burden-reduction initiative are consistent with feedback the FFIEC received as part of the regulatory review conducted as required by the EGRPRA of 1996.

Progress made during 2017 by the FFIEC on this multiyear initiative included implementing a new and streamlined Call Report for small financial institutions (FFIEC 051) effective March 2017. Financial institutions with domestic offices only and less than $1 billion in total assets, which represent approximately 90 percent of all institutions required to file Call Reports, qualify for this new report. The streamlined Call Report reduced the existing FFIEC 041 Call Report form from 85 to 61 pages, resulting from the removal of approximately 40 percent of the nearly 2,400 data items in the Call Report. In addition, the frequency of reporting was reduced for over 4 percent of the remaining data items. Table 3 summarizes the over-

[19] HCs are defined as BHCs, intermediate holding companies (IHCs), SLHCs, and securities holding companies.

Table 3. Data items revised as of March 30, 2018

Finalized Call Report revisions	FFIEC 051	FFIEC 041	FFIEC 031
Items removed, net	967	60	68
Change in item frequency to semiannual	96		
Change in item frequency to annual	10		
Items with a new or increased reporting threshold		7	13

* "Items Removed, Net" reflects the effects of consolidating existing items, adding control totals, and, for the FFIEC 051, relocating individual items from other schedules to a new supplemental schedule. In addition, included in this number for the FFIEC 051, approximately 300 items were items that institutions with less than $1 billion in total assets were exempt from reporting due to existing reporting thresholds in the FFIEC 041.

all number of changes finalized and implemented by Call Report form.

Other Burden Reduction Initiatives

To reduce burden, the Federal Reserve discontinued the Liquidity Monitoring Report (FR 2052b), with the final data collection as of the September 30, 2017, report date. The FR 2052b report was filed by HCs with total consolidated assets of greater than $10 billion, excluding firms designated as G-SIBs and affiliates of foreign banking organizations with less than $50 billion in total consolidated assets. The report collected quantitative information on selected assets, liabilities, funding activities, and contingent liabilities on a consolidated basis and by material subsidiary entity. This data was used to monitor the overall liquidity profile of certain institutions supervised by the Federal Reserve. In place of the FR 2052b, the Federal Reserve will monitor and assess liquidity risks of previous FR 2052b filers using the recently implemented Liquidity Focus Report (LFR). The LFR provides a consistent method for benchmarking liquidity risk for individual regional banks based on information derived from the Call Report. As mentioned above, there were also burden reducing changes to the FR Y-14 report in 2017.

Supervisory Information Technology

The Federal Reserve's supervisory information technology (SIT) function, under the governance of the Subcommittee for Data and Technology, works to deliver information technology solutions within the supervision and regulation function. Working collaboratively with the Federal Reserve System supervision and regulation business sponsors, SIT provides services to the business lines as well as information technology project management support to several critical national business applications supporting supervision and regulation.

Supervisory and support tools. To support examiners and other supervisory staff, SIT deployed tools to support the collection, use, and storage of supervisory data. SIT integrated supervisory planning and collection tools with a task and resource management program allowing management to better track and align resources. SIT deployed advanced quantitative analysis and data visualization software to allow supervisory analysts to glean insights from supervisory data.

Streamlined data access and improved security. SIT streamlined data access for the supervision function while enhancing overall information security. SIT provides access to data through a central access management tool to support data, applications, and research access-related responsibilities, and establishes effective prevention and detection controls to limit information security threats. In addition to data access provisioning, the tool supports information security measures through routine procedures to verify users' access to data and information to confirm whether there is a continued need for this access.

National Information Center

The National Information Center (NIC) is the Federal Reserve's authoritative source for supervisory, financial, and banking structure data as well as supervisory documents. The NIC includes (1) data on banking structure throughout the United States and foreign banking concerns, (2) national applications supporting the various supervisory programs and the data they capture, (3) data collection processes, and (4) a platform for sharing of the information with external agencies.

Information sharing and external collaboration. The NIC oversees the implementation of approved regulatory interagency information exchanges, including a continually increasing number of new

requests. The NIC represents the Federal Reserve on the FFIEC Task Force on Information Sharing, and leads a subgroup, The Path Forward, focusing on improving collaboration, examination file exchange, and big data sharing between the regulatory agencies. Efforts continue to work with the business areas to increase capabilities for collaboration between the agencies.

Document management. A high priority for the NIC was to improve document tracking, storage, and access through the implementation of document management software. The software eliminates point-to-point interfaces between document management systems and systems uploading or referencing documents. The software also moves and tracks documents between management systems as the documents progress through their life cycle.

Data quality and usability. Efforts continue to meet the demands resulting from the increasing amount of data being collected and shared. Much of the data is collected under revised supervisory programs. Similar data between programs cannot always be matched and requires alignment for cross-portfolio purposes. The NIC continues to ensure that the underlying data is consistent, readily available, and easily accessible for authorized use. The NIC also works to ensure that all NIC data is easily understood by the various stakeholders and integrated in a flexible manner.

Data collections. The NIC coordinates budgetary activities and ensures that information technology solutions for data collections meet architectural standards. Increased emphasis on data governance, security, and awareness prompted the build-out of a data collection management system that provides intake on data requests, a playbook for and tracking of the regulatory process, as well as overall status reporting.

Staff Development

The Federal Reserve's staff development program supports the ongoing development of nearly 3,000 professional supervisory staff, ensuring that they have the requisite skills necessary to meet their evolving supervisory responsibilities. The Federal Reserve also provides course offerings to staff at state banking agencies. Training activities in 2017 are summarized in table 4.

Examiner Commissioning Program

An overview of the Federal Reserve System's Examiner Commissioning Program for assistant examiners is set forth in SR letter 17-6, "Overview of the Federal Reserve's Supervisory Education Programs."[20]

Examiners choose from one of three specialty tracks: (1) safety and soundness, (2) consumer compliance, or (3) large financial institutions. On average, individuals move through a combination of classroom offerings, self-paced learning, virtual instruction, and on-the-job training over a period of two to three years. Achievement is measured by completing the required course content, demonstrating adequate on-the-job knowledge, and passing a professionally validated proficiency examination. In 2017, 59 examiners passed the proficiency examination (16 in safety and soundness and 43 in consumer compliance).

In 2017, the Board released a new enhanced proficiency examination containing application-based

[20] SR letter 17-6 is available at www.federalreserve.gov/supervisionreg/srletters/sr1706.htm.

Table 4. Training for banking supervision and regulation, 2017

Course sponsor or type	Number of enrollments		Instructional time (approximate training days)[1]	Number of course offerings
	Federal Reserve personnel	State and federal banking agency personnel		
Federal Reserve System	1,062	157	515	103
FFIEC	961	581	420	105
Rapid Response[2]	14,159	1,591	7	61

[1] Training days are approximate. System courses were calculated using five days as an average, with FFIEC courses calculated using four days as an average.

[2] Rapid Response is a virtual program created by the Federal Reserve System as a means of providing information on emerging topics to Federal Reserve and state bank examiners.

questions designed to measure performance reflecting the level of knowledge and skills needed to effectively perform in an examiner-in-charge role. In addition, further learning units were released for the Large Financial Institutions Examiner Commissioning Program, which will continue to be developed and deployed in 2018.

Continuing Professional Development

Throughout 2017, the Federal Reserve System continued to enhance its continuing professional development program. Learning bundles, which organize various types of learning into a cohesive, easily accessible format that often includes reference materials and application opportunities, were a new product designed to meet the need of training on specific risks or common supervisory topics, such as cybersecurity.

Regulation

The Federal Reserve exercises important regulatory influence over entry into the U.S. banking system structure through its administration of several federal statutes. The Federal Reserve is also responsible for imposing margin requirements on securities transactions. In carrying out its responsibilities, the Federal Reserve coordinates supervisory activities with the other federal banking agencies, state agencies, functional regulators (that is, regulators for insurance, securities, and commodities firms), and foreign bank regulatory agencies.

Regulation of the U.S. Banking Structure

The Federal Reserve administers six federal statutes that apply to BHCs, FHCs, member banks, SLHCs, and foreign banking organizations: the BHC Act, the Bank Merger Act, the Change in Bank Control Act, the Federal Reserve Act, section 10 of the Home Owners' Loan Act (HOLA), and the International Banking Act.

In administering these statutes, the Federal Reserve acts on a variety of applications and notices that directly or indirectly affect the structure of the U.S. banking system at the local, regional, and national levels; the international operations of domestic banking organizations; or the U.S. banking operations of foreign banks. The applications and notices concern BHC and SLHC formations and acquisitions, bank mergers, and other transactions involving banks and savings associations or nonbank firms. In 2017, the Federal Reserve acted on 1,259 applications filed under the six statutes.

In 2017, the Federal Reserve published its *Semiannual Report on Banking Applications Activity*, which provides aggregate information on proposals filed by banking organizations and reviewed by the Federal Reserve. The report includes statistics on the number of proposals that have been approved, denied, withdrawn, mooted, or returned as well as general information about the length of time taken to process proposals and common reasons for proposals to be withdrawn from consideration. The reports are available at www.federalreserve.gov/bankinforeg/semiannual-reports-banking-applications-activity.htm.

Bank Holding Company Act Applications

Under the BHC Act, a corporation or similar legal entity must obtain the Federal Reserve's approval before forming a BHC through the acquisition of one or more banks in the United States. Once formed, a BHC must receive Federal Reserve approval before acquiring or establishing additional banks. Also, BHCs generally may engage in only those nonbanking activities that the Board has previously determined to be closely related to banking under section 4(c)(8) of the BHC Act. Depending on the circumstances, these activities may or may not require Federal Reserve approval in advance of their commencement.[21]

When reviewing a BHC application or notice that requires approval, the Federal Reserve considers the financial and managerial resources of the applicant, the future prospects of both the applicant and the firm to be acquired, financial stability factors, the convenience and needs of the community to be served, the potential public benefits, the competitive effects of the proposal, the applicant's compliance with laws and regulations, and the applicant's ability to make available to the Federal Reserve information deemed necessary to ensure compliance with applicable law. The Federal Reserve also must consider the views of the DOJ regarding the competitive aspects of any proposed BHC acquisition involving unaffiliated insured

[21] Since 1996, the BHC Act has provided an expedited prior notice procedure for certain permissible nonbank activities and for acquisitions of small banks and nonbank entities. Since that time, the BHC Act has also permitted well-run BHCs that satisfy certain criteria to commence certain other nonbank activities on a de novo basis without first obtaining Federal Reserve approval.

depository institutions. In the case of a foreign banking organization seeking to acquire control of a U.S. bank, the Federal Reserve also considers whether the foreign bank is subject to comprehensive supervision or regulation on a consolidated basis by its home-country supervisor. In 2017, the Federal Reserve acted on 264 applications and notices filed by BHCs to acquire a bank or a nonbank firm, or to otherwise expand their activities.

A BHC may repurchase its own shares from its shareholders. Certain stock redemptions require prior Federal Reserve approval. The Federal Reserve may object to stock repurchases by holding companies that fail to meet certain standards, including the Board's capital adequacy guidelines. In 2017, the Federal Reserve acted on five stock repurchase applications by BHCs.

The Federal Reserve also reviews elections submitted by BHCs seeking FHC status under the authority granted by the Gramm-Leach-Bliley Act. BHCs seeking FHC status must file a written declaration with the Federal Reserve. In 2017, 36 domestic FHC declarations and one foreign FHC declaration were received.

Bank Merger Act Applications

The Bank Merger Act requires that all applications involving the merger of insured depository institutions be acted on by the relevant federal banking agency. The Federal Reserve has primary jurisdiction if the institution surviving the merger is a state member bank. In acting on a merger application, the Federal Reserve considers the financial and managerial resources of the applicant, the future prospects of the existing and combined organizations, financial stability factors, the convenience and needs of the communities to be served, and the competitive effects of the proposed merger. The Federal Reserve also must consider the views of the U.S. Department of Justice regarding the competitive aspects of any proposed bank merger involving unaffiliated insured depository institutions. In 2017, the Federal Reserve approved 63 merger applications under the Bank Merger Act.

Change in Bank Control Act Applications

The Change in Bank Control Act requires individuals and certain other parties that seek control of a U.S. bank, BHC, or SLHC to obtain approval from the relevant federal banking agency before completing the transaction. The Federal Reserve is responsible for reviewing changes in the control of state member banks, BHCs, and SLHCs. In its review, the Federal Reserve considers the financial position, competence, experience, and integrity of the acquiring person; the effect of the proposed change on the financial condition of the bank, BHC, or SLHC being acquired; the future prospects of the institution to be acquired; the effect of the proposed change on competition in any relevant market; the completeness of the information submitted by the acquiring person; and whether the proposed change would have an adverse effect on the Deposit Insurance Fund. A proposed transaction should not jeopardize the stability of the institution or the interests of depositors. During its review of a proposed transaction, the Federal Reserve also may contact other regulatory or law enforcement agencies for information about relevant individuals. In 2017, the Federal Reserve approved 134 change in control notices.

Federal Reserve Act Applications

Under the Federal Reserve Act, a bank must seek Federal Reserve approval to become a member bank. A member bank may be required to seek Federal Reserve approval before expanding its operations domestically or internationally. State member banks must obtain Federal Reserve approval to establish domestic branches, and all member banks (including national banks) must obtain Federal Reserve approval to establish foreign branches. When reviewing applications for membership, the Federal Reserve considers, among other things, the bank's financial condition and its record of compliance with banking laws and regulations. When reviewing applications to establish domestic branches, the Federal Reserve considers, among other things, the scope and nature of the banking activities to be conducted. When reviewing applications for foreign branches, the Federal Reserve considers, among other things, the condition of the bank and the bank's experience in international banking. In 2017, the Federal Reserve acted on 19 membership applications, 686 new and merger-related domestic branch applications, and two foreign branch application.

State member banks also must obtain Federal Reserve approval to establish financial subsidiaries. These subsidiaries may engage in activities that are financial in nature or incidental to financial activi-

ties, including limited securities-related and insurance agency-related activities. In 2017, no financial subsidiary applications were approved.

Home Owners' Loan Act Applications

Under HOLA, a corporation or similar legal entity must obtain the Federal Reserve's approval before forming an SLHC through the acquisition of one or more savings associations in the United States. Once formed, an SLHC must receive Federal Reserve approval before acquiring or establishing additional savings associations. Also, SLHCs generally may engage in only those nonbanking activities that are specifically enumerated in HOLA or that the Board has previously determined to be closely related to banking under section 4(c)(8) of the BHC Act. Depending on the circumstances, these activities may or may not require Federal Reserve approval in advance of their commencement. In 2017, the Federal Reserve acted on 15 applications filed by SLHCs to acquire a savings association or a nonbank firm, or to otherwise expand their activities.

Under HOLA, a mutual savings association reorganizing to a mutual holding company (MHC) structure must receive Federal Reserve approval prior to its reorganization. In addition, an MHC must receive Federal Reserve approval before converting to stock form, and MHCs must receive Federal Reserve approval before waiving dividends declared by the MHC's subsidiary. In 2017, the Federal Reserve acted on five MHC reorganization applications and eight applications to waive dividends. There were no applications approved for MHCs to convert to stock form.

When reviewing an SLHC application or notice that requires approval, the Federal Reserve considers the financial and managerial resources of the applicant, the future prospects of both the applicant and the firm to be acquired, the convenience and needs of the community to be served, the potential public benefits, the competitive effects of the proposal, and the applicant's ability to make available to the Federal Reserve information deemed necessary to ensure compliance with applicable law. The Federal Reserve also must consider the views of the DOJ regarding the competitive aspects of any SLHC proposal involving the acquisition or merger of unaffiliated insured depository institutions.

The Federal Reserve also reviews elections submitted by SLHCs seeking status as FHCs under the authority granted by the Dodd-Frank Act. SLHCs seeking FHC status must file a written declaration with the Federal Reserve. In 2017, no SLHC FHC declarations were received.

Overseas Investment Applications by U.S. Banking Organizations

U.S. banking organizations may engage in a broad range of activities overseas. Many of the activities are conducted indirectly through Edge Act and agreement corporation subsidiaries. Although most foreign investments are made under general consent procedures that involve only after-the-fact notification to the Federal Reserve, large and other significant investments require prior approval. In 2017, the Federal Reserve approved 18 applications and notices for overseas investments by U.S. banking organizations, many of which represented investments through an Edge Act or agreement corporation.

International Banking Act Applications

The International Banking Act, as amended by the Foreign Bank Supervision Enhancement Act of 1991, requires foreign banks to obtain Federal Reserve approval before establishing branches, agencies, commercial lending company subsidiaries, or representative offices in the United States.

In reviewing applications, the Federal Reserve generally considers whether the foreign bank is subject to comprehensive supervision or regulation on a consolidated basis by its home-country supervisor. It also considers whether the home-country supervisor has consented to the establishment of the U.S. office; the financial condition and resources of the foreign bank and its existing U.S. operations; the managerial resources of the foreign bank; whether the home-country supervisor shares information regarding the operations of the foreign bank with other supervisory authorities; whether the foreign bank has provided adequate assurances that information concerning its operations and activities will be made available to the Federal Reserve, if deemed necessary to determine and enforce compliance with applicable law; whether the foreign bank has adopted and implemented procedures to combat money laundering and whether the home country of the foreign bank is developing a legal regime to address money laun-

dering or is participating in multilateral efforts to combat money laundering; and the record of the foreign bank with respect to compliance with U.S. law. In 2017, the Federal Reserve approved three applications by foreign banks to establish branches, agencies, or representative offices in the United States.

Public Notice of Federal Reserve Decisions and Filings Received

Certain decisions by the Federal Reserve that involve a BHC, SLHC, a bank merger, a change in control, or the establishment of a new U.S. banking presence by a foreign bank are made known to the public by an order or an announcement. Orders state the decision, the essential facts of the application or notice, and the basis for the decision; announcements state only the decision. All orders are made public immediately and are subsequently reported in the Board's weekly H.2 statistical release. The H.2 release also contains announcements of applications and notices received by the Federal Reserve upon which action has not yet been taken. For each pending application and notice, the related H.2A release gives the deadline for comments. The Board's website provides information on orders and announcements (www.federalreserve.gov/newsevents/press/orders/2017orders.htm) as well as a guide for U.S. and foreign banking organizations that wish to submit applications (www.federalreserve.gov/bankinforeg/afi/afi.htm).

Enforcement of Other Laws and Regulations

The Federal Reserve's enforcement responsibilities also extend to the disclosure of financial information by state member banks and the use of credit to purchase and carry securities.

Financial Disclosures by State Member Banks

Under the Securities Exchange Act of 1934 and the Federal Reserve's Regulation H, certain state member banks are required to make financial disclosures to the Federal Reserve using the same reporting forms (such as Form 10K—annual report and Schedule 14A—proxy statement) that are normally used by publicly held entities to submit information to the SEC.[22] As most of the publicly held banking organizations are BHCs and the reporting threshold was recently raised, only two state member banks were required to submit data to the Federal Reserve in 2017. The information submitted by these two small state member banks is available to the public upon request and is primarily used for disclosure to the bank's shareholders and public investors.

Assessments for Supervision and Regulation

The Dodd-Frank Act directs the Board to collect assessments, fees, or other charges equal to the total expenses the Board estimates are necessary or appropriate to carry out the supervisory and regulatory responsibilities of the Board for BHCs and SLHCs with total consolidated assets of $50 billion or more and nonbank financial companies designated for Board supervision by the FSOC. As a collecting entity, the Board does not recognize the supervision and regulation assessments as revenue nor does the Board use the collections to fund Board expenses; the funds are transferred to the Treasury. The Board collected and transferred $507,914,174 in 2017 for the 2016 supervision and regulation assessment.

Securities Credit

Under the Securities Exchange Act of 1934, the Board is responsible for regulating credit in certain transactions involving the purchasing or carrying of securities. The Board's Regulation T limits the amount of credit that may be provided by securities brokers and dealers when the credit is used to purchase debt and equity securities. The Board's Regulation U limits the amount of credit that may be provided by lenders other than brokers and dealers when the credit is used to purchase or carry publicly held equity securities if the loan is secured by those or other publicly held equity securities. The Board's Regulation X applies these credit limitations, or margin requirements, to certain borrowers and to certain credit extensions, such as credit obtained from foreign lenders by U.S. citizens.

Several regulatory agencies enforce the Board's securities credit regulations. The SEC, the Finan-

[22] Under section 12(g) of the Securities Exchange Act, certain companies that have issued securities are subject to SEC registration and filing requirements that are similar to those imposed on public companies. Per section 12(i) of the Securities Exchange Act, the powers of the SEC over banking entities that fall under section 12(g) are vested with the appropriate banking regulator. Specifically, state member banks with 2,000 or more shareholders and more than $10 million in total assets are required to register with, and submit data to, the Federal Reserve. These thresholds reflect the recent amendments by the Jumpstart Our Business Startups Act (JOBS Act).

cial Industry Regulatory Authority, and the Chicago Board Options Exchange examine brokers and dealers for compliance with Regulation T. With respect to compliance with Regulation U, the federal banking agencies examine banks under their respective jurisdictions; the FCA and the NCUA examine lenders under their respective jurisdictions; and the Federal Reserve examines other Regulation U lenders.

5 Consumer and Community Affairs

The Division of Consumer and Community Affairs (DCCA) has primary responsibility for carrying out the Board of Governors' core activity of consumer protection and community development to promote fair and transparent financial service markets, protect consumers' rights, and ensure that its policies and research take into account consumer and community perspectives. This charge includes assessing and taking corrective actions to address consumer risks among financial institutions it supervises while also fostering proven programs in consumer compliance and community investment.

Throughout 2017, the division engaged in numerous consumer and community-related functions and policy activities in the following areas:

- **Formulating consumer-focused supervision and examination policy to ensure that financial institutions for which the Federal Reserve has authority comply with consumer protection laws and regulations and meet requirements of community reinvestment laws and regulations.** The division provided oversight for the Reserve Bank consumer compliance supervision and examination of state member banks and bank holding companies (BHCs) through its policy development, examiner training, and supervision oversight programs. This includes policy setting and oversight of state member banks' performance under the Community Reinvestment Act (CRA); conducting oversight of and providing guidance to Reserve Bank staff on consumer compliance in BHC matters; assessment of compliance with and enforcement of a wide range of consumer protection laws and regulations, including those related to fair lending, unfair or deceptive acts or practices (UDAP), and flood insurance; analysis of bank and BHC applications in regard to consumer protection, convenience and needs, and the CRA; and processing of consumer complaints.
- **Conducting research, analysis, and data collection to inform Federal Reserve and other policymakers about consumer protection risks and community economic development issues and opportunities.** The division analyzed ongoing and emerging consumer financial services and community risks, practices, issues, and opportunities to understand and act on their implications for supervisory policy as well as to gain insight into consumer decisionmaking related to financial services and access to credit for small businesses.
- **Engaging and convening key stakeholders to identify emerging issues and advance what works in community reinvestment and consumer protection.** The division continued to promote fair and informed access to financial markets for all consumers, particularly underserved populations, by engaging lenders, government officials, and community leaders. Throughout the year, DCCA convened programs to share information on the financial and economic needs in low- and moderate-income (LMI) communities, research on effective community development policies and strategies, and best practices in the management and control of consumer compliance risks.
- **Writing and reviewing regulations that effectively implement consumer protection and community reinvestment laws.** The division manages the Board's regulatory responsibilities with respect to certain entities and specific statutory provisions of the consumer financial services and fair lending laws. In 2017, DCCA participated in drafting interagency regulations and compliance guidance for the industry and the Reserve Banks.

Supervision and Examinations

DCCA develops supervisory policy and examination procedures for consumer protection laws and regulations, as well as for the CRA, as part of its supervision of the organizations for which the Board has authority, including bank and financial holding companies, state member banks, foreign banking organizations, Edge Act corporations, and agreement cor-

porations.[1] The division also administers the Federal Reserve System's risk-focused program for assessing consumer compliance risk at the largest banks and financial holding companies in the System, with division staff ensuring that consumer compliance risk is effectively integrated into the consolidated supervision of the holding company. DCCA staff monitor trends in consumer products to inform the risk-based supervisory planning process. Quantitative risk metrics and screening systems use data to assess market activity, consumer complaints, and supervisory findings to assist with the determination of risk levels at firms.

The division oversees the efforts of the 12 Reserve Banks to ensure that the Federal Reserve's consumer compliance supervisory program reflects its commitment to promoting financial inclusion and compliance with applicable federal consumer protection laws and regulations in the 815 state member banks it supervises. Division staff coordinate with the prudential regulators and the Consumer Financial Protection Bureau (CFPB) as part of the supervisory coordination requirements under the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), and ensure that consumer compliance risk is appropriately incorporated into the consolidated risk-management program of the approximately 135 bank and financial holding companies with assets over $10 billion. Division staff provide guidance and expertise to the Reserve Banks on consumer protection laws and regulations, bank and BHC application analysis and processing, examination and enforcement techniques and policy matters, examiner training, and emerging issues. Finally, staff members participate in interagency activities that promote consistency in examination principles, standards, and processes.

Examinations are the Federal Reserve's primary method of ensuring compliance with consumer protection laws and assessing the adequacy of consumer compliance risk-management systems within regulated entities. During 2017, the Reserve Banks completed 225 consumer compliance examinations of state member banks, 193 CRA examinations of state member banks, 52 examinations of foreign banking organizations, 4 examinations of Edge Act corporations, and no examinations of agreement corporations.

Mortgage Servicing and Foreclosure

Payment Agreement Status

Throughout 2017, Board staff continued to oversee and implement the enforcement actions that were issued by the Federal Reserve and the Office of the Comptroller of the Currency (OCC) against 16 mortgage loan servicers between April 2011 and April 2012. At the time of the enforcement actions, along with other requirements, the two regulators directed servicers to retain independent consultants to conduct comprehensive reviews of foreclosure activity to determine whether eligible[2] borrowers suffered financial injury because of servicer errors, misrepresentations, or other deficiencies. The file review initiated by the independent consultants, combined with a significant borrower outreach process, was referred to as the Independent Foreclosure Review (IFR).

In 2013, the regulators entered into agreements with 15 of the mortgage loan servicers to replace the IFR with direct cash payments to all eligible borrowers and other assistance (the Payment Agreement).[3] The participating servicers agreed to pay an estimated $3.9 billion to 4.4 million borrowers whose primary residence was in a foreclosure process in 2009 or 2010. The Payment Agreement also required the servicers to contribute an additional $5.8 billion in other

1 The Federal Reserve has examination and enforcement authority for federal consumer financial laws and regulations for insured depository institutions with assets of $10 billion or less that are state member banks and not affiliates of covered institutions, as well as for conducting CRA examinations for all state member banks regardless of size. The Federal Reserve Board also has examination and enforcement authority for certain federal consumer financial laws and regulations for insured depository institutions that are state member banks with over $10 billion in assets, while the Consumer Financial Protection Bureau has examination and enforcement authority for many federal consumer financial laws and regulations for insured depository institutions with over $10 billion in assets and their affiliates (covered institutions), as mandated by the Dodd-Frank Act.

Agency and branch offices of foreign banking organizations, Edge Act corporations, and agreement corporations fall under the Federal Reserve's purview for consumer compliance activities. An agreement corporation is a type of bank chartered by a state to engage in international banking. The bank agrees with the Federal Reserve Board to limit its activities to those allowed by an Edge Act corporation. An Edge Act corporation is a banking institution with a special charter from the Federal Reserve to conduct international banking operations and certain other forms of business without complying with state-by-state banking laws. By setting up or investing in Edge Act corporations, U.S. banks are able to gain portfolio exposure to financial investing operations not available under standard banking laws.

2 Borrowers were eligible if their primary residence was in a foreclosure action with one of the sixteen mortgage loan servicers at any time in 2009 or 2010.

3 One OCC-regulated servicer elected to complete the Independent Foreclosure Review, and did not, therefore, enter into the Payment Agreement.

foreclosure prevention assistance, such as loan modifications and forgiveness of deficiency judgments. For the participating servicers, fulfillment of the agreement satisfied the foreclosure review requirements of the enforcement actions issued by the regulators in 2011 and 2012. The Payment Agreement did not affect the servicers' continuing obligations under the enforcement actions to address deficiencies in their mortgage servicing and foreclosure policies and procedures.

A paying agent, Rust Consulting, Inc. (Rust), was retained to administer payments to borrowers on behalf of the participating servicers. Beginning in April 2013, a letter with an enclosed check was sent to borrowers who had a foreclosure action initiated, pending, or completed in 2009 or 2010 with any of the participating servicers. Letters with checks were mailed to eligible borrowers through 2016. For checks that had not been cashed or were returned undeliverable, the agencies directed Rust to expand its efforts to locate more-current address information for the unpaid borrowers. For nearly all borrowers, at least two, and in most cases, three attempts were made to reach each borrower.

More than $3.5 billion was distributed to eligible borrowers through 3.9 million checks, representing nearly 91 percent of the total value of the funds. Receiving a payment under the agreement did not prevent borrowers from taking any action they may wish to pursue related to their foreclosure. Servicers were not permitted to ask borrowers to sign a waiver of any legal claims they may have against their servicer in connection with receiving payment.[4]

At the direction of the Federal Reserve, in August 2016, Rust redistributed any funds remaining after all outstanding initial checks expired, to eligible borrowers of Federal Reserve-supervised servicers who had cashed or deposited their initial checks. This direction applied only to funds related to mortgage servicers supervised by the Federal Reserve and was consistent with the Federal Reserve's intention to distribute the maximum amount of funds to borrowers potentially affected by deficient servicing and foreclosure practices. The redistribution of approximately $80 million in remaining funds resulted in nearly $59 million being cashed or deposited by borrowers of servicers supervised by the Federal Reserve. The borrower payment process concluded at the end of 2016. Once the audit of the final reconciliation of the payment funds has been completed, any funds remaining that were provided by servicers supervised by the Federal Reserve as part of the Payment Agreement will be remitted to the U.S. Treasury.

Foreclosure Prevention Actions

The Payment Agreement also required servicers to undertake well-structured loss-mitigation efforts focused on foreclosure prevention, with preference given to activities designed to keep borrowers in their homes through affordable, sustainable, and meaningful home preservation actions within two years from the date the agreement in principle was reached. The foreclosure prevention actions were expected to provide significant and meaningful relief or assistance to qualified borrowers and, as stated in the agreement, "should not disfavor a specific geography within or among states, nor disfavor low and/or moderate income borrowers, and not discriminate against any protected class."

All servicers were required to submit reports detailing the consumer-relief actions they had taken to satisfy these requirements. The foreclosure prevention assistance actions reported included loan modifications, short sales, deeds-in-lieu of foreclosure, debt cancellation, and lien extinguishment. In order to receive credit toward the servicer's total foreclosure prevention obligation, the actions submitted must be validated by the regulators. A third party completed this validation to ensure that the foreclosure prevention assistance amounts met the requirements of the amendments to the enforcement actions. As stated in the *Independent Foreclosure Review Report* (July 2014),[5] the Federal Reserve expects to publish data in 2018 regarding the final status of the cash payments and the foreclosure prevention assistance focused primarily on servicers regulated by the Federal Reserve.

Servicer Efforts to Address Deficiencies

In addition to the foreclosure review requirements, the enforcement actions required mortgage servicers to submit acceptable written plans to address various mortgage loan servicing and foreclosure processing deficiencies. In the time since the enforcement actions were issued, the banking organizations have been implementing the action plans, including enhanced controls, and improving systems and processes. The supervisory review of the mortgage servicers' action

[4] For more information, see www.federalreserve.gov/consumerinfo/independent-foreclosure-review-payment-agreement.htm.

[5] For the report, see www.federalreserve.gov/publications/other-reports/files/independent-foreclosure-review-2014.pdf.

plans has shown that the banking organizations under the enforcement actions have implemented significant corrective actions with regard to their mortgage servicing and foreclosure processes, and for most servicers, those corrective actions appear to be sustainable. As a result, the majority of the enforcement actions were terminated on January 12, 2018.[6] For the remaining servicers, Federal Reserve supervisory teams continue to monitor and evaluate the servicers' progress on implementing the action plans to address unsafe and unsound mortgage servicing and foreclosure practices as required by the enforcement actions.

Supervisory Matters

Enforcement Activities

Fair Lending and UDAP Enforcement

Through its supervision and enforcement teams, DCCA is committed to ensuring that the institutions it supervises comply fully with the federal fair lending laws—the Equal Credit Opportunity Act (ECOA) and the Fair Housing Act (FHA). The ECOA prohibits creditors from discriminating against any applicant, in any aspect of a credit transaction, on the basis of race, color, religion, national origin, sex, marital status, or age. In addition, creditors may not discriminate against an applicant because the applicant receives income from a public assistance program or has exercised, in good faith, any right under the Consumer Credit Protection Act. The FHA prohibits discrimination in residential real-estate-related transactions—including the making and purchasing of mortgage loans—on the basis of race, color, religion, sex, handicap, familial status, or national origin.

The Board supervises all state member banks for compliance with the FHA. The Board and the CFPB both have supervisory authority for compliance with the ECOA. For state member banks with assets of $10 billion or less, the Board has the authority to enforce the ECOA. For state member banks with assets over $10 billion, the CFPB has this authority.

With respect to the Federal Trade Commission Act (FTC Act), which prohibits unfair or deceptive acts or practices, the Board has supervisory and enforcement authority over all state member banks, regardless of asset size. The Board is committed to ensuring that the institutions it supervises comply fully with the prohibition on unfair or deceptive acts or practices as outlined in the FTC Act. An act or practice may be found to be unfair if it causes or is likely to cause substantial injury to consumers that is not reasonably avoidable by consumers and not outweighed by countervailing benefits to consumers or to competition. A representation, omission, or practice is deceptive if it is likely to mislead a consumer acting reasonably under the circumstances and is likely to affect a consumer's conduct or decision regarding a product or service.

Fair lending and UDAP reviews are conducted regularly within the supervisory cycle. Additionally, examiners may conduct fair lending and UDAP reviews outside of the usual supervisory cycle, if warranted by fair lending and UDAP risk. When examiners find evidence of potential discrimination or potential UDAP violations, they work closely with DCCA's Fair Lending and UDAP Enforcement sections, which provide additional legal and statistical expertise and ensure that fair lending and UDAP laws are enforced consistently and rigorously throughout the Federal Reserve System.

With respect to fair lending, pursuant to the ECOA, if the Board has reason to believe that a creditor has engaged in a pattern or practice of discrimination in violation of the ECOA, the matter must be referred to the Department of Justice (DOJ). The DOJ reviews the referral and determines whether further investigation is warranted. A DOJ investigation may result in a public civil enforcement action. Alternatively, the DOJ may decide to return the matter to the Board for administrative enforcement. When a matter is returned to the Board, staff ensure that the institution takes all appropriate corrective action.

During 2017, the Federal Reserve referred to the DOJ three matters that involved discrimination on the basis of marital status, in violation of the ECOA. The banks improperly required spousal signatures on commercial and consumer loans, in violation of Regulation B.

If there is a fair lending violation that does not constitute a pattern or practice under the ECOA or a UDAP violation, the Federal Reserve takes action to ensure that the violation is remedied by the bank. Most lenders readily agree to correct fair lending and UDAP violations, often taking corrective action as soon as they become aware of a problem. Thus, the Federal Reserve frequently uses informal supervisory

[6] For the press release, see www.federalreserve.gov/newsevents/pressreleases/enforcement20180112a.htm.

tools (such as memoranda of understanding between banks' boards of directors and the Reserve Banks, or board resolutions) to ensure that violations are corrected. When necessary, the Board can bring public enforcement actions.

The Board brought two public enforcement actions for UDAP violations in 2017. In October, the Board issued a consent order against a bank for deceptive practices related to balance transfer credit cards issued to consumers through third parties. The order required the bank to pay approximately $5 million in restitution to nearly 21,000 consumers and take other corrective actions.[7] In November, the Board issued another consent order against a bank for deceptive residential mortgage origination practices. The institution told certain borrowers that they were paying an additional amount for discount points that would lower the borrowers' interest rate. However, many borrowers did not receive a reduced rate. The enforcement action required the bank to pay approximately $2.8 million into an account to provide restitution to these borrowers.[8]

Given the complexity of this area of supervision, the Federal Reserve seeks to provide transparency on its perspectives and processes to the industry and the public. Fair Lending and UDAP Enforcement staff meet regularly with consumer advocates, supervised institutions, and industry representatives to discuss fair lending and UDAP issues and receive feedback. Through this outreach, the Board is able to address emerging fair lending and UDAP issues and promote sound fair lending and UDAP compliance. For example, in 2017, the Board sponsored a free interagency webinar on fair lending supervision through Compliance Outlook Live, which had approximately 6,000 registrants, most of which were community banks.[9] In addition, DCCA staff participate in numerous meetings, conferences, and trainings sponsored by consumer advocates, industry representatives, and interagency groups.

Flood Insurance

The National Flood Insurance Act imposes certain requirements on loans secured by buildings or mobile homes located in, or to be located in, areas determined to have special flood hazards. Under the Federal Reserve's Regulation H, which implements the act, state member banks are generally prohibited from making, extending, increasing, or renewing any such loan unless the building or mobile home, as well as any personal property securing the loan, are covered by flood insurance for the term of the loan. The law requires the Board and other federal financial institution regulatory agencies to impose civil money penalties when they find a pattern or practice of violations of the regulation.

In 2017, the Federal Reserve issued seven formal consent orders and assessed more than $1.6 million in civil money penalties against state member banks to address violations of the flood regulations. An action against one bank accounted for the majority of the civil money penalties issued.[10] These statutorily mandated penalties were forwarded to the National Flood Mitigation Fund held by the Department of the Treasury for the benefit of the Federal Emergency Management Agency.

Community Reinvestment Act

The CRA requires that the Federal Reserve and other federal banking regulatory agencies encourage financial institutions to help meet the credit needs of the local communities in which they do business, consistent with safe and sound operations. To carry out this mandate, the Federal Reserve

- examines state member banks to assess their performance under the CRA;
- considers banks' CRA performance in context with other supervisory information when analyzing applications for mergers and acquisitions; and
- disseminates information about community development techniques to bankers and the public through Community Development offices at the Reserve Banks.[11]

The Federal Reserve assesses and rates the CRA performance of state member banks in the course of examinations conducted by staff at the 12 Reserve Banks. During the 2017 reporting period, the Reserve Banks completed 193 CRA examinations of state member banks. Of those banks examined, 22 were rated "Outstanding," 165 were rated "Satisfactory,"

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[7] For more information, see www.federalreserve.gov/newsevents/pressreleases/enforcement20171026a.htm.

[8] For more information, see www.federalreserve.gov/newsevents/pressreleases/enforcement20171128a.htm.

[9] For more information and to obtain the webcast, see www.consumercomplianceoutlook.org/outlook-live/2017/interagency-fair-lending-hot-topics/.

[10] For more information, see www.federalreserve.gov/newsevents/pressreleases/enforcement20170525b.htm.

[11] For more information on various community development activities of the Federal Reserve System, see www.fedcommunities.org.

6 were rated "Needs to Improve," and none were rated "Substantial Non-Compliance."

During the 2017 review period, the Board, the Federal Deposit Insurance Corporation (FDIC), and the OCC published in the *Federal Register* a final rule amending their respective CRA regulations primarily to conform to changes made by the CFPB to Regulation C, which implements HMDA. Since 1995, certain definitions in the CRA regulations have conformed to the scope of loans reported under Regulation C, and the three agencies believe that continuing to do so results in a less burdensome CRA performance evaluation process. In addition to these conforming changes, the final rule contained technical corrections and removed obsolete references to the Neighborhood Stabilization Program.[12] The three agencies are also working on a long-term project to evaluate the interagency examination procedures to determine where meaningful updates and guidance can be incorporated.

Mergers and Acquisitions

The Federal Reserve analyzes expansionary applications by banks or BHCs, taking into account the likely effects of the acquisition on competition, the convenience and needs of the communities to be served, the financial and managerial resources and future prospects of the companies and banks involved, and the effectiveness of the company's policies to combat money laundering. As part of this process, DCCA evaluates whether the institutions are currently meeting the convenience and needs of their communities and the effectiveness of existing managerial resources, as well as the institutions' ability to meet the convenience and needs of their communities and the adequacy of their managerial resources after the proposed transaction.

The depository institution's CRA record is a critical component of this analysis. The CRA requires the Federal Reserve to consider a bank's record of helping to meet the credit needs of its local communities in evaluating applications for mergers, acquisitions, and branches. An institution's most recent CRA performance evaluation is a particularly important, and often controlling, consideration in the applications process because it represents a detailed on-site evaluation of the institution's performance under the CRA by its federal supervisor.

As part of the analysis of managerial resources, the Federal Reserve reviews the institution's record of compliance with consumer protection laws and regulations. The institution's most recent consumer compliance rating is central to this review because, like the CRA performance evaluation, it represents the detailed findings of the institution's supervisory agency.

Less-than-satisfactory CRA or consumer compliance ratings or other significant consumer compliance issues can pose an impediment to the processing and approval of the application. Federal Reserve staff gather additional information about CRA and consumer compliance performance in many circumstances, such as when the financial institution(s) involved in an application has less-than-satisfactory CRA or compliance ratings or recently identified consumer compliance issues, or when the Federal Reserve receives comments from interested parties that raise CRA or consumer compliance issues. To further enhance transparency about this process, the Board issued guidance to the public in 2014 describing the Federal Reserve's approach to applications and notices, highlighting those that may not satisfy statutory requirements for approval of a proposal or that otherwise raise supervisory or regulatory concerns.[13]

Because these applications are of interest to the public, they often generate comments that raise various issues for Board staff to consider in their analyses of the supervisory and lending records of the applicants. With respect to consumer compliance and community reinvestment, one of the more common allegations is that either or both the target and the acquirer fail to make credit available to certain minority groups and to LMI individuals and communities. Commenters also often express concerns about branch closures or the banks' record of lending to small businesses in LMI geographies.

In evaluating the applications and the merits of public comments, the Board considers information provided by applicants and analyzes supervisory information, including examination reports with evaluations of compliance with fair lending and other consumer protection laws and regulations, and confers with other regulators, as appropriate, for their supervisory views. If warranted, the Federal Reserve will also conduct pre-membership exams for a trans-

[12] See www.federalreserve.gov/newsevents/pressreleases/bcreg20171120a.htm.

[13] For more information, see www.federalreserve.gov/supervisionreg/srletters/sr1402.htm.

action in which an insured depository institution will become a state member bank or in which the surviving entity of a merger would be a state member bank.[14]

The Board provides information on its actions associated with these merger and acquisition transactions, issuing press releases and Board Orders for each.[15] The Federal Reserve also publishes semiannual reports that provide pertinent information on applications and notices filed with the Federal Reserve.[16] The reports include statistics on the number of proposals that had been approved, denied, and withdrawn as well as general information about the length of time taken to process proposals. Additionally, the reports discuss common reasons that proposals have been withdrawn from consideration.

During 2017, the Board considered over 100 applications, with topics ranging from change in control notices, to branching requests, to mergers and acquisitions. DCCA staff analyzed 23 notices and applications for transactions involving bank mergers and branching that involved adverse public comments on CRA issues or consumer compliance issues, such as fair lending, which the Board considered and approved.[17]

Coordination with the Consumer Financial Protection Bureau

During 2017, staff continued to coordinate on supervisory matters with the CFPB in accordance with the Interagency Memorandum of Understanding on Supervision Coordination with the CFPB. The agreement is intended to establish arrangements for coordination and cooperation among the CFPB and the OCC, the FDIC, the National Credit Union Association, and the Board of Governors. The agreement strives to minimize unnecessary regulatory burden and to avoid unnecessary duplication of effort and conflicting supervisory directives amongst the prudential regulators. The regulators work cooperatively to share exam schedules for covered institutions and covered activities to plan simultaneous exams, provide final drafts of examination reports for comment, and share supervisory information.

Coordination with Other Federal Banking Agencies

The Board regularly coordinates with other federal banking agencies, including through the development of interagency guidance, in order to clearly communicate supervisory expectations. The Federal Reserve also works with the other member agencies of the Federal Financial Institutions Examination Council (FFIEC) to develop consistent examination principles, standards, procedures, and report formats.[18] In 2017, the banking agencies continued to work together on various initiatives.

Updating Examination Procedures

In August, the FFIEC developed HMDA Examiner Transaction Testing Guidelines that include sampling, verification, and resubmission procedures for use in connection with HMDA data collected beginning on January 1, 2018, pursuant to the CFPB's amendments to Regulation C. The guidelines describe how to validate the accuracy of such HMDA data and the circumstances in which examiners may direct institutions to correct and resubmit data.

In October, the Board, the FDIC, and the OCC developed a revised list of HMDA key data fields for examiners to use in connection with validating the accuracy of HMDA data collected beginning on January 1, 2018, pursuant to the CFPB's amendments to Regulation C. These HMDA key fields are those that the Federal Reserve, the FDIC, and the OCC collectively determined to be most critical to the integrity of analyses of overall HMDA data.

Coordinating Transfer of HMDA Data Operations

Also in 2017, the FFIEC continued to implement its plan for the transfer of HMDA data operations to the CFPB in January 2018. The Board collected and processed submissions of HMDA data through December 2017 and will administer the legacy HMDA data operations system, including collecting and processing any resubmissions of HMDA data that were originally submitted prior to January 2018.

[14] In October 2015, the Federal Reserve issued guidance providing further explanation on its criteria for waiving or conducting such pre-merger or pre-membership examinations. For more information, see www.federalreserve.gov/supervisionreg/srletters/SR1511.htm.

[15] To access the Board's Orders on Banking Applications, see www.federalreserve.gov/newsevents/pressreleases.htm.

[16] For these reports, see www.federalreserve.gov/supervisionreg/semiannual-reports-banking-applications-activity.htm.

[17] Another application on which adverse public comments were received was withdrawn by the applicant. Related notices and applications for which a single Board Order was issued were counted as a single notice or application in this total.

[18] For more information, see www.ffiec.gov.

Uniform Interagency Consumer Compliance Ratings System

In November 2016, the FFIEC announced the issuance of an updated Uniform Interagency Consumer Compliance Rating System (CC Rating System).[19] The CC Rating System is a supervisory policy for evaluating financial institutions' adherence to consumer compliance requirements. The CC Rating System provides a general framework for assessing risks during the supervisory process using certain compliance factors and assigning an overall consumer compliance rating to each federally regulated financial institution.

Federal Reserve examiners began applying the updated rating system to consumer compliance examinations of state member banks that started on or after March 31, 2017. To ensure that examiners were prepared to consistently apply the new rating system, consumer compliance examiners attended a mandatory web-based training session, followed by in-person case study training. Additionally, the Federal Reserve published an article entitled "Implementing the New Uniform Interagency Consumer Compliance Rating System" in the first 2017 issue of its Consumer Compliance Outlook newsletter.[20] To assist financial institution management teams in understanding the new rating system, this article highlighted the foundational principles of the CC Rating System, discussed the framework on which the CC Rating System is based, and explained how examiners will apply the CC Rating System in evaluating a financial institution's consumer compliance management system.

Supporting Financial Institutions and Borrowers Affected by Hurricanes Harvey and Irma

The Federal Reserve, along with the OCC, FDIC, and state bank regulators recognized the serious impact of Hurricanes Harvey and Irma on the customers and operations of many financial institutions on August 26 and September 6, 2017, respectively.[21] The agencies issued the statements on supervisory practices regarding institutions and borrowers affected by the hurricanes. The agencies offered to provide regulatory assistance to affected institutions subject to their supervision and issued a statement encouraging institutions in the affected areas to meet the financial services needs of their communities. The agencies' statements included guidance on the following areas.

- **Lending.** Bankers should work constructively with borrowers in communities affected by Hurricanes Harvey and Irma. Understanding the transitory nature of the circumstances, the agencies indicated they would consider the unusual circumstances they face and recognized that efforts to work with borrowers in communities under stress can be consistent with safe-and-sound banking practices as well as in the public interest.
- **Community Reinvestment Act.** Financial institutions may receive CRA consideration for community development loans, investments, or services that revitalize or stabilize federally designated disaster areas in their assessment areas or in the states or regions that include their assessment areas.
- **Investments.** Bankers should monitor municipal securities and loans affected by the hurricanes, as the agencies realize local government projects may be negatively affected.

Examiner Training

Ensuring that financial institutions comply with laws that protect consumers and encourage community reinvestment is a fundamental aspect of the bank examination and supervision process. As the complexity of both consumer financial transactions and the regulatory landscape has increased, timely and responsive training for consumer compliance examiners is vitally important. The examiner staff development function is responsible for the ongoing development of the professional consumer compliance supervisory staff, from an initial introduction to the Federal Reserve System through the development of proficiency in consumer compliance topics sufficient to earn an examiner's commission. DCCA's role is to ensure that examiners have the skills necessary to meet their supervisory responsibilities now and in the future.

Consumer Compliance Examiner Training Curriculum

The consumer compliance examiner training curriculum has historically consisted of five courses focused on consumer protection laws, regulations, and examining concepts. In 2017, these courses were offered in 10 sessions, and training was delivered to a total of 94 Federal Reserve consumer compliance examiners and staff members and 11 state banking agency

[19] For more information, see www.federalreserve.gov/bankinforeg/caletters/caltr1608.htm.

[20] See https://consumercomplianceoutlook.org/2017/first-issue/implementing-the-new-uniform-interagency-consumer-compliance-rating-system/.

[21] For more information, see www.federalreserve.gov/newsevents/pressreleases/bcreg20170826a.htm and www.federalreserve.gov/newsevents/pressreleases/bcreg20170906a.htm.

examiners. These courses have been conducted principally by traditional classroom delivery method. Board and Reserve Bank staff have played an active role in regularly reviewing the core curriculum, updating subject matter, and adding new elements as appropriate.

While the examiner training program has consistently exhibited strengths, the Federal Reserve began efforts in 2015 to institute elements of curriculum modernization. Other business lines within Supervision Learning had completed, or were in the process of, converting their curriculum into self-directed, online, and blended delivery methods. These modernized features offered learners and Reserve Banks an ability to customize and to meet training demands more individually and cost effectively. This flexibility significantly enhances the Consumer Compliance training program.

Following the establishment of a dedicated modernization program in early 2016, the project has continued throughout 2017 and is slated for completion in late 2020. Throughout 2016 and 2017, DCCA continued its partnership with Reserve Bank personnel, both subject-matter experts and professional instructional designers, who together are assessing and excerpting the critical elements from the existing curriculum and adapting the material for incorporation into the modernized format.

During calendar-year 2017, the development team focused its efforts on the components of the first regulation-based course in the traditional curriculum, Introduction to Consumer Compliance (CA I). The team completed its analysis of the examination tasks to be captured, sub-dividing the first week of the two-week course into three broad areas: Examination Overview, Deposits, and the Basics of Operations. For the section Examination Overview, the team developed design documents; drafted narrative storyboards; beta-tested; and during the fourth quarter of 2017, launched the section as an independent "learning unit" available to potential learners through the Banking Supervision Learning Center. The two remaining components are slated to be launched in early 2018. The team will next turn its attention to the broad regulatory area of lending and credit-related regulations that, together, will replace the remaining portion of the CA I course and the Real Estate Lending Examination Techniques course.

Ongoing Training Opportunities

In addition to providing core examiner training, the examiner staff development function emphasizes the importance of continuing, lifelong learning. Opportunities for continuing learning include special projects and assignments, self-study programs, rotational assignments, the opportunity to instruct at System schools, mentoring programs, and a consumer compliance examiner forum held every 18 months, most recently in September 2017, where senior consumer compliance examiners receive information on emerging compliance issues and are able to share best practices from across the System. To accommodate those individuals unable to attend the forum in-person, a live-stream option is also offered.

In 2017, the System continued to offer Rapid Response sessions. Introduced in 2008, Rapid Response sessions offer examiners webinars on emerging issues or urgent training needs that result from the implementation of new laws, regulations, or supervisory guidance as well as case studies. Six consumer compliance Rapid Response sessions were designed, developed, and presented to System staff during 2017. In addition, examiner training is also developed and presented through the FFIEC Examiner Exchange program, a partnership with the Federal Reserve Bank of St. Louis to provide FFIEC-sponsored interagency webinars and calls through its Center for Learning Innovation.

Outreach and Training to Agency and Industry Stakeholders

During 2017, the Federal Reserve System collaborated with its supervisory agency partners to offer an Outlook Live session entitled "2017 Interagency Fair Lending Topics."[22] These specialty sessions are focused on delivering timely, relevant compliance information to the banking industry as well as to experienced examiners and other regulatory personnel.

Additionally, in 2017 two volumes of *Consumer Compliance Outlook* were issued. *Consumer Compliance Outlook* discusses consumer compliance issues of interest to compliance professionals. This publication, managed by the Federal Reserve Bank of Philadelphia, is distributed to state member banks and

[22] For more information, see www.consumercomplianceoutlook.org/.

bank and savings and loan holding companies supervised by the Federal Reserve.

Responding to Consumer Complaints and Inquiries

The Federal Reserve investigates complaints against state member banks and selected nonbank subsidiaries of BHCs (Federal Reserve regulated entities), and forwards complaints against other creditors and businesses to the appropriate enforcement agency. Each Reserve Bank investigates complaints against Federal Reserve regulated entities in its District. The Federal Reserve also responds to consumer inquiries on a broad range of banking topics, including consumer protection questions.

The Federal Reserve Consumer Help (FRCH) centralizes the processing of consumer complaints and inquiries that come to the Federal Reserve. In 2017, FRCH processed 30,180 cases. Of these cases, 20,153 were inquiries and the remainder (10,027) were complaints, with most cases received directly from consumers. Approximately 8 percent of cases were referred to the Federal Reserve from other federal and state agencies.

While consumers can contact FRCH by a variety of different channels, most FRCH consumer contacts occurred by telephone (63 percent). Nevertheless, 33 percent (10,104) of complaint and inquiry submissions were made electronically (via email, online submissions, and fax), and the online form page received 17,019 visits during the year.

Consumer Complaints

Complaints against Federal Reserve regulated entities totaled 2,624 in 2017. Approximately 2 percent (49) of these complaints were closed without investigation, pending the receipt of additional information from consumers. One percent of the total complaints were still under investigation in December 2017. Fifty-two percent (1,376) involved unregulated practices, and 47 percent (1,229) involved regulated practices. (Table 1 shows the breakdown of complaints about regulated practices by regulation or act; table 2 shows complaints by product type.)

Complaints about Regulated Practices

The majority of regulated practices complaints concerned credit card accounts (53.2 percent), checking accounts (19.8 percent), and real estate (6 percent).[23]

Table 1. Complaints against state member banks and selected nonbank subsidiaries of bank holding companies about regulated practices, by regulation/act, 2017

Regulation/act	Number
Regulation AA (Unfair or Deceptive Acts or Practices)	40
Regulation B (Equal Credit Opportunity)	23
Regulation BB (Community Reinvestment)	2
Regulation CC (Expedited Funds Availability)	78
Regulation D (Reserve Requirements)	1
Regulation DD (Truth in Savings)	75
Regulation E (Electronic Funds Transfers)	141
Regulation H (National Flood Insurance Act/Insurance Sales)	7
Regulation M (Consumer Leasing Provisions of TILA)	1
Regulation P (Privacy of Consumer Financial Information)	30
Regulation V (Fair and Accurate Credit Transactions)	114
Regulation Z (Truth in Lending)	152
Garnishment Rule	3
Fair Credit Reporting Act	472
Fair Debt Collection Practices Act	47
Fair Housing Act	21
Real Estate Settlement Procedures Act	20
Servicemembers Civil Relief Act (SCRA)	2
Total	**1,229**

The most common credit card complaints related to inaccurate credit reporting (57 percent), forgery/fraud (9 percent), payment errors/delays (6 percent), and billing error resolution (5 percent). The most common checking account complaints related to funds availability not as expected (26 percent), deposit error resolution (17 percent), insufficient funds/overdraft charges and procedures (11 percent), and disputed withdrawal of funds (9 percent). The most common real estate complaints by problem code related to escrow problems (18 percent), inaccurate credit reporting (16 percent), debt collection/foreclosure concerns (12 percent), and payment errors/delays (12 percent).

Twenty-three regulated practices complaints alleging credit discrimination on the basis of prohibited borrower traits or rights were received in 2017. Thirteen discrimination complaints were related to the race, color, national origin, or ethnicity of the applicant or borrower. Eight discrimination complaints were related to either the age, handicap, familial status, or religion of the applicant or borrower. Of the closed complaints alleging credit discrimination based on a prohibited basis in 2017, there were no violations related to illegal credit discrimination.

[23] Real estate loans include adjustable-rate mortgages, residential construction loans, open-end home equity lines of credit, home improvement loans, home purchase loans, home refinance/closed-end loans, and reverse mortgages.

Table 2. Complaints against state member banks and selected nonbank subsidiaries of bank holding companies about regulated practices, by product type, 2017

Subject of complaint/product type	All complaints		Complaints involving violations	
	Number	Percent	Number	Percent
Total	**1,229**	**100**	**30**	**2.4**
Discrimination alleged				
Real estate loans	18	1.4	2	0.2
Credit cards	1	0.1	0	0.0
Other loans	7	0.6	0	0.0
Nondiscrimination complaints				
Checking accounts	243	19.8	12	0.9
Real estate loans	74	6.0	5	0.4
Credit cards	654	53.2	3	0.2
Other	232	18.9	8	0.7

In 77 percent of investigated complaints against Federal Reserve regulated entities, evidence revealed that institutions correctly handled the situation. Of the remaining 23 percent of investigated complaints, 4 percent were identified errors that were corrected by the bank, 2 percent were deemed violations of law, and the remainder included matters involving litigation or factual disputes, withdrawn complaints, internally referred complaints, or information was provided to the consumer.

Complaints about Unregulated Practices

The Board continued to monitor complaints about banking practices not subject to existing regulations. In 2017, the Board received 1,376 complaints against Federal Reserve regulated entities that involved these unregulated practices. The majority of the complaints were related to electronic transactions/prepaid products (33 percent), checking account activity (21 percent), credit cards (17 percent), and real estate loans (3 percent).

Complaint Referrals

In 2017, the Federal Reserve forwarded 7,290 complaints to other regulatory agencies and government offices for investigation. To minimize the time required to re-route complaints to these agencies, referrals were transmitted electronically.

The Federal Reserve forwarded 19 complaints to the Department of Housing and Urban Development (HUD) that alleged violations of the Fair Housing Act[24] and were closed in 2017. The Federal Reserve's investigation of these complaints revealed no instances of illegal credit discrimination.

Consumer Inquiries

The Federal Reserve received 20,153 consumer inquiries in 2017 covering a wide range of topics. Consumers were typically directed to other resources, including other federal agencies or written materials, to address their inquiries.

Consumer Laws and Regulations

Throughout 2017, DCCA continued to administer the Board's regulatory responsibilities with respect to certain entities and specific statutory provisions of the consumer financial services and fair lending laws. This included drafting regulations and issuing compliance guidance for the industry and the Reserve Banks and fulfilling the division's role in consulting with the CFPB on consumer financial services and fair lending regulations for which it has rulemaking responsibility.

Conforming CRA Regulations to HMDA Regulation

In December, the federal bank regulatory agencies amended their respective CRA regulations primarily to conform to changes made by the CFPB to Regulation C, which implements the Home Mortgage Disclosure Act.

In addition, the final rule contains technical corrections and removed obsolete references to the Neighborhood Stabilization Program.

[24] A memorandum of understanding between HUD and the federal bank regulatory agencies requires that complaints alleging a violation of the Fair Housing Act be forwarded to HUD.

The agencies' CRA regulations specify the type of lending and other activities that examiners evaluate to assess a financial institution's CRA performance. The regulations provide several categories of loans that may be evaluated to determine an institution's performance under the retail lending test, one of which is home mortgage loans.

Since 1995, the Board, the FDIC, and the OCC have conformed certain definitions in their respective CRA regulations to the scope of loans reported under the HMDA rules. The agencies believe that continuing to do so produces a less burdensome CRA performance evaluation process. Accordingly, based on changes the CFPB recently made to the HMDA rules, the agencies amended their CRA regulations to revise the definitions of "home mortgage loan" and "consumer loan" as well as the public file content requirements.[25] These revisions maintain consistency between the agencies' CRA regulations and the CFPB's amendments that become effective on January 1, 2018.

Previously, the CRA regulations defined a "home mortgage loan" to mean a "home improvement loan," "home purchase loan," or a "refinancing" as those terms are currently defined in the HMDA regulation. The CFPB's revisions to Regulation C revise the scope of loans reportable under HMDA. In some cases, the revised scope of loans reported under Regulation C is broader, and in other cases more limited. For example, the revised HMDA rules now require covered financial institutions to report applications for, and originations and purchases of, an open-end line of credit secured by a dwelling. However, home improvement loans that are not secured by a dwelling, which were previously required to be reported under HMDA, are no longer reportable transactions under the revised Regulation C.

To conform the CRA definition of "home mortgage loan" to the revisions in Regulation C that became effective on January 1, 2018, the agencies revised the current definition of "home mortgage loan" in their CRA regulations to mean a "closed-end mortgage loan" or an "open-end line of credit," as those terms are defined under the new HMDA regulation. As a result of the revisions to the "home mortgage loan" definition, the manner in which some loan transactions are considered under CRA will be affected.

[25] For more information, see www.federalreserve.gov/newsevents/pressreleases/bcreg20171120a.htm.

Annual Indexing of Exempt Consumer Credit and Lease Transactions

In November 2017, the Board and the CFPB announced the revised dollar thresholds in Regulation Z (Truth in Lending) and Regulation M (Consumer Leasing) that will apply in 2018 for determining exempt consumer credit and lease transactions. These thresholds are set pursuant to statutory changes enacted by the Dodd-Frank Wall Street Reform and Consumer Protection Act that require adjusting these thresholds annually based on the annual percentage increase in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). Transactions at or below the thresholds are subject to the protections of the regulations.[26]

Threshold for Small Loan Exemption from Appraisal Requirements for Higher-Priced Mortgage Loans

In November, the Board, the CFPB, and the OCC announced that the threshold for exempting loans from special appraisal requirements for higher-priced mortgage loans would increase for 2018.[27] The Dodd-Frank Act amended the Truth in Lending Act to add special appraisal requirements for higher-priced mortgage loans, including a requirement that creditors obtain a written appraisal based on a physical visit to the home's interior before making a higher-priced mortgage loan. The rules implementing these requirements contain an exemption for loans of $25,000 or less and also provide that the exemption threshold will be adjusted annually to reflect increases in the CPI-W.

Annual Adjustment to CRA Asset-Size Threshold for Small and Intermediate Small Institutions

In addition, in December the Board and other federal bank regulatory agencies announced the annual adjustment to the asset-size thresholds used to define small bank, small savings association, intermediate small bank, and intermediate small savings association under the CRA regulations.[28]

[26] For more information, see www.federalreserve.gov/newsevents/pressreleases/bcreg20171108a.htm.

[27] For more information, see www.federalreserve.gov/newsevents/pressreleases/bcreg20171120b.htm.

[28] For more information , see www.federalreserve.gov/newsevents/pressreleases/bcreg20171221a.htm.

Financial institutions are evaluated under different CRA examination procedures based upon their asset-size classification. Those meeting the small and intermediate small institution asset-size thresholds are not subject to the reporting requirements applicable to large banks and savings associations unless they choose to be evaluated as a large institution.

Annual adjustments to these asset-size thresholds are based on the change in the average of the CPI-W, not seasonally adjusted, for each 12-month period ending in November, with rounding to the nearest million.

As a result of the 2.11 percent increase in the CPI-W for the period ending in November 2017, the definitions of small and intermediate small institutions for CRA examinations were changed as follows:

- "Small bank" or "small savings association" means an institution that, as of December 31 of either of the prior two calendar years, had assets of less than $1.252 billion.
- "Intermediate small bank" or "intermediate small savings association" means a small institution with assets of at least $313 million as of December 31 of both of the prior two calendar years and less than $1.252 billion as of December 31 of either of the prior two calendar years.

These asset-size threshold adjustments took effect January 1, 2018.

Updates to Consumer Compliance Regulations

In December, the Board announced the repeal of one regulation and the revision of a second to reflect the transfer of certain consumer protection rulemaking authority to the CFPB.[29]

With the CFPB issuing final rules to implement the Home Mortgage Disclosure Act, the Board published a final rule to repeal its Regulation C. In addition, the Board published a proposal to revise its Regulation M, which implements the Consumer Leasing Act (CLA), to reflect changes in the coverage of the Board's rule under the Dodd-Frank Act.

Prior to enactment of the Dodd-Frank Act, the CLA was implemented solely by the Board's Regulation M, which applied to all types of lessors. Rulemaking authority for the CLA currently rests with the CFPB, with the exception of rules applicable to certain motor vehicle dealers. The proposed amendments to the Board's Regulation M would clarify the scope of the Board's rule, which applies only to lessors that are excluded under the Dodd-Frank Act from coverage by the CFPB's leasing regulation.

Consumer Research and Analysis of Emerging Issues and Policy

Throughout 2017, DCCA analyzed emerging issues in consumer financial services policies and practices in order to understand their implications for the market-risk surveillance and supervisory policies that are core to the Federal Reserve's functions as well as to gain insight into consumer financial decisionmaking.

Researching Issues Affecting Consumers and Communities

In 2017, DCCA explored various issues related to consumers and communities by convening experts, conducting original research, and fielding surveys. The information gleaned from these undertakings provided insights into the factors affecting consumers and households.

Household Economics and Decisionmaking

In order to better understand consumer decisionmaking in the rapidly evolving financial services sector, DCCA periodically conducts internet panel surveys to gather data on consumers' experiences and perspectives on various issues of interest.

Results of DCCA's Survey of Household Economics and Decisionmaking (SHED) were published in the *Report on the Economic Well-Being of U.S. Households in 2016*, released in May 2017.[30] DCCA launched the survey to better understand consumer decisionmaking in the wake of the Great Recession, with the aim to capture a snapshot of the financial and economic well-being of U.S. households. In doing so, the SHED collects information on households that is not readily available from other sources or is not available in combination with other variables of interest. It also oversamples LMI households in order to obtain additional precision regarding findings among these populations.

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29 For more information, see www.federalreserve.gov/newsevents/pressreleases/bcreg20171218a.htm.

30 For more information, see www.federalreserve.gov/consumerscommunities/shed.htm.

The survey also asked respondents about specific aspects of their financial lives, including the following areas:

- employment and informal work
- income and savings
- economic preparedness
- banking and credit
- housing and living arrangements
- education and human capital
- education debt and student loans
- retirement

Among its key findings, the survey found that overall in 2016, individuals and their families continued to express modest improvements in their overall well-being relative to that seen in recent years. However, those with more education appear to have driven most of the observed gains in well-being relative to the previous year. Seventy percent of adults reported that they were either "living comfortably" or "doing okay," compared to 69 percent in 2015 and 62 percent in 2013. However, approximately 73 million adults in 2016 were either "finding it difficult to get by" or are "just getting by financially." Income volatility remains a concern for individuals, especially those with less education and among racial and ethnic minorities. Forty-four percent of adults said they could not cover an emergency expense costing $400, or would cover it by selling something or borrowing money. This metric has continued to improve from the 50 percent who were ill-prepared for this magnitude of expense when first asked in 2013.

Understanding Disparities in the Labor Market

Labor market outcomes vary widely across demographic groups, including those defined by race/ethnicity, gender, and geography. Accordingly, economic analyses that focus exclusively on aggregate outcomes may overlook important disparities in how various groups experience the labor market. In September 2017, the Board hosted a conference that brought together diverse networks of researchers and policy analysts to examine the causes of these disparities, to explore the implications for aggregate economic performance, and to brainstorm new directions for research and policy.[31] The papers presented included research from both Federal Reserve System staff as well as external researchers. The presentations and discussion examined disparities in unemployment, earnings, and other labor market outcomes by race/ethnicity, gender, culture, and geography and provided insights on factors contributing to these gaps.

Analysis of Emerging Issues

The Policy Analysis function of DCCA provides key insights, information, and analysis on emerging financial services issues that affect the well-being of consumers and communities. To this end, staff analyze and anticipate trends, form working groups, and organize expert roundtables to identify emerging consumer risks and inform supervision, research, and policy.

In 2017, staff developed analyses on a broad range of issues in financial services markets that potentially pose risks to consumers.

- **Auto lending.** Staff have continued explorations of developments in the auto finance market and their impact on consumers, especially subprime auto borrowers. Topics of particular focus in 2017 included trends in loan terms, such as loan-to-value ratios and loan maturities, and their relationship to loan performance among various categories of borrowers.
- **Gender wealth gap.** DCCA's ongoing efforts to better understand household financial stresses and well-being was augmented in 2017 through the exploration of gender wealth disparities with researchers and practitioners in the field. This work, which will continue in the coming year, aims to shed light on economic factors contributing to gaps in income and wealth levels by gender.
- **Retail banking.** Policy Analysis team members have been collaborating with colleagues throughout the division to monitor trends in retail banking, such as rising numbers of branch closures and increasing adoption of online and mobile technologies by consumers for their banking needs. As part of an ongoing effort, over the past year, the team has organized listening sessions with consumer groups to better understand how branch closures are affecting consumers and communities.
- **Small business lending.** Smaller firms' access to affordable credit is of particular interest to DCCA because the finances of these businesses and their

[31] For more information, see www.federalreserve.gov/conferences/disparities-in-the-labor-market-about-2017.htm. For remarks provided by Federal Reserve Board Governor Lael Brainard, see www.federalreserve.gov/newsevents/speech/brainard20170927a.htm.

owners frequently are intertwined. They often lack both the financing options available to larger firms and in-house financial expertise to guide their credit decisions. DCCA has been exploring how changes in the small business credit landscape affect these smaller firms. Issues analyzed by the team range from trends in commercial credit provided by large and small banks, to new online credit products offered by nonbanks, and to financial challenges facing certain segments of potential borrowers, including minority- and women-owned small businesses. The team also conducts extensive outreach with banks, online lenders, and borrower advocates to stay abreast of developments and emerging issues in both traditional and online small business small-dollar credit.

- **Student lending.** In 2017, the team collaborated with the Trellis Company (formerly Texas Student Loan Guarantee Corporation) and the National Association of Student Financial Aid Administrators to conduct an in-depth survey of and report about financial aid administrators' experiences with student loan counseling and the challenges they encounter.[32] This work expanded on findings from a 2016 report based on focus groups conducted with financial aid counselors.[33] Key findings from both reports include that counselors generally perceive low levels of financial literacy among the majority of their students; that aid administrators overwhelmingly rely on the U.S. Department of Education's online counseling tool to provide mandatory entrance and exit loan counseling; and that better-resourced financial aid offices are more likely to proactively reach out to targeted groups of students that they believe are at highest risk of struggling to repay their student loans.

Community Development

The Federal Reserve System's Community Development function promotes economic growth and financial stability—particularly for underserved households and communities—by informing research, policy, and action. As a decentralized function, the Community Affairs Officers at each of the 12 Reserve Banks design activities to respond to the specific needs of the communities they serve. Board staff provide oversight for alignment with Board objectives and coordinate System priorities. The System's Community Development functions routinely collaborate to leverage expertise and resources to support research and best practices that advance community economic development—most notably, the biennial research conference. For more information, see box 1.

Exploring Opportunities for Economic Growth through Regional Food Systems Investments

Building on its efforts to better understand the economic and financial conditions in rural communities, Community Development staff across the Federal Reserve explored the connection between the strength of regional food systems and a community's economic, social, and physical vitality. In partnership with the U.S. Department of Agriculture, the Federal Reserve published *Harvesting Opportunity: The Power of Regional Food System Investments to Transform Communities*. The book highlights ways in which regionally focused food systems promote economic opportunity and security as well as how capital providers and other partners are working together to invest in the sector. Additionally, the Federal Reserve collaborated with stakeholders from across the country to further conversations in their communities about how the findings in *Harvesting Opportunity* can advance local efforts to promote regional food systems.

Community Development staff will continue to convene national thought leaders to frame future research and policy considerations that would facilitate the flow of capital and economic investment in rural communities in 2018.

Supporting Rising Community Leaders

A key purpose of the Community Development function at the Federal Reserve is to ensure that the voices and concerns of consumers and communities are represented at the U.S. central bank. An important part of achieving the function's mission is ensuring that the Federal Reserve hears the perspectives of representatives from both new and well-established organizations. To that end, the Community Develop-

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[32] Jeff Webster, Chris Fernandez, Carla Fletcher, and Kasey Klepfer, *Engaging Student Borrowers: Results of a Survey of Financial Aid Professionals* (Round Rock, TX: Trellis Company, October 2017), www.trelliscompany.org/wp-content/uploads/2017/11/Engaging-Student-Borrowers.pdf.

[33] Board of Governors of the Federal Reserve System, *Student Loan Counseling Challenges and Opportunities: Findings from Focus Groups with Financial Aid Counselors* (Washington: Board of Governors, November 2016), www.federalreserve.gov/consumerscommunities/files/student-loan-counseling-challenges-and-opportunities-2016.pdf.

Box 1. Supporting Strong Foundations for Kids and Communities

Every two years, the Board and the 12 Federal Reserve Banks collaborate to host the Federal Reserve System Community Development Research Conference. The goal of this multidisciplinary event is to advance research that explores important socioeconomic issues. These conferences convene researchers, policymakers, and practitioners across sectors to consider important issues that low- to moderate-income people and communities face, exploring the latest research to inform effective strategies to advance opportunity for economically vulnerable households and areas.

In 2017, the System hosted the 10th conference of this biennial event, “Strong Foundations: The Economic Futures of Kids and Communities,” which was based on evidence that shows kids with strong cognitive and social foundations are better-equipped to succeed in life and contribute to society at large.[1] Recognizing that not all children have the same opportunities to grow and develop, the conference organizers sought to create a forum to spark a dialogue among researchers, policymakers, and community practitioners on how to set young people on a strong course.[2]

The event explored the interplay between the development of kids and their communities, with an understanding that factors such as safe, affordable housing; community facilities; and job opportunities profoundly affect key economic and social aspects of kids’ lives and their future economic success. In dialogue with policymakers and community practitioners, researchers from around the country presented their work on early childhood development and community conditions that influence social and economic outcomes later in life, including educational and workforce outcomes. Discussions delved into the relationship between the development of children and community conditions and the effect of investments in early childhood education and other key community development areas on the economy. The research shared expanded the base of studies intending to inform questions about key drivers to success, differences across subpopulations, scalable intervention strategies, and policy considerations.

Featured speakers included Federal Reserve Chair Janet Yellen,[3] Federal Reserve Bank of Minneapolis President Neel Kashkari, Federal Reserve Bank of Chicago President Charles Evans, and Harlem Children’s Zone founder Geoffrey Canada.

1 For more information, including agenda, research papers, and media coverage, see https://minneapolisfed.org/community/tenth-biennial-federal-reserve-system-community-development-research-conference.

2 See www.federalreserve.gov/newsevents/pressreleases/other20170321a.htm.

3 See www.federalreserve.gov/newsevents/speech/yellen20170323a.htm.

ment units at the Board and the 12 Reserve Banks have hosted nearly 100 rising community leaders since 2013 as part of the Community Leaders Forum (CLF). The goals of the forum are to (1) strengthen the community development field through peer-to-peer learning that promotes applied research and innovative community strategies and (2) from those directly involved, improve the Federal Reserve’s understanding of and response to emerging trends and their impact on consumers and communities, particularly those that are traditionally underserved.

In November 2017, the Board and the Federal Reserve Bank of Dallas hosted a CLF meeting that reunited the six cohorts of community leaders from all 12 Reserve Banks. The main goal of the meeting was to support CLF members to increase their influence and impact in local communities. For example, the Federal Reserve Bank of Dallas hosted a workshop entitled “Casting a Vision and Aligning Your Priorities.” Though most of the participants had not met prior to Dallas, by the end of two days together, they set in motion a virtual network that intends to collectively address complex community problems across Reserve Bank districts.

6 Federal Reserve Banks

The Federal Reserve Banks provide payment services to depository and certain other institutions, distribute the nation's currency and coin to depository institutions, and serve as fiscal agents and depositories for the U.S. government and other entities. The Reserve Banks also contribute to setting national monetary policy and supervision of banks and other financial entities operating in the United States (discussed in sections 2 through 4 of this annual report).

Federal Reserve Priced Services

Reserve Banks provide a range of payment and related services to depository and certain other institutions; these "priced services" include collecting checks, operating an automated clearinghouse (ACH) service, transferring funds and securities, and providing a multilateral settlement service.[1]

The Reserve Banks have been engaged in a number of multiyear technology initiatives that will modernize their priced-services processing platforms. These investments are expected to enhance efficiency, the overall quality of operations, and the Reserve Banks' ability to offer additional services, consistent with the longstanding principles of fostering efficiency and safety, to depository institutions. The Reserve Banks continued to enhance the resiliency and information security posture of the Fedwire Funds, National Settlement Service, and Fedwire Securities Service through the Fedwire Resiliency Program, a multiyear initiative to respond to environmental threats and cyberthreats. The Reserve Banks are also developing and planning to implement a new FedACH-processing platform to improve the efficiency and reliability of their current FedACH operations. In September 2017, the Reserve Banks implemented the second of three phases of the SameDay ACH service in support of a National Automated Clearing House Association (NACHA) operating rule change; the new SameDay ACH service enhances the existing Reserve Bank SameDay ACH product by enabling time-critical payments via the ACH network and improving the availability of funds to end users. The most recent phase enabled same-day ACH debits for payments such as mortgage and utility payments.[2]

Cost Recovery

The Monetary Control Act of 1980 requires that the Federal Reserve establish fees for priced services to recover, over the long run, all direct and indirect costs actually incurred as well as the imputed costs that would have been incurred—including financing costs, taxes, and certain other expenses—and the return on equity (profit) that would have been earned if a private business firm had provided the services.[3] The imputed costs and imputed profit are collectively referred to as the private-sector adjustment factor (PSAF). From 2008 through 2017, the Reserve Banks recovered 101.9 percent of the total priced services costs, including the PSAF (see table 1).[4]

In 2017, Reserve Banks recovered 104.1 percent of the total priced services costs, including the PSAF.[5]

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[1] The ACH enables depository institutions and their customers to process large volumes of payments through electronic batch processes.

[2] The first phase of same-day ACH was implemented in September 2016 and enabled same-day ACH credits for payments, such as direct deposit of payroll, social security benefits, and tax refunds.

[3] Depository Institutions Deregulation and Monetary Control Act, Pub. L. No. 96-221, 94 Stat. 132 (1980). Financial data reported throughout this section—including revenue, other income, costs, income before taxes, and net income—will reference the "Pro Forma Financial Statements for Federal Reserve Priced Services" at the end of this section.

[4] According to the Accounting Standards Codification (ASC) Topic 715 (ASC 715), Compensation–Retirement Benefits, the Reserve Banks recognized a $628.1 million reduction in equity related to the priced services' benefit plans through 2017. Including this reduction in equity, which represents a decline in economic value, results in cost recovery of 94.7 percent for the 10-year period. For details on how implementing ASC 715 affected the pro forma financial statements, refer to note 3 to the pro forma financial statements at the end of this section.

[5] Total cost is the sum of operating expenses, imputed costs (income taxes, interest on debt, interest on float, and sales taxes), and the targeted return on equity.

Table 1. Priced services cost recovery, 2008–17
Millions of dollars, except as noted

Year	Revenue from services[1]	Operating expenses and imputed costs[2]	Targeted return on equity[3]	Total costs	Cost recovery (percent)[4]
2008	873.8	820.4	66.5	886.9	98.5
2009	675.4	707.5	19.9	727.5	92.8
2010	574.7	532.8	13.1	545.9	105.3
2011	478.6	444.4	16.8	461.2	103.8
2012	449.8	423.0	8.9	432.0	104.1
2013	441.3	409.3	4.2	413.5	106.7
2014	433.1	418.7	5.5	424.1	102.1
2015	429.1	397.8	5.6	403.4	106.4
2016	434.1	410.5	4.1	414.7	104.7
2017	441.6	419.4	4.6	424.0	104.1
2008–17	5,231.6	4,983.9	149.2	5,133.2	101.9

Note: Here and elsewhere in this section, components may not sum to totals or yield percentages shown because of rounding.

1 For the 10-year period, includes revenue from services of $5,108.6 million and other income and expense (net) of $123.0 million.

2 For the 10-year period, includes operating expenses of $4,831.7 million, imputed costs of $43.8 million, and imputed income taxes of $108.4 million.

3 From 2009 to 2012, the PSAF was adjusted to reflect the actual clearing balance levels maintained; previously, the PSAF had been calculated based on a projection of clearing balance levels.

4 Revenue from services divided by total costs. For the 10-year period, cost recovery is 94.7 percent, including the effect of accumulated other comprehensive income (AOCI) reported by the priced services under ASC 715. For details on changes to the estimation of priced services AOCI and their effect on the pro forma financial statements, refer to note 3 to the "Pro Forma Financial Statements for Federal Reserve Priced Services" at the end of this section.

The Reserve Banks' operating expenses and imputed costs totaled $419.4 million. Revenue from operations totaled $441.6 million, resulting in net income from priced services of $22.2 million. The commercial check-collection service, the Fedwire Funds and National Settlement Services, and the Fedwire Securities Service achieved full cost recovery; however, the FedACH Service did not achieve full cost recovery because of investment costs associated with the multiyear technology initiative to modernize its processing platform.

Commercial Check-Collection Service

The commercial check-collection service provides a suite of electronic and paper processing options for forward and return collections. In 2017, the Reserve Banks recovered 107.0 percent of the total costs of their commercial check-collection service, including the related PSAF. Revenue from operations totaled $142.0 million, resulting in net income of $10.7 million. The Reserve Banks' operating expenses and imputed costs totaled $131.3 million. Reserve Banks handled 5.2 billion checks in 2017, a decrease of 1.7 percent from 2016 (see table 2). The average daily value of checks collected by the Reserve Banks in 2017 was approximately $33.8 billion, a decrease of 5.0 percent from the previous year.

Commercial Automated Clearinghouse Service

The commercial ACH service provides domestic and cross-border batched payment options for same-day and next-day settlement. In 2017, the Reserve Banks recovered 99.8 percent of the total costs of their commercial ACH services, including the related PSAF. Revenue from operations totaled $141.3 million, resulting in a net income of $1.3 million. The Reserve Banks' operating expenses and imputed costs totaled $140.0 million. The Reserve Banks processed 13.7 billion commercial ACH transactions in 2017, an increase of 6.1 percent from 2016 (see table 2). The average daily value of FedACH transfers in 2017 was approximately $93.6 billion, an increase of 8.0 percent from the previous year.

Fedwire Funds and National Settlement Services

In 2017, the Reserve Banks recovered 106.2 percent of the costs of their Fedwire Funds and National Settlement Services, including the related PSAF. Revenue from operations totaled $129.7 million, resulting in a net income of $8.9 million. The Reserve Banks' operating expenses and imputed costs totaled $120.8 million in 2017.

Table 2. Activity in Federal Reserve priced services, 2015–17
Thousands of items, except as noted

Service	2017	2016	2015	Percent change	
				2016 to 2017	2015 to 2016
Commercial check	5,152,521	5,241,286	5,452,369	-1.7	-3.9
Commercial ACH	13,749,249	12,960,346	12,298,307	6.1	5.4
Fedwire funds transfer	156,788	151,899	146,006	3.1	4
National settlement	517	501	508	3.3	-1.4
Fedwire securities	3,465	3,881	4,218	-10.7	-8

Note: Activity in commercial check is the total number of commercial checks collected, including processed and fine-sort items; in commercial ACH, the total number of commercial items processed; in Fedwire funds transfer and securities transfer, the number of transactions originated online and offline; and in national settlement, the number of settlement entries processed.

Fedwire Funds Service

The Fedwire Funds Service allows its participants to send or receive domestic time-critical payments using their balances at Reserve Banks to transfer funds in real time. From 2016 to 2017, the number of Fedwire funds transfers originated by depository institutions increased 3.1 percent, to approximately 157 million (see table 2). The average daily value of Fedwire funds transfers in 2017 was $2.9 trillion, a decrease of 3.5 percent from the previous year.

National Settlement Service

The National Settlement Service is a multilateral settlement system that allows participants in private-sector clearing arrangements to settle transactions using their balances at Reserve Banks. In 2017, the service processed settlement files for 12 local and national private-sector arrangements. The Reserve Banks processed 8,243 files that contained about 517,000 settlement entries for these arrangements in 2017 (see table 2). Settlement file activity in 2017 decreased 1.0 percent, and settlement entries increased 3.3 percent.

Fedwire Securities Service

The Fedwire Securities Service allows its participants to transfer electronically to other service participants certain securities issued by the U.S. Treasury Department, federal government agencies, government-sponsored enterprises, and certain international organizations.[6] In 2017, the Reserve Banks recovered 103.6 percent of the costs of their Fedwire Securities Service, including the related PSAF. Revenue from operations totaled $28.6 million, resulting in a net income of $1.3 million. The Reserve Banks' operating expenses and imputed costs totaled $27.3 million in 2017. In 2017, the number of non-Treasury securities transfers processed via the service decreased 10.7 percent from 2016, to approximately 3.5 million (see table 2). The average daily value of Fedwire Securities transfers in 2017 was approximately $1.2 trillion, an increase of 4.4 percent from the previous year.

Float

In 2017, the Reserve Banks had daily average credit float of $379.3 million, compared with daily average credit float of $334.4 million in 2016.[7]

Currency and Coin

The Federal Reserve Board issues the nation's currency (in the form of Federal Reserve notes) to 28 Federal Reserve Bank offices. The Reserve Banks, in turn, distribute Federal Reserve notes to depository institutions in response to public demand. The Reserve Banks also distribute coin to depository institutions on behalf of the U.S. Department of the Treasury's Mint.[8] Together, the Board and Reserve

[6] The expenses, revenues, volumes, and fees reported here are for transfers of securities issued by federal government agencies, government-sponsored enterprises, and certain international organizations. Reserve Banks provide Treasury securities services in their role as Treasury's fiscal agent. These services are not considered priced services. For details, see "Treasury Securities Services" later in this section.

[7] Credit float occurs when the Reserve Banks debit the paying bank for checks and other items prior to providing credit to the depositing bank.

[8] The Federal Reserve Board is the issuing authority for Federal Reserve notes, whereas the United States Mint, a bureau of the U.S. Department of the Treasury, is the issuing authority for coin.

Box 1. Improving the U.S. Payment System

The Federal Reserve plays many roles in the payment system, including payment system operator, supervisor of financial institutions and systemically important financial market utilities, regulator, researcher, and catalyst for improvement. Acting primarily in its catalyst role, the Federal Reserve encouraged payment stakeholders to join together to improve the payment system in the United States in its *Strategies for Improving the U.S. Payment System* (*Strategies*) paper, issued in January 2015. The strategies outlined in the paper included the creation of a task force focused on faster payments and another on payment security, both of which provided forums for a diverse group of industry participants to collaborate.

The strategies and tactics included in the *Strategies* paper represented the first steps in the payment improvement journey. Many are substantially under way or nearing completion, and some have been completed. In 2017, the Faster Payments Task Force (FPTF) released a two-part final report outlining recommended industry actions to support the goal of all end users' being able to receive faster payments by 2020. The report also provides an overview of 16 proposals developed by FPTF members for implementing faster payments in the United States, including the results of an independent assessment of those proposals. Over the course of the year, the Secure Payments Task Force continued to address the industry's most pressing payment system security issues: identity management, data protection, and fraud and risk information sharing.

Following up on the work of the task forces and other efforts outlined in the *Strategies* paper, the Federal Reserve published a paper in September 2017 that presented refreshed strategies and tactics for improving the speed, safety, and efficiency of the U.S. payment system in collaboration with payment system stakeholders. Many of these refreshed strategies are currently being implemented. Consistent with the FPTF's recommendations, the industry's faster payments Governance Framework Formation Team was established in the summer of 2017, with Federal Reserve support. At the end of 2017, the Federal Reserve initiated a strategic assessment of its settlement services for the long-term benefit of the U.S. payment system. As part of this assessment, the Federal Reserve is exploring options to support interbank settlement of real-time retail payments, including 24x7x365 real-time settlement functionality. The Federal Reserve has also begun to explore and assess the need, if any, for Federal Reserve engagement as a service provider, beyond providing settlement services, in the faster payment ecosystem. With respect to payment security, the Federal Reserve took initial steps toward conducting a study that is designed to inform industry security-improvement efforts.[1]

The Federal Reserve's FedPayments Improvement website (https://fedpaymentsimprovement.org/) hosts a FedPayments Improvement Community that enables interested parties to stay informed and to engage in an exchange of information pertaining to the Federal Reserve's efforts to improve the U.S. payment system.

[1] The Federal Reserve announced plans in early 2018 to transition its industry engagement from the task force model to an approach that will provide greater flexibility for stakeholders to engage in the ongoing payment security initiatives. As part of this transition, the Secure Payments Task Force concluded its efforts in March 2018, following publication of its final deliverables. Later in 2018, the Federal Reserve expects to initiate new collaborative industry work groups, informed by its planned security study.

Banks work to maintain the integrity of and confidence in Federal Reserve notes. In 2017, the Board paid Treasury's Bureau of Engraving and Printing (BEP) $673.9 million for costs associated with the production of 6.6 billion Federal Reserve notes.

The volume of Federal Reserve notes in circulation at year-end 2017 totaled 41.6 billion pieces, a 4.7 percent increase from 2016. More than half of this growth was attributable to growth in demand for $100 notes, and an additional 34 percent was attributable to growth in demand for $1 and $20 notes. In 2017, the Reserve Banks distributed 37.0 billion Federal Reserve notes into circulation, a 2.0 percent increase from 2016, and received 35.2 billion Federal Reserve notes from circulation, a 1.4 percent increase from 2016.

The value of Federal Reserve notes in circulation at year-end 2017 totaled $1,571 billion, a 7.4 percent increase from 2016. The year-over-year increase is attributable largely to increased demand for $100 notes. The Board estimates that at least one-half of the value of Federal Reserve notes in circulation is held abroad, mainly as a store of value.

In addition, the Reserve Banks distributed 73.4 billion coins into circulation and received 58.2 billion coins from circulation, which is relatively unchanged from 2016.

U.S. Currency Education Program

The U.S. Currency Education Program (CEP) is an interagency program managed by the Board in partnership with the United States Secret Service and the BEP. The CEP is responsible for providing users of U.S. currency around the world with access to education, training, and information about all designs of Federal Reserve notes.

In 2017, the CEP introduced three new educational materials in hard copy and added two new animated videos and one podcast series to the resources available to the global public on uscurrency.gov. The CEP also carried out training and outreach programs in the United States, Vietnam, and Malaysia, helping to educate cash handlers on how to authenticate genuine U.S. currency and how to report suspected counterfeit notes.

Other Improvements and Efforts

During 2017, the Reserve Banks completed implementation of a new cash automation platform (CashForward) to replace legacy software applications, automate business concepts and processes, and employ technologies to meet the cash business's current and future needs more cost effectively. The new cash platform will facilitate business continuity and contingency planning and enhance the support provided to Reserve Bank customers. The Federal Reserve also has initiated a program to replace the aging high-speed currency processing equipment at all Reserve Banks by 2026. In 2017, the Federal Reserve engaged with two vendors to build prototype machines by 2020, at which point one vendor will be selected for the development and implementation of the new production machine.

The Board and the BEP continued to build on the improved quality assurance processes established to

Box 2. Developments in Financial Technology

As part of its core objective to foster the safety and efficiency of the payment system and to promote financial stability, the Federal Reserve has a public policy interest in understanding and monitoring the development of innovations that could affect the structural design and functioning of financial markets. In general, the Federal Reserve views developments in financial technology through the lens of our long-standing public policy goals of (1) safety and soundness of financial institutions, (2) safety and efficiency for the payment system, (3) financial stability and monetary policy more broadly, and (4) an innovative financial system that provides widely shared benefits to the public over time.

Over the past several years, Federal Reserve staff has worked to fulfill these public policy goals by monitoring technological developments and conducting research and communicating with the industry in an effort to understand better the technologies behind the innovations, potential use cases, benefits, and relevant risks. In 2017, the Federal Reserve engaged with the industry and other central banks on developments in financial technology, such as distributed ledger and digital currencies.

Specifically, Federal Reserve staff participated in international efforts to understand the implications of distributed ledger technology in payments, clearing, and settlement. In February 2017, the Committee on Payments and Market Infrastructures issued a report on distributed ledger technology that provides an analytical framework for central banks as they review and analyze the use of distributed ledger technology for payment, clearing, and settlement.[1] In addition, Board members have spoken repeatedly and publicly on innovation in the payment system and the ways the financial industry may use distributed ledger technology and digital currencies, among other technologies. They also discussed the hurdles to broad adoption of new financial technologies and emphasized the importance of maintaining confidence in the payment system during a period of rapid change.[2]

Overall, the Federal Reserve's work over the past year highlighted the importance of being open to innovative technologies and, where appropriate, fostering their development while at the same time remaining focused on the Board's traditional public policy objectives with respect to the payment system.

[1] Committee on Payments and Market Infrastructures, "Distributed ledger technology in payment, clearing and settlement," Bank for International Settlements, February 2017, available at: https://www.bis.org/cpmi/publ/d157.pdf.

[2] See, for example: https://www.federalreserve.gov/newsevents/speech/powell20170303a.htm, https://www.federalreserve.gov/newsevents/speech/powell20171018a.htm, https://www.federalreserve.gov/newsevents/speech/brainard20171116a.htm, https://www.federalreserve.gov/newsevents/speech/quarles20171130a.htm.

date at the BEP. The BEP continued to reclaim $100 notes using single-note inspection equipment and also began to reclaim $20 notes.[9] In addition, the Board and BEP continued to implement a long-term capital equipment replacement strategy to modernize and replace aging production equipment at the BEP that has exceeded its useful life, and thus to improve production efficiency and reduce spoilage. As part of this plan, the BEP purchased six new intaglio printing presses and three finishing presses, which it expects will be installed and operational in 2018 and 2019, respectively.

The Board also engaged in a range of work to support its role as issuing authority. This included research and development to improve potential new security features and optical inspection for Federal Reserve notes. The Board also began efforts to conduct cognitive and perception studies to better understand how users authenticate and handle notes and built an in-house laboratory to facilitate adversarial analysis to better understand counterfeiting threats. In addition, the Board worked with the BEP and design consultants to accelerate the next family of Federal Reserve notes.

Fiscal Agency and Government Depository Services

As fiscal agents and depositories for the federal government, the Reserve Banks auction Treasury securities, process electronic and check payments for Treasury, collect funds owed to the federal government, maintain Treasury's bank account, and develop, operate, and maintain a number of automated systems to support Treasury's mission. The Reserve Banks also provide certain fiscal agency and depository services to other entities; these services are primarily related to book-entry securities. Treasury and other entities fully reimburse the Reserve Banks for the expense of providing fiscal agency and depository services.

In 2017, fiscal agency expenses increased to $698.3 million (see table 3), primarily as a result of requests from Treasury's Bureau of the Fiscal Service. Support for Treasury programs accounted for 95.0 percent of expenses, and support for other entities accounted for 5.0 percent.

[9] The reclamation program uses single-note inspection equipment, which recovers good notes from bad sheets and results in reduced spoilage, cost savings, and more-consistent quality of notes delivered to the Board.

In April 2014, as part of the federal government's effort to increase operational efficiency and effectiveness, Treasury announced the consolidation of the fiscal agency services provided by the Reserve Banks. Although Treasury expects long-term savings by reducing the number of Reserve Banks that provide fiscal agency services, the Reserve Banks are experiencing an increase in expenses during the consolidation process, which will continue over the next several years. In 2017, total consolidation expenses amounted to $12.2 million as a result of the two Reserve Bank business lines that transitioned and preparations for the two remaining business line transitions. Consolidation expenses are included in the line items for Payment, Collection, and Cash-management services in table 3.

Treasury Securities Services

The Reserve Banks work closely with Treasury's Fiscal Service in support of the borrowing needs of the federal government. The Reserve Banks auction, issue, maintain, and redeem securities; provide customer service; and operate the automated systems supporting U.S. savings bonds and marketable Treasury securities (bills, notes, and bonds). Treasury securities services consist of retail securities programs, which primarily serve individual investors, and wholesale securities programs, which serve institutional customers.

Retail Securities Programs

Reserve Bank operating expenses for the retail securities program, which provides services to non-institutional holders of Treasury and related securities, decreased to $44.0 million in 2017, largely because of Treasury's decision to phase out the myRA retirement savings program. Program expense drivers included the Reserve Banks' operation of a virtual case-file system and a virtual contact center to support retail securities services as well as increased staffing to manage the savings-bond processing workload.

Wholesale Securities Programs

The Reserve Banks support wholesale securities programs through the sale, issuance, safekeeping, and transfer of marketable Treasury securities for institutional investors. The Reserve Banks conducted 277 Treasury securities auctions in 2017. Of the 277 auctions, 12 auctions were for Floating Rate Notes.

Table 3. Expenses of the Federal Reserve Banks for fiscal agency and depository services, 2015–17
Thousands of dollars

Agency and service	2017	2016	2015
Department of the Treasury			
Treasury securities services			
Treasury retail securities	46,244	50,203	52,945
Treasury auction	43,709	42,472	35,701
Treasury securities safekeeping and transfer	25,171	22,890	21,254
Technology infrastructure development and support[1]	7,442	6,909	6,371
Other services	1,406	3,213	2,194
Total	123,973	125,687	118,465
Payment, collection, and cash-management services			
Payment services	177,127	159,296	161,681
Collection services	68,550	66,425	59,513
Cash-management services	73,514	82,165	79,161
Technology infrastructure development and support*	116,931	96,931	89,069
Other services	10,817	10,358	10,998
Total	446,938	415,175	400,422
Other Treasury services			
Total	41,943	39,293	41,971
Total, Treasury	**612,854**	**580,155**	**560,857**
Other entities			
Total, other entities	34,580	37,333	35,140
Pension Costs[2]			
Total, Treasury and other entities	50,837	59,493	54,586
Total reimbursable expenses	**698,271**	**676,981**	**650,583**

1 Labeled “Computer infrastructure development and support” in 2015.

2 Board policy requires the Reserve Banks to seek reimbursement for the costs to provide fiscal agency services. Historically, the Reserve Banks did not seek reimbursement for pension benefits to Reserve Bank employees who support fiscal agency services. The Reserve Banks began to seek reimbursement for the one-time pension costs that resulted from consolidation activities in 2014 and to seek full reimbursement for all fiscal agency–related pension costs beginning in 2015. Pension costs are shown in the aggregate across programs in table 3 rather than by each program.

In 2017, Reserve Bank operating expenses to support Treasury securities auctions increased to $43.7 million. Operating expenses were driven by upgrades to the auction application, which receives and processes bids submitted primarily by wholesale securities auction participants, and by modernization of the application infrastructure.

Operating expenses associated with Treasury securities safekeeping and transfer activities increased to $25.2 million in 2017 as a result of the Reserve Banks’ effort to migrate the securities services from a mainframe system to a distributed computing environment.

Payment Services

The Reserve Banks work closely with Treasury’s Fiscal Service and other government agencies to process payments to individuals and companies. The Reserve Banks process federal payroll payments, Social Security and veterans’ benefits, income tax refunds, vendor payments, and other types of payments.

Reserve Bank operating expenses for payments-related activity increased to $177.1 million in 2017, primarily because of increased expenses for the Stored Value Card (SVC) program, the Invoice Processing Platform (IPP), the U.S. Electronic Payment Solution Center, and the Post Payment System (PPS). These increases were partially offset by decreased program expenses for International Treasury Services (ITS) and Automated Standard Application for Payments (ASAP).

The SVC program comprises three military cash-management programs: EagleCash, EZPay, and Navy Cash. These programs provide electronic payment methods for goods and services on military bases and Navy ships, both domestic and overseas. The Reserve Banks, as fiscal agent, have operated EagleCash and EZpay and assumed responsibility for Navy Cash in 2017. In 2017, Reserve Bank operating expenses for Treasury’s SVC business increased to $36.0 million, including $2.6 million associated with the upcoming transition of the overall SVC program as part of the fiscal agent consolidation.

The IPP is part of Treasury's all-electronic initiative—an electronic invoicing and payment information system that allows vendors to enter invoice data electronically, through either a web-based portal or electronic submission. The IPP accepts, processes, and presents data from supplier systems related to various stages of a payment transaction, such as the purchase order and invoice. In 2017, the Reserve Banks' IPP expenses increased to $27.8 million, including $7.2 million associated with the recently completed IPP transition in support of consolidation.

The U.S. Treasury Electronic Payment Solution Support Center provides broad support for Treasury initiatives aimed at eliminating paper check payments and increasing electronic payments to individuals. As of November 2017, 98.4 percent of all federal benefit recipients received their payments electronically. In 2017, expenses for the U.S. Treasury Electronic Payment Solution Support Center increased 17.8 percent, to $17.9 million, because of increased staffing and increased support costs.

The Reserve Banks continued work on the PPS initiative, a multiyear effort to modernize several of Treasury's legacy post-payment processing systems into a single application to enhance operations, reduce expenses, improve data analytics capabilities, and provide a centralized and standardized set of payment data. In 2017, program expenses for PPS increased to $20.7 million, including $1.9 million associated with system development expenses.

The Reserve Banks operate the ITS application, which provides cross-border payment and collection services as well as cash-management functions on behalf of Treasury. U.S. government agencies use ITS to issue international benefit, payroll, and vendor payments in 100 currencies to recipients in established and emerging markets. ITS expenses in 2017 decreased to $12.6 million primarily because of decreased staffing costs and location-based cost savings following the consolidation.

The ASAP application enables federal agencies to electronically disburse funds to recipient organizations. Expenses for ASAP decreased 19.8 percent from 2016, to $7.3 million in 2017, because of the completion of consolidation activities.

Collection Services

The Reserve Banks also work closely with the Fiscal Service to collect funds—including various taxes, fees for goods and services, and delinquent debts—owed to the federal government. In 2017, Reserve Bank operating expenses related to collection services increased to $68.6 million, largely because of greater operating expenses for Pay.gov and the Collections Information Repository (CIR).

The Reserve Banks operate Pay.gov, an application that allows the public to use the Internet to authorize and initiate payments to federal agencies. During the year, the Pay.gov program expanded to include more than 168 new agency programs and processed more than 189 million online payments totaling nearly $155 billion. Pay.gov expenses increased to $21.5 million in 2017, primarily because of increased staffing and software amortization expenses.

The CIR application enables the Fiscal Service to standardize the availability of financial information, furthering transparency goals and enabling federal agencies to improve cash-management decisions and performance. In 2017, CIR expenses increased 19.6 percent to $9.2 million, primarily because of software amortization costs.

Treasury Cash-Management Services

The Reserve Banks maintain Treasury's operating cash account and provide collateral-management and collateral-monitoring services for those Treasury programs that have collateral requirements. The Reserve Banks also support Treasury's efforts to modernize its financial management processes by developing software and operating help desks.

In 2017, Reserve Bank operating expenses related to Treasury cash-management services decreased 10.5 percent, to $73.5 million. The decrease was primarily due to completion of the Straight-Through Processing initiative, which resulted in decreased development costs for the Direct Voucher System and the decommissioning of FRB CA$HLINK. Additionally, the Bank Management System had lower development costs in 2017. The Bank Management System application reports and compensates commercial banks for providing depository services to Treasury.

Services Provided to Other Entities

When permitted by federal statute or when required by the Secretary of the Treasury, the Reserve Banks provide fiscal agency and depository services to other domestic and international entities.

Reserve Bank operating expenses for services provided to other entities decreased to $34.6 million in 2017. Debt servicing activities account for a significant amount of the work performed for other entities, with the majority performed for the Federal Home Loan Mortgage Association (Freddie Mac), the Federal National Mortgage Association (Fannie Mae), and the Government National Mortgage Association (Ginnie Mae).

Use of Federal Reserve Intraday Credit

The Board's Payment System Risk policy governs the use of Federal Reserve Bank intraday credit, also known as daylight overdrafts. A daylight overdraft occurs when an institution's account activity creates a negative balance in the institution's Federal Reserve account at any time in the operating day. Daylight overdrafts enable an institution to send payments more freely throughout the day than if it were limited strictly by its available intraday funds balance, increasing efficiency and reducing payment system risk. The Payment System Risk policy recognizes explicitly the role of the central bank in providing intraday balances and credit to healthy institutions; under the policy, the Reserve Banks provide collateralized intraday credit at no cost.

Before the 2007–09 financial crisis, overnight balances were much lower and daylight overdrafts significantly higher than levels observed since late 2008. The use of daylight overdrafts spiked amid the market turmoil near the end of 2008 but dropped sharply as various liquidity programs initiated by the Federal Reserve, all since terminated, took effect. During this period, the Federal Reserve also began paying interest on balances held at the Reserve Banks, increased its lending under the Term Auction Facility, and began purchasing government-sponsored enterprise mortgage-backed securities. These measures tended to increase balances institutions held at the Banks, which decreased the demand for intraday credit. In 2007, for example, institutions held, on average, less than $20 billion in overnight balances, and total average daylight overdrafts were around $60 billion. In contrast, institutions held historically high levels of overnight balances at the Reserve Banks in 2017, while daylight overdrafts remained historically low, as shown in figure 1.

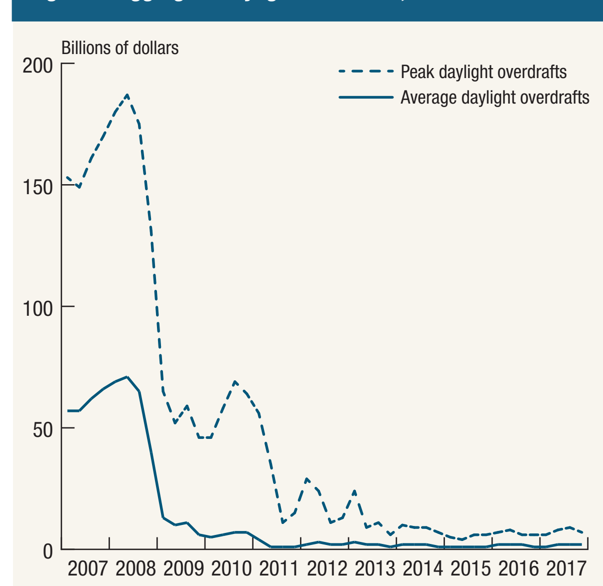
Daylight overdraft fees are also at historically low levels. In 2017, institutions paid about $73,796 in daylight overdraft fees; in contrast, fees totaled more than $50 million in 2008. The decrease in fees is largely attributable to the elevated level of reserve balances that began to accumulate in late 2008 and to the 2011 policy revision that eliminated fees for daylight overdrafts that are collateralized.

FedLine Access to Reserve Bank Services

The Reserve Banks' FedLine access solutions provide financial institutions with a variety of alternatives for electronically accessing the Banks' payment and information services. For priced services, the Reserve Banks charge fees for these electronic connections and allocate the associated costs and revenue to the various services. There are currently six FedLine channels through which customers can access the Reserve Banks' priced services: FedMail, FedLine Web, FedLine Exchange, FedLine Advantage, FedLine Command, and FedLine Direct. These FedLine channels are designed to meet the individual connectivity, security, and contingency requirements of depository institution customers.

Between 2008 and 2017, Reserve Bank priced FedLine connections and number of depository institutions in the United States continued to decline, though the number of depository institution employees with FedLine credentials increased 11 percent. As of December 2017, more than 54,000 individuals had

Figure 1. Aggregate daylight overdrafts, 2007–17



access to value-added services (Accounting Management Information, FedTransaction Analyzer, and ACH Risk Services) and more than 52,000 individuals had access to central bank applications for regulatory reporting purposes.

The Reserve Banks continue to advance the safety and security of the FedLine network with key infrastructure upgrades, proactive monitoring of an evolving threat environment, strengthened endpoint security policies, and dedicated customer communication and education programs.

Information Technology

The Federal Reserve Banks continued to improve the efficiency, effectiveness, and security of information technology (IT) services and operations in 2017. Led by the Federal Reserve's National IT organization, the System made significant progress in addressing the challenges outlined in its IT Strategic Plan. Elements of the plan focus on IT productivity, simplicity, accountability, and stewardship across the System. Several specific initiatives under the plan also strengthened information security. National IT continues to guide the plan's implementation and tracks progress toward the plan's goals. This effort is scheduled to be completed in 2020.

Under the direction of the Office of the Chief Information Security Officer, the Reserve Banks remained vigilant about their cybersecurity posture, investing in risk-mitigation initiatives and programs and continuously monitoring and safeguarding their operations against cybersecurity risks. The Federal Reserve implemented several cybersecurity initiatives that strengthen identity access management, enhance its abilities to detect and respond to cyber incidents, reduce the risk of insider threats, and continue to improve its continuous monitoring capabilities for critical assets.

Examinations of the Federal Reserve Banks

The combined financial statements of the Reserve Banks as well as the financial statements of each of the 12 Reserve Banks are audited annually by an independent public accounting firm retained by the Board of Governors.[10] In addition, the Reserve Banks are subject to oversight by the Board of Governors, which performs its own reviews.

The Reserve Banks use the 2013 framework established by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) to assess their internal controls over financial reporting, including the safeguarding of assets. Within this framework, the management of each Reserve Bank annually provides an assertion letter to its board of directors that confirms adherence to COSO standards.

The Federal Reserve Board engaged KPMG LLP (KPMG) to audit the 2017 combined and individual financial statements of the Reserve Banks.[11]

In 2017, KPMG also conducted audits of the internal controls associated with financial reporting for each of the Reserve Banks. Fees for KPMG's services totaled $6.8 million. To ensure auditor independence, the Board requires that KPMG be independent in all matters relating to the audits. Specifically, KPMG may not perform services for the Reserve Banks or others that would place it in a position of auditing its own work, making management decisions on behalf of the Reserve Banks, or in any other way impairing its audit independence. In 2017, the Reserve Banks did not engage KPMG for significant non-audit services.

The Board's reviews of the Reserve Banks include a wide range of off-site and on-site oversight activities, conducted primarily by its Division of Reserve Bank Operations and Payment Systems. Division personnel monitor on an ongoing basis the activities of each Reserve Bank, National IT, and the System's Office of Employee Benefits (OEB). They conduct a comprehensive on-site review of each Reserve Bank and OEB at least once every three years and review National IT, the System Open Market Account (SOMA), and Fedwire annually.

The comprehensive on-site reviews include an assessment of the internal audit function's effectiveness and its conformance to the Institute of Internal Auditors' (IIA) International Standards for the Pro-

[10] See "Federal Reserve Banks Combined Financial Statements" in section 12 of this report.

[11] In addition, KPMG audited the Office of Employee Benefits of the Federal Reserve System (OEB), the Retirement Plan for Employees of the Federal Reserve System (System Plan), and the Thrift Plan for Employees of the Federal Reserve System (Thrift Plan). The System Plan and the Thrift Plan provide retirement benefits to employees of the Board, the Federal Reserve Banks, the OEB, and the Consumer Financial Protection Bureau.

fessional Practice of Internal Auditing, applicable policies and guidance, and the IIA's code of ethics.

The Board also reviews SOMA and foreign currency holdings to

- determine whether the New York Reserve Bank, while conducting the related transactions and associated controls, complies with the policies established by the Federal Open Market Committee (FOMC); and
- assess SOMA-related IT project management and application development, vendor management, and system resiliency and contingency plans.

In addition, KPMG audits the year-end schedule of participated asset and liability accounts and the related schedule of participated income accounts. The FOMC is provided with the external audit reports and a report on the Board review.

Income and Expenses

Table 4 summarizes the income, expenses, and distributions of net earnings of the Reserve Banks for 2017 and 2016. Income in 2017 was $114.2 billion, compared with $111.7 billion in 2016.

Expenses totaled $35,435 million:

- $25,862 million in interest paid to depository institutions on reserve balances and term deposits;
- $4,337 million in Reserve Bank operating expenses;
- $3,365 million in interest expense on securities sold under agreements to repurchase;

Table 4. Income, expenses, and distribution of net earnings of the Federal Reserve Banks, 2017 and 2016
Millions of dollars

Item	2017	2016
Current income	114,194	111,744
Loan interest income	1	1
SOMA interest income	113,592	111,105
Other current income[1]	601	638
Net expenses	33,398	17,263
Operating expenses	4,337	4,205
Reimbursements	-698	-677
Net periodic pension expense	525	565
Interest paid on depository institutions deposits and term deposits	25,862	12,044
Interest expense on securities sold under agreements to repurchase	3,365	1,122
Other expenses	7	4
Current net income	80,796	94,481
Net additions to (deductions from) current net income	1,933	-114
Treasury securities gains (losses)	28	-15
Federal agency and government-sponsored enterprise mortgage-backed securities	8	19
Foreign currency translation gains (losses)	1,894	-103
Net income (loss) from consolidated VIE	4	-12
Other deductions	-1	-3
Assessments by the Board of Governors	2,037	2,006
For Board expenditures	740	709
For currency costs	724	701
For Consumer Financial Protection Bureau costs[2]	573	596
Net income before providing for remittances to the Treasury	80,692	92,361
Earnings remittances to the Treasury	80,559	91,467
Net income after providing for remittances to the Treasury	133	894
Other comprehensive gain (loss)	651	-183
Comprehensive income (loss)	784	711
Total distribution of net income	81,343	92,178
Dividends on capital stock	784	711
Transfer to surplus and change in accumulated other comprehensive income	0	0
Earnings remittances to the Treasury	80,559	91,467

[1] Includes income from priced services, compensation received for services provided, and securities lending fees.
[2] The Board of Governors assesses the Reserve Banks to fund the operations of the Consumer Financial Protection Bureau.

- $525 million in net periodic pension expense;
- $740 million in assessments for Board of Governors expenditures;
- $724 million for the cost of producing, issuing, and retiring currency;
- $573 million for Consumer Financial Protection Bureau costs; and
- $7 million in other costs.

The expenses were reduced by $698 million in reimbursements for services provided to government agencies. Net additions to current net income totaled $1,933 million, which includes $1,894 million in unrealized gains on foreign currency denominated investments revalued to reflect current market exchange rates, $28 million in realized gains on Treasury securities, and $8 million in realized gains on federal agency and government-sponsored enterprise mortgage-backed securities (GSE MBS).

Net income before remittances to Treasury totaled $81,343 million in 2017 (net income of $80,692 million, increased by other comprehensive gain of $651 million). Dividends paid to member banks for 2017 totaled $784 million. Earnings remittances to the Treasury totaled $80,559 million in 2017. The Reserve Banks reported comprehensive income of $784 million in 2017 after providing for remittances to Treasury.

Section 11 of this report, "Statistical Tables," provides more detailed information on the Reserve Banks. Table 9 is a statement of condition for each Reserve Bank; table 10 details the income and expenses of each Reserve Bank for 2017; table 11 shows a condensed statement for each Reserve Bank for the years 1914 through 2017; and table 13 gives the number and annual salaries of officers and employees for each Reserve Bank. A detailed account of the assessments and expenditures of the Board of Governors appears in the Board of Governors Financial Statements (see section 12, "Federal Reserve System Audits").

SOMA Holdings and Loans

The Reserve Banks' average net daily SOMA holdings during 2017 amounted to $4,026 billion, a decrease of $45 billion from 2016 (see table 5).

SOMA Securities Holdings

The average daily holdings of Treasury securities decreased by $9 billion, to an average daily amount of $2,561 billion. The average daily holdings of GSE debt securities decreased by $15 billion, to an average daily amount of $10 billion. The average daily holdings of federal agency and GSE MBS increased by $20 billion, to an average daily amount of $1,823 billion.

Through September 2017, FRBNY continued to reinvest all principal payments from SOMA holdings of GSE debt securities and federal agency and GSE MBS into federal agency and GSE MBS and to roll over maturing Treasury securities at auction. Beginning in October 2017, the FOMC initiated a balance sheet normalization program intended to reduce gradually the SOMA holdings by decreasing the reinvestment of principal payments received from securities held in the SOMA through the implementation of monthly caps. Such principal payments will be reinvested only to the extent that they exceed gradually rising caps.

There were no significant holdings of securities purchased under agreements to resell in 2017 or 2016. Average daily holdings of foreign currency denominated investments in 2017 were $20,673 million, compared with $20,713 million in 2016. The average daily balance of central bank liquidity swap drawings was $858 million in 2017 and $933 million in 2016. The average daily balance of securities sold under agreements to repurchase was $387,540 million, an increase of $40,044 million from 2016.

The average rates of interest earned on the Reserve Banks' holdings of Treasury securities increased to 2.51 percent, and the average rates on GSE debt securities increased to 4.19 percent in 2017. The average rate of interest earned on federal agency and GSE MBS increased to 2.68 percent in 2017. The average interest rates paid for securities sold under agreements to repurchase increased to 0.87 percent in 2017. The average rate of interest earned on foreign currency denominated investments decreased to -0.08 percent, while the average rate of interest earned on central bank liquidity swaps increased to 1.63 percent in 2017.

Lending

In 2017, the average daily primary, secondary, and seasonal credit extended by the Reserve Banks to

Table 5. System Open Market Account (SOMA) holdings of the Federal Reserve Banks, 2017 and 2016
Millions of dollars, except as noted

Item	Average daily assets (+)/liabilities (–)		Current income (+)/expense (–)*		Average interest rate (percent)	
	2017	2016	2017	2016	2017	2016
U.S. Treasury securities[1]	2,560,796	2,570,106	64,267	63,845	2.51	2.48
Government-sponsored enterprise debt (GSE) securities[1]	9,932	25,298	416	959	4.19	3.79
Federal agency and GSE mortgage-backed securities[2]	1,822,543	1,802,439	48,912	46,299	2.68	2.57
Foreign currency denominated investments[3]	20,673	20,713	-17	-7	-0.08	-0.03
Central bank liquidity swaps[4]	858	933	14	9	1.63	0.96
Other SOMA assets[5]	12	13	*	*	0.68	0.16
Total SOMA assets	4,414,814	4,419,502	113,592	111,105	2.57	2.51
Securities sold under agreements to repurchase: Primary dealers and expanded counterparties	-145,959	-105,648	-1,224	-303	0.84	0.29
Securities sold under agreements to repurchase: Foreign official and international accounts	-241,581	-241,848	-2,141	-819	0.89	0.34
Total securities sold under agreements to repurchase	-387,540	-347,496	-3,365	-1,122	0.87	0.32
Other SOMA liabilities[6]	-878	-1,010	n/a	n/a	n/a	n/a
Total SOMA liabilities	-338,418	-348,506	-3,365	-1,122	0.87	0.32
Total SOMA holdings	**4,026,396**	**4,070,996**	**110,227**	**109,983**	**2.74**	**2.70**

1 Face value, net of unamortized premiums and discounts.
2 Face value, which is the remaining principal balance of the securities, net of unamortized premiums and discounts. Does not include unsettled transactions.
3 Foreign currency denominated assets are revalued daily at market exchange rates.
4 Dollar value of foreign currency held under these agreements valued at the exchange rate to be used when the foreign currency is returned to the foreign central bank. This exchange rate equals the market exchange rate used when the foreign currency was acquired from the foreign central bank.
5 Cash and short-term investments related to the federal agency and government-sponsored enterprise mortgage-backed securities (GSE MBS) portfolio.
6 Represents the obligation to return cash margin posted by counterparties as collateral under commitments to purchase and sell federal agency and GSE MBS, as well as obligations that arise from the failure of a seller to deliver securities on the settlement date.
n/a Not applicable.
* Less than $500,000.

depository institutions increased by $2 million, to $103 million. The average rate of interest earned on primary, secondary, and seasonal credit increased to 1.16 percent in 2017, from 0.62 percent in 2016.

Maiden Lane LLC (ML) is a lending facility established in 2008 under authority of FRA section 13(3) in response to the 2007–09 financial crisis. Net portfolio assets of ML decreased from $1,742 million in 2016 to $1,722 million in 2017, and liabilities decreased from $33 million to $9 million. ML net income of $4 million in 2017 comprised interest income of $15 million, loss on investments of $9 million, and operating expenses of $2 million.

Federal Reserve Bank Premises

Several Reserve Banks initiated or continued in 2017 significant renovation programs for their physical facilities. Multiyear renovation programs at the New York, Richmond, Kansas City, and San Francisco Reserve Banks' headquarters and Los Angeles Branch building continued. All Reserve Banks continued to implement projects to maintain building systems to ensure efficient and reliable operations. The New York Reserve Bank continued repairs and renovations to the 33 Maiden Lane building and the Philadelphia Bank initiated the design of improvements to its building's infrastructure systems.

For more information on the acquisition costs and net book value of the Reserve Banks and Branches, see table 14 in section 11 ("Statistical Tables") of this annual report.

Pro Forma Financial Statements for Federal Reserve Priced Services

Table 6. Pro forma balance sheet for Federal Reserve priced services, December 31, 2017 and 2016
Millions of dollars

Item	2017		2016	
Short-term assets (note 1)				
Imputed investments	920.1		812.2	
Receivables	36.4		36.6	
Materials and supplies	0.6		0.5	
Prepaid expenses	12.4		11.5	
Items in process of collection	80.8		117.7	
Total short-term assets		1,050.3		978.4
Long-term assets (note 2)				
Premises	139.3		120.4	
Furniture and equipment	39.4		36.9	
Leases, leasehold improvements, and long-term prepayments	105.2		112.2	
Deferred tax asset	184.4		184.7	
Total long-term assets		468.4		454.1
Total assets		1,518.7		1,432.5
Short-term liabilities				
Deferred-availability items	1,000.9		921.5	
Short-term debt	23.3		0	
Short-term payables	26.1		20.8	
Total short-term liabilities		1,050.3		942.3
Long-term liabilities				
Long-term debt	44.7			
Accrued benefit costs	347.7		418.6	
Total long-term liabilities		392.4		418.6
Total liabilities		1,442.8		1,360.9
Equity (including accumulated other comprehensive loss of $628.1 million and $670.4 million at December 31, 2017 and 2016, respectively)		75.9		71.6
Total liabilities and equity (note 3)		1,518.7		1,432.5

Note: Components may not sum to totals because of rounding. The accompanying notes are an integral part of these pro forma priced services financial statements.

Table 7. Pro forma income statement for Federal Reserve priced services, 2017 and 2016

Millions of dollars

Item	2017		2016	
Revenue from services provided to depository institutions (note 4)		441.6		434.1
Operating expenses (note 5)		410.7		401.5
Income from operations		30.9		32.5
Imputed costs (note 6)				
Interest on debt	-3.8		-1.4	
Interest on float	2.0		0.1	
Sales taxes	4.0	2.2	3.8	2.5
Income from operations after imputed costs		28.7		30
Other income and expenses (note 7)				
Investment income			0.2	
Income before income taxes		28.7		30.2
Imputed income taxes (note 6)		6.5		6.5
Net income		22.2		23.7
Memo: Targeted return on equity (note 6)		4.6		4.1

Note: Components may not sum to totals because of rounding. The accompanying notes are an integral part of these pro forma priced services financial statements.

Table 8. Pro forma income statement for Federal Reserve priced services, by service, 2017

Millions of dollars

Item	Total	Commercial check collection	Commercial ACH	Fedwire funds	Fedwire securities
Revenue from services (note 4)	441.6	142.0	141.3	129.7	28.6
Operating expenses (note 5)[1]	410.7	126.3	141.3	116.5	26.5
Income from operations	30.9	15.7	0.0	13.2	2.1
Imputed costs (note 6)	2.2	1.9	-1.7	1.7	0.4
Income from operations after imputed costs	28.7	13.8	1.7	11.5	1.7
Other income and expenses, net (note 8)	0.0	0.0	0.0	0.0	0.0
Income before income taxes	28.7	13.8	1.7	11.5	1.7
Imputed income taxes (note 6)	6.5	3.1	0.4	2.6	0.4
Net income	22.2	10.7	1.3	8.9	1.3
Memo: Targeted return on equity (note 6)	4.6	1.4	1.6	1.3	0.3
Cost recovery (percent) (note 7)	104.1	107.0	99.8	106.2	103.6

Note: Components may not sum to totals because of rounding. The accompanying notes are an integral part of these pro forma priced services financial statements.

[1] Operating expenses include pension costs, Board expenses, and reimbursements for certain nonpriced services.

Notes to Pro Forma Financial Statements for Priced Services

(1) Short-Term Assets

Receivables are composed of fees due the Reserve Banks for providing priced services and the share of suspense- and difference-account balances related to priced services.

Items in process of collection are gross Federal Reserve cash items in process of collection (CIPC), stated on a basis comparable to that of a commercial bank. They reflect adjustments for intra-Reserve Bank items that would otherwise be double-counted on the combined Federal Reserve balance sheet and adjustments for items associated with nonpriced items (such as those collected for government agencies). Among the costs to be recovered under the Monetary Control Act is the cost of float, or net CIPC during the period (the difference between gross CIPC and deferred-availability items, which is the portion of gross CIPC that involves a financing cost), valued at the federal funds rate. Investments of excess financing derived from credit float are assumed to be invested in federal funds.

(2) Long-Term Assets

Long-term assets consist of long-term assets used solely in priced services and the priced-service portion of long-term assets shared with nonpriced services, including a deferred tax asset related to the priced services pension and postretirement benefits obligation. The tax rates associated with the deferred tax asset were 22.7 percent and 21.6 percent for 2017 and 2016, respectively.

Long-term assets also consist of an estimate of the assets of the Board of Governors used in the development of priced services.

(3) Liabilities and Equity

Under the matched-book capital structure for assets, short-term assets are financed with short-term payables and imputed short-term debt, if needed. Long-term assets are financed with long-term liabilities, imputed long-term debt, and imputed equity, if needed. To meet the Federal Deposit Insurance Corporation requirements for a well-capitalized institution, in 2017 equity is imputed at 5.0 percent of total assets and 11.0 percent of risk-weighted assets, and 2016 equity is imputed at 5.0 percent of total assets and 10.9 percent of risk-weighted assets.

In 2014, the Board approved revisions to the Payment System Risk policy to reflect the new international standards for financial market infrastructures developed by the Committee on Payment and Settlement Systems and the Technical Committee of the International Organization of Securities Commissions in the Principles for Financial Market Infrastructures. The policy retains the expectation that the Fedwire Services will meet or exceed the applicable risk-management standards. The Reserve Banks' priced services will hold six months of the Fedwire Funds Service's current operating expenses as liquid net financial assets and equity on the pro forma balance sheet and, if necessary, impute additional assets and equity to meet the requirement. The imputed assets held as liquid net financial assets are cash items in process of collection, which are assumed to be invested in federal funds. In 2017, there was sufficient assets and equity such that additional imputed balances were not required.

In accordance with Accounting Standards Codification (ASC) Topic 715 (ASC 715), Compensation–Retirement Benefits, the Reserve Banks record the funded

status of pension and other benefit plans on their balance sheets. To reflect the funded status of their benefit plans, the Reserve Banks recognize the deferred items related to these plans, which include prior service costs and actuarial gains or losses, on the balance sheet. This results in an adjustment to the pension and other benefit plan liabilities related to priced services and the recognition of an associated deferred tax asset with an offsetting adjustment, net of tax, to accumulated other comprehensive income (AOCI), which is included in equity. The Reserve Bank priced services recognized a pension asset, which is a component of accrued benefit costs, of $32.0 million in 2017 and a pension liability of $33.2 million in 2016. The change in the funded status of the pension and other benefit plans resulted in a corresponding decrease in accumulated other comprehensive loss of $42.2 million in 2017.

(4) Revenue

Revenue represents fees charged to depository institutions for priced services and is realized from each institution through direct charges to an institution's account.

(5) Operating Expenses

Operating expenses consist of the direct, indirect, and other general administrative expenses of the Reserve Banks for priced services and the expenses of the Board related to the development of priced services. Board expenses were $5.4 million in 2017 and $5.0 million in 2016.

In accordance with ASC 715, the Reserve Bank priced services recognized qualified pension-plan operating expenses of $31.9 million in 2017 and $34.4 million in 2016. Operating expenses also include the nonqualified net pension expense of $3.3 million in 2017 and $4.9 million in 2016. The adoption of ASC 715 does not change the systematic approach required by generally accepted accounting principles to recognize the expenses associated with the Reserve Banks' benefit plans in the income statement. As a result, these expenses do not include amounts related to changes in the funded status of the Reserve Banks' benefit plans, which are reflected in AOCI.

The income statement by service reflects revenue, operating expenses, imputed costs, other income and expenses, and cost recovery. The tax rates associated with imputed taxes were 22.7 percent and 21.6 percent for 2017 and 2016, respectively.

(6) Imputed Costs

Imputed costs consist of income taxes, return on equity, interest on debt, sales taxes, and interest on float. Many imputed costs are derived from the PSAF model. The 2017 cost of short-term debt imputed in the PSAF model is based on nonfinancial commercial paper rates; the cost of imputed long-term debt is based on Merrill Lynch Corporate and High Yield Index returns; and the effective tax rate is derived from U.S. publicly traded firm data, which serve as the proxy for the financial data of a representative private-sector firm. The after-tax rate of return on equity is based on the returns of the equity market as a whole.[12]

Interest is imputed on the debt assumed necessary to finance priced-service assets. These imputed costs are allocated among priced services according to the ratio of

[12] See Federal Reserve Bank Services Private-Sector Adjustment Factor, 77 Fed. Reg. 67,007 (November 8, 2012), www.gpo.gov/fdsys/pkg/FR-2012-11-08/pdf/2012-26918.pdf, for details regarding the PSAF methodology change.

operating expenses, less shipping expenses, for each service to the total expenses, less the total shipping expenses, for all services.

Interest on float is derived from the value of float to be recovered for the check and ACH services, Fedwire Funds Service, and Fedwire Securities Services, through per-item fees during the period. Float income or cost is based on the actual float incurred for each priced service.

The following shows the daily average recovery of actual float by the Reserve Banks for 2017, in millions of dollars:

Total float	-379.3
Float not related to priced services[1]	-0.3
Float subject to recovery through per-item fees	-379.0

[1] Float not related to priced services includes float generated by services to government agencies and by other central bank services.

Float that is created by account adjustments due to transaction errors and the observance of nonstandard holidays by some depository institutions was recovered from the depository institutions through charging institutions directly. Float subject to recovery is valued at the federal funds rate. Certain ACH funding requirements and check products generate credit float; this float has been subtracted from the cost base subject to recovery in 2017 and 2016.

(7) Other Income and Expenses

Other income consists of income on imputed investments. Excess financing resulting from additional equity imputed to meet the FDIC well-capitalized requirements is assumed to be invested and earning interest at the 3-month Treasury bill rate.

(8) Cost Recovery

Annual cost recovery is the ratio of revenue, including other income, to the sum of operating expenses, imputed costs, imputed income taxes, and after-tax targeted return on equity.

7 Other Federal Reserve Operations

Regulatory Developments

Dodd-Frank Implementation

Throughout 2017, the Federal Reserve continued to implement the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) (Pub. L. No. 111-203), which gives the Federal Reserve important responsibilities to issue rules and supervise financial companies to enhance financial stability and preserve the safety and soundness of the banking system. The Board also continued to implement other regulatory reforms to increase the resiliency of banking organizations and help to ensure that they are operating in a safe and sound manner.

The following is a summary of the key regulatory initiatives that were completed during 2017.

Capital Planning and Stress Testing Requirements (Regulations Y and YY)

In January 2017, the Board adopted a final rule amending its capital plan and stress testing rules;[1] the changes took effect for purposes of the 2017 Comprehensive Capital Analysis and Review (CCAR) cycle. The final rule removed large and noncomplex firms from the qualitative assessment and qualitative objection criteria in the Board's capital plan rule in order to reduce burden on these firms and focus the qualitative review in CCAR on the largest and most complex financial institutions.

Through CCAR, the Federal Reserve evaluates the capital planning processes and capital adequacy of large financial institutions through quantitative and qualitative assessments.[2] The qualitative assessment evaluates the strength of each firm's capital planning process, whereas the quantitative assessment evaluates each firm's capital adequacy based on hypothetical scenarios of severe economic and financial market stress. Under the previous capital plan rule, the Board could object to the annual capital plan of any CCAR firm based on the quantitative or qualitative findings of the CCAR exercise.

Under the final rule, a large and noncomplex firm is defined as a financial institution (1) with total consolidated assets between $50 billion and $250 billion, (2) with total consolidated nonbank assets of less than $75 billion, and (3) that has not been identified as a global systemically important bank (G-SIB) under the Board's capital rules. Large and noncomplex firms will be required to continue meeting capital requirements under stress as part of CCAR's quantitative assessment, and the Federal Reserve will examine the capital planning processes of large and noncomplex firms through regular supervisory assessments outside of the CCAR exercise. Under the final rule, the Board may object to the capital plans of large and noncomplex firms on quantitative grounds, and may object to the capital plans of the largest and most complex firms on both qualitative and quantitative grounds.

Restrictions on Qualified Financial Contracts (Regulations Q, WW, and YY)

In September 2017, the Board adopted a final rule to support U.S. financial stability by enhancing the resolvability of very large and complex financial firms.[3] The rule requires global systemically important bank holding companies and the U.S. operations

1 82 Fed. Reg. 9308 (February 3, 2017).

2 Large institutions subject to the Board's capital plan and stress testing rules include (1) bank holding companies with total consolidated assets of $50 billion or more, (2) any nonbank financial company supervised by the Board that becomes subject to the capital planning and stress test requirements pursuant to a rule or order of the Board, and (3) U.S. intermediate holding companies of foreign banking organizations in accordance with the transition provisions under the capital plan rule and subpart O of the Board's Regulation YY (12 CFR part 252). Currently, no nonbank financial companies supervised by the Board are subject to the capital planning or stress test requirements. A U.S. intermediate holding company that was required to be established by July 1, 2016, and that was not previously subject to the Board's capital plan rule was required to submit its first capital plan in 2017 and will become subject to the Board's stress test rules beginning in 2018.

3 82 Fed. Reg. 42,882 (September 12, 2017).

of foreign G-SIBs (collectively, covered entities) to amend their derivative, securities financing, and other qualified financial contracts (QFCs) to prevent the disorderly unwind of the contracts if the parent or another entity within the firm enters bankruptcy or a resolution process. Given the large volume of QFCs to which these entities are a party, the exercise of default rights en masse as a result of the failure of one of the firms could lead to a disorderly resolution.

The final rule requires covered entities to make clear in their QFCs that both of the U.S. resolution regimes for financial companies and institutions (i.e., title II of the Dodd-Frank Act and the Federal Deposit Insurance Act) apply to the contracts. This requirement should reduce the risk of a foreign court disregarding provisions of title II of the Dodd-Frank Act and the Federal Deposit Insurance Act that temporarily stay the termination of QFCs. The rule also requires covered entities to ensure that their QFCs restrict the ability of their counterparties to terminate the contract, liquidate collateral, or exercise other default rights based on the resolution or liquidation of an affiliate of the G-SIB in bankruptcy or in a resolution. The rule identifies protocols, including the International Swaps and Derivatives Association 2015 Universal Resolution Stay Protocol, that comply with the rule. The final rule also makes technical, conforming amendments to the Board's capital and liquidity rules.

Key Regulatory Initiatives Proposed in 2017

The following is a summary of additional regulatory initiatives that the Board proposed in 2017.

Stress Testing Transparency (Regulation YY)

In December 2017, the Board requested comment on a package of proposals that would increase the transparency of its stress testing program through enhanced model disclosures regarding the Federal Reserve's supervisory stress testing,[4] a Stress Testing Policy Statement,[5] and amendments to the Board's Policy Statement on the Scenario Design Framework for Stress Testing[6] (together, the transparency proposals).

The proposed enhanced model disclosures would provide greater information about the models the Federal Reserve uses to estimate the hypothetical losses in the Board's supervisory stress tests. In particular, the following information would be made public for the first time: a range of loss rates, estimated using the Board's models, for loans held by CCAR firms; portfolios of hypothetical loans with loss rates estimated by the Board's models; and more detailed descriptions of the Board's models, such as certain equations and key variables that influence the results of those models.

The Stress Testing Policy Statement would describe the Board's approach to model development, implementation, use, and validation. The Stress Testing Policy Statement would elaborate on prior disclosures and would provide details on the principles and policies that guide the Board's development of its stress testing models.

The amendments to the Scenario Design Policy Statement would modify the Board's framework for the design of the annual hypothetical economic scenarios used in the supervisory and company-run stress tests required under the Dodd-Frank Act. The modifications aim to enhance transparency and to further promote the resilience of the banking system throughout the economic cycle. In particular, the revisions would include more information on the hypothetical path of house prices and provide notice that the Board is exploring the addition of variables to test for funding risks in the hypothetical scenarios.

The comment period for the transparency proposals ended on January 22, 2018.

4 82 Fed. Reg. 59,547 (December 15, 2017).

5 82 Fed. Reg. 59,528 (December 15, 2017).

6 82 Fed. Reg. 59,533 (December 15, 2017).

The Board of Governors and the Government Performance and Results Act

Overview

The Government Performance and Results Act (GPRA) of 1993 requires federal agencies to prepare a strategic plan covering a multiyear period and requires each agency to submit an annual performance plan and an annual performance report. Although the Board is not covered by GPRA, the Board follows the spirit of the act and, like other federal agencies, prepares an annual performance plan and an annual performance report.

Strategic Plan, Performance Plan, and Performance Report

On July 7, 2015, the Board approved the *Strategic Plan 2016–19*, which identifies and frames the strategic priorities of the Board. In addition to investing in ongoing operations, the Board identified and prioritized investments and dedicated sufficient resources to six pillars over the 2016–19 period, which will allow the Board to advance its mission and respond to continuing and evolving challenges.

The annual performance plan outlines the planned initiatives and activities that support the framework's long-term objectives and resources necessary to achieve those objectives. The annual performance report summarizes the Board's accomplishments that contributed toward achieving the strategic goals and objectives identified in the annual plan.

The strategic plan, performance plan, and performance report are available on the Federal Reserve Board's website at www.federalreserve.gov/publications/gpra.htm.

8 Record of Policy Actions of the Board of Governors

Policy actions of the Board of Governors are presented pursuant to section 10 of the Federal Reserve Act. That section provides that the Board shall keep a record of all questions of policy determined by the Board and shall include in its annual report to Congress a full account of such actions. This section provides a summary of policy actions in 2017, as implemented through (1) rules and regulations, (2) policy statements and other actions, and (3) discount rates for depository institutions. Policy actions were approved by all Board members in office, unless indicated otherwise.[1] More information on the actions is available from the relevant *Federal Register* notices or other documents (see links in footnotes) or on request from the Board's Freedom of Information Office.

For information on the Federal Open Market Committee's policy actions relating to open market operations, see section 9, "Minutes of Federal Open Market Committee Meetings."

Rules and Regulations

Regulations A (Extensions of Credit by Federal Reserve Banks) and D (Reserve Requirements of Depository Institutions)

On January 3, 2017, the Board approved amendments to Regulations A and D (Docket Nos. R-1558 and R-1559) to implement its interest rate actions on December 14, 2016, in conjunction with the action by the Federal Open Market Committee (FOMC) on the same date to increase the target range for the federal funds rate by 25 basis points, to a range of ½ percent to ¾ percent. The Regulation A action reflects the Board's approval of an increase in the interest rate charged by the Federal Reserve Banks on primary credit from 1 percent to 1¼ percent, with the rate on secondary credit increased by formula as a result of the primary credit rate change. The Regulation D action reflects an increase to ¾ percent, effective December 15, 2016, in the rates of interest paid on balances maintained to satisfy reserve balance requirements and on excess balances maintained at the Federal Reserve Banks by or on behalf of eligible institutions.[2] (Note: Similar amendments to Regulations A and D were approved by the Board on March 15,[3] June 14,[4] and December 13, 2017,[5] to implement the Board's interest rate actions taken on those dates in conjunction with the FOMC's actions taken on those same dates to increase the target range for the federal funds rate. See "Interest on Reserves" and "Discount Rates for Depository Institutions in 2017" later in this section for more information, including the Board votes for each action.)

> **Voting for the January 3, 2017, actions:** Chair Yellen, Vice Chairman Fischer, and Governors Tarullo, Powell, and Brainard.

Regulation C (Home Mortgage Disclosure)

On December 13, 2017, the Board approved a final rule (Docket No. R-1590) repealing the Board's Regulation C, which was superseded by the interim final rule from the Consumer Financial Protection Bureau (CFPB) to implement the Home Mortgage Disclosure Act pursuant to the transfer of rulemaking authority to the CFPB under the Dodd-Frank Wall Street Reform and Consumer Protection Act

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1 Governor Tarullo resigned on April 5, and Randal Quarles joined the Board as a member and as Vice Chairman for Supervision on October 13, 2017. Vice Chairman Fischer resigned on October 16, 2017.

2 See *Federal Register* notices at www.gpo.gov/fdsys/pkg/FR-2017-01-23/html/2017-00612.htm and www.gpo.gov/fdsys/pkg/FR-2017-01-23/html/2017-00613.htm.

3 See *Federal Register* notices at www.gpo.gov/fdsys/pkg/FR-2017-04-18/html/2017-07742.htm and www.gpo.gov/fdsys/pkg/FR-2017-04-18/html/2017-07743.htm.

4 See *Federal Register* notices at www.gpo.gov/fdsys/pkg/FR-2017-06-26/html/2017-13106.htm and www.gpo.gov/fdsys/pkg/FR-2017-06-26/html/2017-13107.htm.

5 See *Federal Register* notices at www.gpo.gov/fdsys/pkg/FR-2017-12-20/html/2017-27392.htm and www.gpo.gov/fdsys/pkg/FR-2017-12-20/html/2017-27393.htm.

(Dodd-Frank Act).[6] The CFPB issued a revised final rule in April 2016. The Board's final rule repealing its Regulation C is effective January 22, 2018.

Voting for this action: Chair Yellen, Vice Chairman for Supervision Quarles, and Governors Powell and Brainard.

Regulation I (Issue and Cancellation of Federal Reserve Bank Capital Stock)

On January 5, 2017, the Board approved a final rule (Docket No. R-1560) to apply an inflation adjustment to the asset threshold at which member banks are subject to a different dividend rate on their Federal Reserve Bank stock.[7] In January 2016, the Fixing America's Surface Transportation Act set the dividend rate that member banks with more than $10 billion in total consolidated assets earn on their Federal Reserve Bank stock at the lesser of 6 percent or the most recent 10-year Treasury auction rate prior to the dividend payment. (Member banks below the asset threshold will continue to earn a dividend of 6 percent on their Reserve Bank stock.) The act also requires the Board to adjust the $10 billion threshold annually for inflation. Based on this adjustment, the total consolidated asset threshold will be $10,122,000,000 through December 31, 2017. The final rule is effective March 27, 2017. (Note: On November 13, 2017, the Board published a final rule to establish a total consolidated asset threshold, as adjusted for inflation, of $10,283,000,000 through December 31, 2018.[8])

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Tarullo, Powell, and Brainard.

Regulation Q (Capital Adequacy of Bank Holding Companies, Savings and Loan Holding Companies, and State Member Banks)

On November 9, 2017, the Board approved a final rule (Docket No. R-1571), published jointly with the Federal Deposit Insurance Corporation (FDIC) and Office of the Comptroller of the Currency (OCC), to extend the existing regulatory capital treatment for mortgage-servicing assets and certain other items in order to prevent different rules from taking effect while all three agencies consider a broader simplification of the capital rules.[9] The final rule applies only to banking organizations not subject to the agencies' "advanced approaches" capital rules, generally firms that have less than $250 billion in total consolidated assets and less than $10 billion in total foreign exposure. The final rule is effective January 1, 2018.

Voting for this action: Chair Yellen, Vice Chairman for Supervision Quarles, and Governors Powell and Brainard.

Regulations Q (Capital Adequacy of Bank Holding Companies, Savings and Loan Holding Companies, and State Member Banks), WW (Liquidity Risk Measurement Standards), and YY (Enhanced Prudential Standards)

On September 1, 2017, the Board approved a final rule (Docket No. R-1538) to enhance financial stability by establishing restrictions on qualified financial contracts (QFCs) of global systemically important banking organizations (G-SIBs).[10] The final rule, issued under section 165 of the Dodd-Frank Act, would require U.S. G-SIBs and the U.S. operations of foreign G-SIBs to amend the terms of QFCs to prevent the immediate termination of these contracts if a firm enters bankruptcy or another resolution process. QFCs include derivatives and securities financing transactions, such as repurchase agreements and securities lending transactions. Because G-SIBs conduct a large volume of transactions through QFCs, the mass termination of these contracts as a result of a G-SIB resolution might lead to the disorderly failure of the G-SIB, generate asset fire sales, and transmit financial risk across the U.S. financial system. The final rule contains two key requirements:
(1) QFCs of G-SIBs, including those with foreign counterparties, are required to clarify that U.S. resolution laws providing for a temporary stay to prevent mass terminations apply to the contracts, and
(2) QFCs of G-SIBs are prohibited from allowing the exercise of default rights that could spread the bankruptcy of one G-SIB entity to its solvent affiliates. The final rule also amends certain definitions in the Board's capital and liquidity rules to ensure that the

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[6] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-12-22/html/2017-27491.htm.

[7] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-02-24/html/2017-03568.htm.

[8] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-11-13/html/2017-24553.htm.

[9] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-11-21/html/2017-25172.htm.

[10] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-09-12/html/2017-19053.htm.

regulatory capital and liquidity treatment of QFCs to which a covered entity is a party is not affected by the final rule's restrictions on such QFCs. The final rule is effective on November 13, 2017, with phased-in compliance beginning on January 1, 2019.

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Powell and Brainard.

Regulations Y (Bank Holding Companies and Change in Bank Control) and YY (Enhanced Prudential Standards)

On January 23, 2017, the Board approved a final rule (Docket No. R-1548) that revises the capital plan and stress test rules, effective for the 2017 Comprehensive Capital and Analysis Review (CCAR) cycle.[11] The final rule provides that large and noncomplex firms will no longer be subject to the qualitative component of the CCAR assessment or the provisions of the capital plan rule whereby the Board may object to the firm's capital plan on the basis of qualitative deficiencies in the firm's capital planning process. Under the final rule, large and noncomplex firms are bank holding companies and U.S. intermediate holding companies of foreign banking organizations that (1) have total consolidated assets of at least $50 billion but less than $250 billion, (2) have nonbank assets of less than $75 billion, and (3) are not identified as global systemically important banks. The final rule also modifies certain reporting requirements, simplifies the initial applicability provisions of both the capital plan and stress test rules, reduces the amount of additional capital distributions such firms may make during a capital plan cycle without seeking the Board's prior approval, and extends the range of potential as-of dates the Board may use for the trading and counterparty scenario component used in the stress test rules. The final rule is effective March 6, 2017.

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Tarullo, Powell, and Brainard.

Regulation BB (Community Reinvestment)

On November 8, 2017, the Board approved a final rule (Docket No. R-1574), issued jointly with the FDIC and OCC, to conform certain definitions and other provisions in its Community Reinvestment Act regulation to recent revisions the CFPB made to its Regulation C.[12] In particular, the final rule revised the definitions of "home mortgage loan" and "consumer loan," as well as the public-file content requirements. The final rule, which also removed obsolete references to the Neighborhood Stabilization Program, is effective January 1, 2018.

Voting for this action: Chair Yellen, Vice Chairman for Supervision Quarles, and Governors Powell and Brainard.

Regulation CC (Availability of Funds and Collection of Checks)

On May 16, 2017, the Board approved a final rule (Docket No. R-1409) to create a default framework for electronic check collection and return, reflecting the evolution of the U.S. check collection system from a paper-based to virtually all-electronic system.[13] Among other provisions, the final rule amends existing check-return requirements to create incentives for banks still using paper to accept electronic presentment and return, creates legal protections for electronic checks to ensure that a bank receives similar protections regardless of whether a check is in paper or electronic form, creates protections for banks that receive electronic items that are not checks but are cleared through the check collection system, and retains the existing same-day settlement rule for paper checks. The final rule is effective July 1, 2018.

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Powell and Brainard.

Rules of Organization and Rules Regarding Delegation of Authority

On October 25, 2017, the Board approved an amendment (Docket No. OP-1578) to the definition of a quorum of the Board in the Rules of Organization to facilitate the Board's ability to function efficiently during periods of substantial vacancies on the Board.[14] The amendment provides that four Board members constitute a quorum, unless there are three

[11] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-02-03/html/2017-02257.htm.

[12] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-12-27/html/2017-27813.htm.

[13] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-06-15/html/2017-11379.htm.

[14] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-11-22/html/2017-25122.htm.

or fewer Board members in office, in which case a quorum would be all Board members in office. The amendment does not alter the definition of a quorum in normal operating conditions (that is, when five or more members are in office, four members would still constitute a quorum). In addition, the amendment provides that (1) recused or disqualified Board members are excluded from calculations of the quorum requirement and (2) in exigent circumstances, a quorum would be defined as a majority of Board members in office. In connection with the Rules of Organization amendment, the Board also approved a final rule (Docket No. R-1578) amending its Rules Regarding Delegation of Authority to provide for a modified quorum procedure during exigent circumstances.[15] The Rules of Organization amendment is effective October 25, and the delegation of authority final rule is effective November 22, 2017.

Voting for these actions: Chair Yellen, Vice Chairman for Supervision Quarles, and Governors Powell and Brainard.

Rules of Practice for Hearings

On January 6, 2017, the Board approved a final rule (Docket No. R-1543) amending its rules of practice and procedure to implement an annual adjustment to its maximum civil money penalty (CMP) amounts to account for inflation, as required by the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015.[16] The act required this adjustment to be made annually rather than every four years, prescribed the formula for inflation adjustment, and directed federal agencies to make a "catch-up" adjustment (the first inflation adjustment after enactment of the law). An interim final rule issued by the Board in July 2016 incorporated the catch-up adjustment in the CMP levels. The final rule, effective January 15, 2017, set the CMP levels pursuant to the required annual adjustment for 2017.

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Tarullo, Powell, and Brainard.

On December 26, 2017, the Board approved a final rule (Docket No. R-1595) amending its rules of practice and procedure to implement an annual adjustment for 2018 to its maximum CMP amounts to account for inflation, as required by the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015.[17] The final rule is effective January 10, 2018.

Voting for this action: Chair Yellen, Vice Chairman for Supervision Quarles, and Governors Powell and Brainard.

Rules Regarding Availability of Information

On October 19, 2017, the Board approved a final rule (Docket No. R-1556) to amend its regulations for processing requests under the Freedom of Information Act (FOIA), pursuant to the FOIA Improvement Act of 2016.[18] The amendments clarify and update procedures for the disclosure of records to the public, extend the deadline for administrative appeals, and add information on dispute resolution services. The final rule, effective November 24, 2017, finalizes an interim final rule published in December 2016.

Voting for this action: Chair Yellen, Vice Chairman for Supervision Quarles, and Governors Powell and Brainard.

Policy Statements and Other Actions

Covered Fund Seeding-Period Extensions

On July 17, 2017, the Board approved an order delegating authority to the Federal Reserve Banks, in consultation with Board staff, to approve (but not deny) an application by a banking entity for an extension of time to conform certain "seeding" investments in hedge funds or private equity funds (covered funds) to the requirements of section 165 of the Dodd-Frank Act, commonly known as the Volcker rule.[19] "Seeding" refers to the period of time during which a banking entity provides a new fund with initial equity to permit the fund to attract investors. The Volcker rule requires that a banking entity actively seek unaffiliated investors to reduce its investment in the covered fund, no later than one year after the date of establishment of the fund, to an amount that is not more than 3 percent of the

[15] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-11-22/html/2017-24052.htm.

[16] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-01-25/html/2017-00595.htm.

[17] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2018-01-10/html/2018-00227.htm.

[18] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-10-25/html/2017-23095.htm.

[19] See press release at www.federalreserve.gov/newsevents/pressreleases/bcreg20170724a.htm.

total outstanding ownership interests in the fund. A banking entity may request the Board's approval for an extension of time for up to two additional years to conform its investment. Under the order, a Federal Reserve Bank may approve a banking entity's request for an extension of the seeding period, provided certain criteria are met. The order is effective July 24, 2017.

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Powell and Brainard.

Joint Accounts at Reserve Banks

On August 3, 2017, the Board approved final guidelines (Docket No. OP-1557) for evaluating requests for joint accounts at Federal Reserve Banks to facilitate settlement between and among depository institutions participating in private-sector payment systems.[20] While the Reserve Banks routinely open and maintain accounts for eligible depository institutions, joint accounts, in which the rights and liabilities are shared among multiple depository institution account holders, have not generally been available. The guidelines broadly outline factors that will be considered, but all requests for joint accounts will be evaluated on a case-by-case basis. The final guidelines are effective September 5, 2017.

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Powell and Brainard.

Payment System Improvement Strategies

On August 29, 2017, the Board approved the publication of *Strategies for Improving the U.S. Payments System: Federal Reserve Next Steps in the Payments Improvement Journey*.[21] The paper, published jointly with the Federal Reserve Banks, follows up on the strategic vision articulated in the Federal Reserve's January 2015 paper on payment system improvement. The new paper puts forward a series of refreshed strategies and new tactics to achieve the desired outcomes of speed, security, efficiency, international payments, and industry collaboration.

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Brainard and Powell.

Disaster-Related Appraisal Exceptions

On October 10, 2017, the Board approved a statement and order (Docket No. OP-1577), published jointly with the FDIC, National Credit Union Administration, and OCC, granting temporary exceptions to the regulatory appraisal requirements for federally related transactions in designated disaster areas of Florida, Georgia, Puerto Rico, Texas, and the U.S. Virgin Islands, provided the transactions meet certain criteria.[22] The exceptions were intended to facilitate disaster recovery from Hurricanes Harvey, Irma, and Maria and will expire three years after the date of the disaster declaration for each area.

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Brainard and Powell.

Interest on Reserves

On March 15, 2017, the Board approved raising the interest rate paid on required and excess reserve balances from ¾ percent to 1 percent, effective March 16, 2017.[23] This action was taken to support the FOMC's decision on March 15 to raise the target range for the federal funds rate by 25 basis points, to a range of ¾ percent to 1 percent.

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Tarullo, Powell, and Brainard.

On June 14, 2017, the Board approved raising the interest rate paid on required and excess reserve balances from 1 percent to 1¼ percent, effective June 15, 2017.[24] This action was taken to support the FOMC's decision on June 14 to raise the target range for the federal funds rate by 25 basis points, to a range of 1 percent to 1¼ percent.

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Powell and Brainard.

[20] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-09-05/html/2017-18705.htm.

[21] See press release at www.federalreserve.gov/newsevents/pressreleases/other20170906a.htm.

[22] See *Federal Register* notice at www.gpo.gov/fdsys/pkg/FR-2017-10-24/html/2017-22957.htm.

[23] See press release at www.federalreserve.gov/newsevents/pressreleases/monetary20170315a1.htm.

[24] See press release at www.federalreserve.gov/newsevents/pressreleases/monetary20170614a1.htm.

On December 13, 2017, the Board approved raising the interest rate paid on required and excess reserve balances from 1¼ percent to 1½ percent, effective December 14, 2017.[25] This action was taken to support the FOMC's decision on December 13 to raise the target range for the federal funds rate by 25 basis points, to a range of 1¼ percent to 1½ percent.

Voting for this action: Chair Yellen, Vice Chairman for Supervision Quarles, and Governors Powell and Brainard.

Discount Rates for Depository Institutions in 2017

Under the Federal Reserve Act, the boards of directors of the Federal Reserve Banks must establish rates on discount window loans to depository institutions at least every 14 days, subject to review and determination by the Board of Governors. Periodically, the Board considers proposals by the 12 Reserve Banks to establish the primary credit rate and approves proposals to maintain the formulas for computing the secondary and seasonal credit rates.

Primary, Secondary, and Seasonal Credit

Primary credit, the Federal Reserve's main lending program for depository institutions, is extended at the primary credit rate, which is set above the usual level of short-term market interest rates. It is made available, with minimal administration and for very short terms, as a backup source of liquidity to depository institutions that, in the judgment of the lending Federal Reserve Bank, are in generally sound financial condition. During 2017, the Board approved three increases in the primary credit rate, bringing the rate from 1¼ percent to 2 percent. The Board reached these determinations on the primary credit rate recommendations of the Reserve Bank boards of directors. The Board's actions were taken in conjunction with the FOMC's decisions to raise the target range for the federal funds rate by 75 basis points, to 1¼ percent to 1½ percent. Monetary policy developments are reviewed more fully in other parts of this report (see section 2, "Monetary Policy and Economic Developments").

Secondary credit is available in appropriate circumstances to depository institutions that do not qualify for primary credit. The secondary credit rate is set at a spread above the primary credit rate. Throughout 2017, the spread was set at 50 basis points. At year-end, the secondary credit rate was 2½ percent.

Seasonal credit is available to smaller depository institutions to meet liquidity needs that arise from regular swings in their loans and deposits. The rate on seasonal credit is calculated every two weeks as an average of selected money market yields, typically resulting in a rate close to the target range for the federal funds rate. At year-end, the seasonal credit rate was 1.40 percent.[26]

Votes on Changes to Discount Rates for Depository Institutions

Details on the three actions by the Board to approve increases in the primary credit rate are provided below.

March 15, 2017. Effective March 16, 2017, the Board approved actions taken by the boards of directors of the Federal Reserve Banks of Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, St. Louis, Kansas City, Dallas, and San Francisco to increase the primary credit rate from 1¼ percent to 1½ percent. On March 16, 2017, the Board approved an identical action subsequently taken by the board of directors of the Federal Reserve Bank of Minneapolis, effective immediately.

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Tarullo, Powell, and Brainard.

June 14, 2017. Effective June 15, 2017, the Board approved actions taken by the boards of directors of the Federal Reserve Banks of Boston, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, Kansas City, Dallas, and San Francisco to increase the primary credit rate from 1½ percent to 1¾ percent. On June 15, 2017, the Board approved identical actions subsequently taken by the boards of directors of the Federal Reserve Banks of New York, St. Louis, and Minneapolis, effective immediately.

Voting for this action: Chair Yellen, Vice Chairman Fischer, and Governors Powell and Brainard.

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[25] See press release at www.federalreserve.gov/newsevents/pressreleases/monetary20171213a1.htm.

[26] For current and historical discount rates, see www.frbdiscountwindow.org/.

December 13, 2017. Effective December 14, 2017, the Board approved actions taken by the boards of directors of the Federal Reserve Banks of Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta, Kansas City, Dallas, and San Francisco to increase the primary credit rate from 1¾ percent to 2 percent. On December 14, 2017, the Board approved identical actions subsequently taken by the boards of directors of the Federal Reserve Banks of Chicago, St. Louis, and Minneapolis, effective immediately.

Voting for this action: Chair Yellen, Vice Chairman for Supervision Quarles, and Governors Powell and Brainard.

9 | Minutes of Federal Open Market Committee Meetings

The policy actions of the Federal Open Market Committee, recorded in the minutes of its meetings, are presented in the Annual Report of the Board of Governors pursuant to the requirements of section 10 of the Federal Reserve Act. That section provides that the Board shall keep a complete record of the actions taken by the Board and by the Federal Open Market Committee on all questions of policy relating to open market operations, that it shall record therein the votes taken in connection with the determination of open market policies and the reasons underlying each policy action, and that it shall include in its annual report to Congress a full account of such actions.

The minutes of the meetings contain the votes on the policy decisions made at those meetings, as well as a summary of the information and discussions that led to the decisions. In addition, four times a year, a Summary of Economic Projections is published as an addendum to the minutes. The descriptions of economic and financial conditions in the minutes and the Summary of Economic Projections are based solely on the information that was available to the Committee at the time of the meetings.

Members of the Committee voting for a particular action may differ among themselves as to the reasons for their votes; in such cases, the range of their views is noted in the minutes. When members dissent from a decision, they are identified in the minutes and a summary of the reasons for their dissent is provided.

Policy directives of the Federal Open Market Committee are issued to the Federal Reserve Bank of New York as the Bank selected by the Committee to execute transactions for the System Open Market Account. In the area of domestic open market operations, the Federal Reserve Bank of New York operates under instructions from the Federal Open Market Committee that take the form of an Authorization for Domestic Open Market Operations and a Domestic Policy Directive. (A new Domestic Policy Directive is adopted at each regularly scheduled meeting.) In the foreign currency area, the Federal Reserve Bank of New York operates under an Authorization for Foreign Currency Operations and a Foreign Currency Directive. Changes in the instruments during the year are reported in the minutes for the individual meetings.[1]

[1] As of January 1, 2017, the Federal Reserve Bank of New York was operating under the Domestic Policy Directive approved at the December 13–14, 2016, Committee meeting. The Authorization for Domestic Open Market Operations in effect as of January 1, 2017, was approved at the January 26–27, 2016, meeting. The other policy instruments (the Authorization for Foreign Currency Operations and the Foreign Currency Directive) in effect as of January 1, 2017, were approved at the September 20–21, 2016, meeting.

Meeting Held on January 31–February 1, 2017

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, January 31, 2017, at 1:00 p.m. and continued on Wednesday, February 1, 2017, at 9:00 a.m.[1]

Present

Janet L. Yellen
Chair

William C. Dudley
Vice Chairman

Lael Brainard

Charles L. Evans

Stanley Fischer

Patrick Harker

Robert S. Kaplan

Neel Kashkari

Jerome H. Powell

Daniel K. Tarullo

Marie Gooding, Jeffrey M. Lacker, Loretta J. Mester, Michael Strine,[2] and John C. Williams
Alternate Members of the Federal Open Market Committee

James Bullard, Esther L. George, and Eric Rosengren
Presidents of the Federal Reserve Banks of St. Louis, Kansas City, and Boston, respectively

Brian F. Madigan
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Scott G. Alvarez
General Counsel

Michael Held
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

David W. Wilcox
Economist

James A. Clouse, Thomas A. Connors, Michael Dotsey, Eric M. Engen, Evan F. Koenig, Jonathan P. McCarthy, Daniel G. Sullivan, William Wascher, and Beth Anne Wilson
Associate Economists

Simon Potter
Manager, System Open Market Account

Lorie K. Logan
Deputy Manager, System Open Market Account

Robert deV. Frierson
Secretary, Office of the Secretary, Board of Governors

Matthew J. Eichner[3]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Michael S. Gibson[4]
Director, Division of Supervision and Regulation, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Michael T. Kiley
Deputy Director, Division of Financial Stability, Board of Governors

Stephen A. Meyer
Deputy Director, Division of Monetary Affairs, Board of Governors

Trevor A. Reeve
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

Andrew Figura, Joseph W. Gruber, Ann McKeehan, and David Reifschneider
Special Advisers to the Board, Office of Board Members, Board of Governors

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[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

[2] Attended Tuesday session only.

[3] Attended through the discussion of financial developments and open market operations.

[4] Attended Wednesday session only.

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

Antulio N. Bomfim, Ellen E. Meade, and Joyce K. Zickler
Senior Advisers, Division of Monetary Affairs, Board of Governors

Jeremy B. Rudd
Senior Adviser, Division of Research and Statistics, Board of Governors

Shaghil Ahmed[2]
Associate Director, Division of International Finance, Board of Governors

Jane E. Ihrig
Associate Director, Division of Monetary Affairs, Board of Governors

Min Wei
Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Glenn Follette, John M. Roberts, and Paul A. Smith[2]
Assistant Directors, Division of Research and Statistics, Board of Governors

Eric C. Engstrom
Adviser, Division of Monetary Affairs,
and
Adviser, Division of Research and Statistics, Board of Governors

Penelope A. Beattie[2]
Assistant to the Secretary, Office of the Secretary, Board of Governors

Dana L. Burnett
Section Chief, Division of Monetary Affairs, Board of Governors

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Laurie DeMarco
Principal Economist, Division of International Finance, Board of Governors

Naomi Feldman
Principal Economist, Division of Research and Statistics, Board of Governors

Yuriy Kitsul and Zeynep Senyuz
Principal Economists, Division of Monetary Affairs, Board of Governors

Anna Orlik
Senior Economist, Division of Monetary Affairs, Board of Governors

Kenneth C. Montgomery
First Vice President, Federal Reserve Bank of Boston

David Altig, Ron Feldman, and Christopher J. Waller
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Minneapolis, and St. Louis, respectively

Troy Davig and John A. Weinberg
Senior Vice Presidents, Federal Reserve Banks of Kansas City and Richmond, respectively

Bruce Fallick, Giovanni Olivei, and Robert G. Valletta
Vice Presidents, Federal Reserve Banks of Cleveland, Boston, and San Francisco, respectively

Annual Organization Matters[5]

In the agenda for this meeting, it was reported that advices of the election of the following members and alternate members of the Federal Open Market Committee for a term beginning January 31, 2017, had been received and that these individuals had executed their oaths of office.

The elected members and alternate members were as follows:

William C. Dudley
President of the Federal Reserve Bank of New York, with

Michael Strine
First Vice President of the Federal Reserve Bank of New York, as alternate.

Patrick Harker
President of the Federal Reserve Bank of Philadelphia, with

Jeffrey M. Lacker
President of the Federal Reserve Bank of Richmond, as alternate.

Charles L. Evans
President of the Federal Reserve Bank of Chicago, with

Loretta J. Mester
President of the Federal Reserve Bank of Cleveland, as alternate.

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5 Committee organizational documents are available at www.federalreserve.gov/monetarypolicy/rules_authorizations.htm.

Robert S. Kaplan
President of the Federal Reserve Bank of Dallas, with

Marie Gooding
First Vice President of the Federal Reserve Bank of Atlanta, as alternate.

Neel Kashkari
President of the Federal Reserve Bank of Minneapolis, with

John C. Williams
President of the Federal Reserve Bank of San Francisco, as alternate.

By unanimous vote, the following officers of the Committee were selected to serve until the selection of their successors at the first regularly scheduled meeting of the Committee in 2018:

Janet L. Yellen
Chairman

William C. Dudley
Vice Chairman

Brian F. Madigan
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Scott G. Alvarez
General Counsel

Michael Held
Deputy General Counsel

Richard M. Ashton
Assistant General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

David W. Wilcox
Economist

James A. Clouse

Thomas A. Connors

Michael Dotsey

Eric M. Engen

Evan F. Koenig

Jonathan P. McCarthy

Daniel G. Sullivan

William Wascher

Beth Anne Wilson
Associate Economists

Secretary's note: It was noted that President Kashkari intends to nominate an associate economist from the Federal Reserve Bank of Minneapolis when the recently named research director officially joins that Bank.

By unanimous vote, the Federal Reserve Bank of New York was selected to execute transactions for the System Open Market Account (SOMA).

By unanimous vote, the Committee selected Simon Potter and Lorie K. Logan to serve at the pleasure of the Committee as manager and deputy manager of the SOMA, respectively, on the understanding that these selections were subject to their being satisfactory to the Federal Reserve Bank of New York.

Secretary's note: Advice subsequently was received that the manager and deputy manager selections indicated above were satisfactory to the Federal Reserve Bank of New York.

By unanimous vote, the Committee voted to reaffirm without change the Authorization for Domestic Open Market Operations, the Authorization for Foreign Currency Operations, and the Foreign Currency Directive as shown below. The Guidelines for the Conduct of System Open Market Operations in Federal-Agency Issues remained suspended.

Authorization for Domestic Open Market Operations (As Reaffirmed Effective January 31, 2017)

1. The Federal Open Market Committee (the "Committee") authorizes and directs the Federal Reserve Bank selected by the Committee to execute open market transactions (the "Selected Bank"), to the extent necessary to carry out the most recent domestic policy directive adopted by the Committee:

    A. To buy or sell in the open market securities that are direct obligations of, or fully guaranteed as to principal and interest by, the United States, and securities that are direct obligations of, or fully guaranteed as to prin-

cipal and interest by, any agency of the United States, that are eligible for purchase or sale under Section 14(b) of the Federal Reserve Act ("Eligible Securities") for the System Open Market Account ("SOMA"):

i. As an outright operation with securities dealers and foreign and international accounts maintained at the Selected Bank: on a same-day or deferred delivery basis (including such transactions as are commonly referred to as dollar rolls and coupon swaps) at market prices; or

ii. As a temporary operation: on a same-day or deferred delivery basis, to purchase such Eligible Securities subject to an agreement to resell ("repo transactions") or to sell such Eligible Securities subject to an agreement to repurchase ("reverse repo transactions") for a term of 65 business days or less, at rates that, unless otherwise authorized by the Committee, are determined by competitive bidding, after applying reasonable limitations on the volume of agreements with individual counterparties;

B. To allow Eligible Securities in the SOMA to mature without replacement;

C. To exchange, at market prices, in connection with a Treasury auction, maturing Eligible Securities in the SOMA with the Treasury, in the case of Eligible Securities that are direct obligations of the United States or that are fully guaranteed as to principal and interest by the United States; and

D. To exchange, at market prices, maturing Eligible Securities in the SOMA with an agency of the United States, in the case of Eligible Securities that are direct obligations of that agency or that are fully guaranteed as to principal and interest by that agency.

2. The Committee authorizes the Selected Bank to undertake transactions of the type described in paragraph 1 from time to time for the purpose of testing operational readiness, subject to the following limitations:

A. All transactions authorized in this paragraph 2 shall be conducted with prior notice to the Committee;

B. The aggregate par value of the transactions authorized in this paragraph 2 that are of the type described in paragraph 1.A.i shall not exceed $5 billion per calendar year; and

C. The outstanding amount of the transactions described in paragraph 1.A.ii shall not exceed $5 billion at any given time.

3. In order to ensure the effective conduct of open market operations, the Committee authorizes the Selected Bank to operate a program to lend Eligible Securities held in the SOMA to dealers on an overnight basis (except that the Selected Bank may lend Eligible Securities for longer than an overnight term to accommodate weekend, holiday, and similar trading conventions).

A. Such securities lending must be:

i. At rates determined by competitive bidding;

ii. At a minimum lending fee consistent with the objectives of the program;

iii. Subject to reasonable limitations on the total amount of a specific issue of Eligible Securities that may be auctioned; and

iv. Subject to reasonable limitations on the amount of Eligible Securities that each borrower may borrow.

B. The Selected Bank may:

i. Reject bids that, as determined in its sole discretion, could facilitate a bidder's ability to control a single issue;

ii. Accept Treasury securities or cash as collateral for any loan of securities authorized in this paragraph 3; and

iii. Accept agency securities as collateral only for a loan of agency securities authorized in this paragraph 3.

4. In order to ensure the effective conduct of open market operations, while assisting in the provision of short-term investments or other authorized services for foreign central bank and international accounts maintained at a Federal Reserve Bank (the "Foreign Accounts") and accounts maintained at a Federal Reserve Bank as fiscal agent of the United States pursuant to section 15 of the

Federal Reserve Act (together with the Foreign Accounts, the "Customer Accounts"), the Committee authorizes the following when undertaken on terms comparable to those available in the open market:

A. The Selected Bank, for the SOMA, to undertake reverse repo transactions in Eligible Securities held in the SOMA with the Customer Accounts for a term of 65 business days or less; and

B. Any Federal Reserve Bank that maintains Customer Accounts, for any such Customer Account, when appropriate and subject to all other necessary authorization and approvals, to:

  i. Undertake repo transactions in Eligible Securities with dealers with a corresponding reverse repo transaction in such Eligible Securities with the Customer Accounts; and

  ii. Undertake intra-day repo transactions in Eligible Securities with Foreign Accounts.

Transactions undertaken with Customer Accounts under the provisions of this paragraph 4 may provide for a service fee when appropriate. Transactions undertaken with Customer Accounts are also subject to the authorization or approval of other entities, including the Board of Governors of the Federal Reserve System and, when involving accounts maintained at a Federal Reserve Bank as fiscal agent of the United States, the United States Department of the Treasury.

5. The Committee authorizes the Chairman of the Committee, in fostering the Committee's objectives during any period between meetings of the Committee, to instruct the Selected Bank to act on behalf of the Committee to:

A. Adjust somewhat in exceptional circumstances the stance of monetary policy and to take actions that may result in material changes in the composition and size of the assets in the SOMA; or

B. Undertake transactions with respect to Eligible Securities in order to appropriately address temporary disruptions of an operational or highly unusual nature in U.S. dollar funding markets.

Any such adjustment described in subparagraph A of this paragraph 5 shall be made in the context of the Committee's discussion and decision about the stance of policy at its most recent meeting and the Committee's long-run objectives to foster maximum employment and price stability, and shall be based on economic, financial, and monetary developments since the most recent meeting of the Committee. The Chairman, whenever feasible, will consult with the Committee before making any instruction under this paragraph 5.

Authorization for Foreign Currency Operations (As Reaffirmed Effective January 31, 2017)

In General

1. The Federal Open Market Committee (the "Committee") authorizes the Federal Reserve Bank selected by the Committee (the "Selected Bank") to execute open market transactions for the System Open Market Account as provided in this Authorization, to the extent necessary to carry out any foreign currency directive of the Committee:

A. To purchase and sell foreign currencies (also known as cable transfers) at home and abroad in the open market, including with the United States Treasury, with foreign monetary authorities, with the Bank for International Settlements, and with other entities in the open market. This authorization to purchase and sell foreign currencies encompasses purchases and sales through standalone spot or forward transactions and through foreign exchange swap transactions. For purposes of this Authorization, foreign exchange swap transactions are: swap transactions with the United States Treasury (also known as warehousing transactions), swap transactions with other central banks under reciprocal currency arrangements, swap transactions with other central banks under standing dollar liquidity and foreign currency liquidity swap arrangements, and swap transactions with other entities in the open market.

B. To hold balances of, and to have outstanding forward contracts to receive or to deliver, foreign currencies.

2. All transactions in foreign currencies undertaken pursuant to paragraph 1 above shall, unless otherwise authorized by the Committee, be conducted:

   A. In a manner consistent with the obligations regarding exchange arrangements under Article IV of the Articles of Agreement of the International Monetary Fund (IMF).[6]

   B. In close and continuous cooperation and consultation, as appropriate, with the United States Treasury.

   C. In consultation, as appropriate, with foreign monetary authorities, foreign central banks, and international monetary institutions.

   D. At prevailing market rates.

Standalone Spot and Forward Transactions

3. For any operation that involves standalone spot or forward transactions in foreign currencies:

   A. Approval of such operation is required as follows:

      i. The Committee must direct the Selected Bank in advance to execute the operation if it would result in the overall volume of standalone spot and forward transactions in foreign currencies, as defined in paragraph 3.C of this Authorization, exceeding $5 billion since the close of the most recent regular meeting of the Committee. The Foreign Currency Subcommittee (the "Subcommittee") must direct the Selected Bank in advance to execute the operation if the Subcommittee believes that consultation with the Committee is not feasible in the time available.

      ii. The Committee authorizes the Subcommittee to direct the Selected Bank in advance to execute the operation if it would result in the overall volume of standalone spot and forward transactions in foreign currencies, as defined in paragraph 3.C of this Authorization, totaling $5 billion or less since the close of the most recent regular meeting of the Committee.

   B. Such an operation also shall be:

      i. Generally directed at countering disorderly market conditions; or

      ii. Undertaken to adjust System balances in light of probable future needs for currencies; or

      iii. Conducted for such other purposes as may be determined by the Committee.

   C. For purposes of this Authorization, the overall volume of standalone spot and forward transactions in foreign currencies is defined as the sum (disregarding signs) of the dollar values of individual foreign currencies purchased and sold, valued at the time of the transaction.

Warehousing

4. The Committee authorizes the Selected Bank, with the prior approval of the Subcommittee and at the request of the United States Treasury, to conduct swap transactions with the United States Exchange Stabilization Fund established by section 10 of the Gold Reserve Act of 1934 under agreements in which the Selected Bank purchases foreign currencies from the Exchange Stabilization Fund and the Exchange Stabilization Fund repurchases the foreign currencies from the Selected Bank at a later date (such purchases and sales also known as warehousing).

Reciprocal Currency Arrangements, and Standing Dollar and Foreign Currency Liquidity Swaps

5. The Committee authorizes the Selected Bank to maintain reciprocal currency arrangements established under the North American Framework Agreement, standing dollar liquidity swap arrangements, and standing foreign currency liquidity swap arrangements as provided in this Authorization and to the extent necessary to carry out any foreign currency directive of the Committee.

[6] In general, as specified in Article IV, each member of the IMF undertakes to collaborate with the IMF and other members to assure orderly exchange arrangements and to promote a stable system of exchange rates. These obligations include seeking to direct the member's economic and financial policies toward the objective of fostering orderly economic growth with reasonable price stability. These obligations also include avoiding manipulating exchange rates or the international monetary system in such a way that would impede effective balance of payments adjustment or to give an unfair competitive advantage over other members.

A. For reciprocal currency arrangements all drawings must be approved in advance by the Committee (or by the Subcommittee, if the Subcommittee believes that consultation with the Committee is not feasible in the time available).

B. For standing dollar liquidity swap arrangements all drawings must be approved in advance by the Chairman. The Chairman may approve a schedule of potential drawings, and may delegate to the manager, System Open Market Account, the authority to approve individual drawings that occur according to the schedule approved by the Chairman.

C. For standing foreign currency liquidity swap arrangements all drawings must be approved in advance by the Committee (or by the Subcommittee, if the Subcommittee believes that consultation with the Committee is not feasible in the time available).

D. Operations involving standing dollar liquidity swap arrangements and standing foreign currency liquidity swap arrangements shall generally be directed at countering strains in financial markets in the United States or abroad, or reducing the risk that they could emerge, so as to mitigate their effects on economic and financial conditions in the United States.

E. For reciprocal currency arrangements, standing dollar liquidity swap arrangements, and standing foreign currency liquidity swap arrangements:

   i. All arrangements are subject to annual review and approval by the Committee;

   ii. Any new arrangements must be approved by the Committee; and

   iii. Any changes in the terms of existing arrangements must be approved in advance by the Chairman. The Chairman shall keep the Committee informed of any changes in terms, and the terms shall be consistent with principles discussed with and guidance provided by the Committee.

Other Operations in Foreign Currencies

6. Any other operations in foreign currencies for which governance is not otherwise specified in this Authorization (such as foreign exchange swap transactions with private-sector counterparties) must be authorized and directed in advance by the Committee.

Foreign Currency Holdings

7. The Committee authorizes the Selected Bank to hold foreign currencies for the System Open Market Account in accounts maintained at foreign central banks, the Bank for International Settlements, and such other foreign institutions as approved by the Board of Governors under Section 214.5 of Regulation N, to the extent necessary to carry out any foreign currency directive of the Committee.

   A. The Selected Bank shall manage all holdings of foreign currencies for the System Open Market Account:

      i. Primarily, to ensure sufficient liquidity to enable the Selected Bank to conduct foreign currency operations as directed by the Committee;

      ii. Secondarily, to maintain a high degree of safety;

      iii. Subject to paragraphs 7.A.i and 7.A.ii, to provide the highest rate of return possible in each currency; and

      iv. To achieve such other objectives as may be authorized by the Committee.

   B. The Selected Bank may manage such foreign currency holdings by:

      i. Purchasing and selling obligations of, or fully guaranteed as to principal and interest by, a foreign government or agency thereof ("Permitted Foreign Securities") through outright purchases and sales;

      ii. Purchasing Permitted Foreign Securities under agreements for repurchase of such Permitted Foreign Securities and selling

such securities under agreements for the resale of such securities; and

iii. Managing balances in various time and other deposit accounts at foreign institutions approved by the Board of Governors under Regulation N.

C. The Subcommittee, in consultation with the Committee, may provide additional instructions to the Selected Bank regarding holdings of foreign currencies.

Additional Matters

8. The Committee authorizes the Chairman:

   A. With the prior approval of the Committee, to enter into any needed agreement or understanding with the Secretary of the United States Treasury about the division of responsibility for foreign currency operations between the System and the United States Treasury;

   B. To advise the Secretary of the United States Treasury concerning System foreign currency operations, and to consult with the Secretary on policy matters relating to foreign currency operations;

   C. To designate Federal Reserve System persons authorized to communicate with the United States Treasury concerning System Open Market Account foreign currency operations; and

   D. From time to time, to transmit appropriate reports and information to the National Advisory Council on International Monetary and Financial Policies.

9. The Committee authorizes the Selected Bank to undertake transactions of the type described in this Authorization, and foreign exchange and investment transactions that it may be otherwise authorized to undertake, from time to time for the purpose of testing operational readiness. The aggregate amount of such transactions shall not exceed $2.5 billion per calendar year. These transactions shall be conducted with prior notice to the Committee.

10. All Federal Reserve banks shall participate in the foreign currency operations for System Open Market Account in accordance with paragraph 3G(1) of the Board of Governors' Statement of Procedure with Respect to Foreign Relationships of Federal Reserve Banks dated January 1, 1944.

11. Any authority of the Subcommittee pursuant to this Authorization may be exercised by the Chairman if the Chairman believes that consultation with the Subcommittee is not feasible in the time available. The Chairman shall promptly report to the Subcommittee any action approved by the Chairman pursuant to this paragraph.

12. The Committee authorizes the Chairman, in exceptional circumstances where it would not be feasible to convene the Committee, to foster the Committee's objectives by instructing the Selected Bank to engage in foreign currency operations not otherwise authorized pursuant to this Authorization. Any such action shall be made in the context of the Committee's discussion and decisions regarding foreign currency operations. The Chairman, whenever feasible, will consult with the Committee before making any instruction under this paragraph.

Foreign Currency Directive (As Reaffirmed Effective January 31, 2017)

1. The Committee directs the Federal Reserve Bank selected by the Committee (the "Selected Bank") to execute open market transactions, for the System Open Market Account, in accordance with the provisions of the Authorization for Foreign Currency Operations (the "Authorization") and subject to the limits in this Directive.

2. The Committee directs the Selected Bank to execute warehousing transactions, if so requested by the United States Treasury and if approved by the Foreign Currency Subcommittee (the "Subcommittee"), subject to the limitation that the outstanding balance of United States dollars provided to the United States Treasury as a result of these transactions not at any time exceed $5 billion.

3. The Committee directs the Selected Bank to maintain, for the System Open Market Account:

A. Reciprocal currency arrangements with the following foreign central banks:

Foreign central bank	Maximum amount (millions of dollars or equivalent)
Bank of Canada	2,000
Bank of Mexico	3,000

B. Standing dollar liquidity swap arrangements with the following foreign central banks:

Bank of Canada
Bank of England
Bank of Japan
European Central Bank
Swiss National Bank

C. Standing foreign currency liquidity swap arrangements with the following foreign central banks:

Bank of Canada
Bank of England
Bank of Japan
European Central Bank
Swiss National Bank

4. The Committee directs the Selected Bank to hold and to invest foreign currencies in the portfolio in accordance with the provisions of paragraph 7 of the Authorization.

5. The Committee directs the Selected Bank to report to the Committee, at each regular meeting of the Committee, on transactions undertaken pursuant to paragraphs 1 and 6 of the Authorization. The Selected Bank is also directed to provide quarterly reports to the Committee regarding the management of the foreign currency holdings pursuant to paragraph 7 of the Authorization.

6. The Committee directs the Selected Bank to conduct testing of transactions for the purpose of operational readiness in accordance with the provisions of paragraph 9 of the Authorization.

By unanimous vote, the Committee amended its Program for Security of FOMC Information (Program) with (1) minor changes that provide some additional flexibility in the classification of FOMC information and (2) the removal of language concerning communication with the Treasury Department regarding SOMA foreign currency operations that was no longer necessary in the Program because similar language was inserted into the Authorization for Foreign Currency Operations in September 2016.

In the Committee's annual reconsideration of the Statement on Longer-Run Goals and Monetary Policy Strategy, participants agreed that only a minor revision was required at this meeting, which was to update the reference to participants' estimates of the longer-run normal rate of unemployment from 4.9 percent to 4.8 percent. All participants supported the statement with the revision, and the Committee voted unanimously to approve the updated statement.

Statement on Longer-Run Goals and Monetary Policy Strategy (As Amended Effective January 31, 2017)

"The Federal Open Market Committee (FOMC) is firmly committed to fulfilling its statutory mandate from the Congress of promoting maximum employment, stable prices, and moderate long-term interest rates. The Committee seeks to explain its monetary policy decisions to the public as clearly as possible. Such clarity facilitates well-informed decisionmaking by households and businesses, reduces economic and financial uncertainty, increases the effectiveness of monetary policy, and enhances transparency and accountability, which are essential in a democratic society.

Inflation, employment, and long-term interest rates fluctuate over time in response to economic and financial disturbances. Moreover, monetary policy actions tend to influence economic activity and prices with a lag. Therefore, the Committee's policy decisions reflect its longer-run goals, its medium-term outlook, and its assessments of the balance of risks, including risks to the financial system that could impede the attainment of the Committee's goals.

The inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation. The Committee reaffirms its judgment that inflation at the rate of 2 percent, as measured by the annual change in the price index for personal consumption expenditures, is most consistent over the longer run with the Federal Reserve's statutory mandate. The Committee would be concerned if inflation were running persistently above or below this objective. Communicating this symmetric inflation goal clearly to the public helps keep longer-term inflation expectations firmly anchored, thereby fostering price stability and moderate long-term interest rates and

enhancing the Committee's ability to promote maximum employment in the face of significant economic disturbances. The maximum level of employment is largely determined by nonmonetary factors that affect the structure and dynamics of the labor market. These factors may change over time and may not be directly measurable. Consequently, it would not be appropriate to specify a fixed goal for employment; rather, the Committee's policy decisions must be informed by assessments of the maximum level of employment, recognizing that such assessments are necessarily uncertain and subject to revision. The Committee considers a wide range of indicators in making these assessments. Information about Committee participants' estimates of the longer-run normal rates of output growth and unemployment is published four times per year in the FOMC's Summary of Economic Projections. For example, in the most recent projections, the median of FOMC participants' estimates of the longer-run normal rate of unemployment was 4.8 percent.

In setting monetary policy, the Committee seeks to mitigate deviations of inflation from its longer-run goal and deviations of employment from the Committee's assessments of its maximum level. These objectives are generally complementary. However, under circumstances in which the Committee judges that the objectives are not complementary, it follows a balanced approach in promoting them, taking into account the magnitude of the deviations and the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with its mandate.

The Committee intends to reaffirm these principles and to make adjustments as appropriate at its annual organizational meeting each January."

The Committee considered amendments to its Policy on External Communications of Committee Participants and its Policy on External Communications of Federal Reserve System Staff. The amendments consisted of (1) starting the communication blackout earlier (the second Saturday before Committee meetings); (2) revising the treatment of staff presentations during the blackout period; (3) revising provisions regarding regularly published System releases of data, survey results, statistical indexes, and model results during the blackout period; (4) explicitly recognizing the need for ongoing communications with the public by staff members during the blackout period for operational or information-gathering purposes; and (5) making several miscellaneous changes, generally to improve clarity.

All participants supported the revisions, and the Committee voted unanimously to approve the revised policies.

Illustration of Uncertainty in the Summary of Economic Projections

Participants considered a revised proposal from the subcommittee on communications to add to the Summary of Economic Projections (SEP) a number of charts (sometimes called fan charts) that would illustrate the uncertainty that attends participants' macroeconomic projections. The revised proposal was based on further analysis and consultations following Committee discussion of a proposal at the January 2016 meeting. Participants generally supported the revised approach and agreed that fan charts would be incorporated in the SEP to be released with the minutes of the March 14–15, 2017, FOMC meeting. The Chair noted that a staff paper on measures of forecast uncertainty in the SEP, including those that would be used as the basis for fan charts in the SEP, would be made available to the public soon after the minutes of the current meeting were published, and that examples of the new charts using previously published data would be released in advance of the March meeting.

Developments in Financial Markets and Open Market Operations

The SOMA manager reported on developments in U.S. and global financial markets during the period since the Committee met on December 13–14, 2016. Financial asset prices were little changed since the December meeting. Market participants continued to report substantial uncertainty about potential changes in fiscal, regulatory, and other government policies. Nonetheless, measures of implied volatility of various asset prices remained low. Emerging market currencies were generally resilient in recent weeks, reportedly benefiting from investors' anticipation of stronger global economic growth, after depreciating significantly against the dollar during the previous intermeeting period. Market expectations for the path of the federal funds rate were little changed over the intermeeting period.

The deputy manager followed with a briefing on developments in money markets, market expectations

for the System's balance sheet, and open market operations. In money markets, interest rates smoothly shifted higher following the Committee's decision at its December meeting to increase the target range for the federal funds rate by 25 basis points, and federal funds subsequently traded near the center of the new range except on yearend. Although yearend pressures in U.S. money markets were similar to past quarter-ends, some notable, albeit temporary, strains appeared over the turn of the year in foreign exchange swap markets and European markets for repurchase agreements. The Open Market Desk's surveys of dealers and market participants pointed to some change in expectations for FOMC reinvestment policy, with more respondents than in previous surveys anticipating a change in policy when the federal funds rate reaches 1 to 1½ percent. The higher level of take-up at the System's overnight reverse repurchase agreement facility that developed following the implementation of money market fund reform last fall generally persisted. The staff also briefed the Committee on plans for small-value tests of various System operations and facilities during 2017 and for quarterly tests of the Term Deposit Facility.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Staff Review of the Economic Situation

The information reviewed for the January 31–February 1 meeting indicated that real gross domestic product (GDP) expanded at a moderate rate in the fourth quarter of last year and that labor market conditions continued to strengthen. Consumer price inflation rose further above the slow pace seen during the first half of last year, but it was still running below the Committee's longer-run objective of 2 percent.

Recent indicators generally showed that labor market conditions continued to improve in late 2016. Total nonfarm payroll employment increased at a solid pace in December. The unemployment rate edged up to 4.7 percent but remained near its recent low, while the labor force participation rate rose slightly. The share of workers employed part time for economic reasons decreased further. The rates of private-sector job openings and of hiring were unchanged in November, while the rate of quits edged up. The four-week moving average of initial claims for unemployment insurance benefits was still low in December and early January. Measures of labor compensation continued to rise at a moderate rate. The employment cost index for private industry workers rose 2¼ percent over the 12 months ending in December, and average hourly earnings for all employees increased almost 3 percent over the same 12-month period. The unemployment rates for African Americans, for Hispanics, and for whites were close to the levels seen just before the most recent recession, but the unemployment rates for African Americans and for Hispanics remained above the rate for whites.

Total industrial production edged down in the fourth quarter as a whole. Mining output expanded markedly, but manufacturing production advanced only modestly. The output of utilities declined, as the weather was unseasonably warm, on average, during the fourth quarter. Automakers' assembly schedules suggested that motor vehicle production would be a little lower early this year, but broader indicators of manufacturing production, such as the new orders indexes from national and regional manufacturing surveys, were consistent with modest gains in factory output in the near term.

Real personal consumption expenditures (PCE) rose at a moderate pace in the fourth quarter. Consumer expenditures for durable goods, particularly motor vehicles, increased considerably. However, consumer spending for energy services declined markedly, reflecting unseasonably warm weather. Recent readings on some key factors that influence consumer spending—including further gains in employment, real disposable personal income, and households' net worth—were consistent with moderate increases in real PCE in early 2017. In addition, consumer sentiment, as measured by the University of Michigan Surveys of Consumers, moved up to an elevated level in December and January.

Real residential investment spending rose at a brisk pace in the fourth quarter after decreasing in the previous two quarters. Building permit issuance for new single-family homes—which tends to be a reliable indicator of the underlying trend in construction—advanced solidly. Sales of existing homes increased modestly in the fourth quarter, although new home sales declined.

Real private expenditures for business equipment and intellectual property (E&I) expanded at a moderate pace in the fourth quarter after declining, on net,

over the preceding three quarters. Recent increases in nominal new orders of nondefense capital goods excluding aircraft, along with improvements in indicators of business sentiment, pointed to further moderate increases in real E&I spending in the near term. Real business expenditures for nonresidential structures declined in the fourth quarter after rising in the previous quarter. The number of crude oil and natural gas rigs in operation, an indicator of spending for structures in the drilling and mining sector, continued to increase through late January. The change in real inventory investment was estimated to have made an appreciable positive contribution to real GDP growth in the fourth quarter.

Real total government purchases rose somewhat in the fourth quarter. Federal government purchases for defense decreased while nondefense expenditures increased. State and local government purchases increased modestly, as the payrolls of these governments expanded slightly and their construction spending advanced somewhat.

The U.S. international trade deficit widened in November for the second consecutive month. After declining in October, nominal exports fell again in November as decreases in exports of capital goods more than offset increases in exports of industrial supplies. Nominal imports in November rose to their highest level of the year, led by imports of industrial supplies and materials. The Census Bureau's advance trade estimates for December suggested a narrowing of the trade deficit in goods, as imports increased less than exports. Altogether, the change in real net exports was estimated to have made a substantial negative contribution to real GDP growth in the fourth quarter.

Total U.S. consumer prices, as measured by the PCE price index, increased a little more than 1½ percent over the 12 months ending in December, partly restrained by decreases in consumer food prices last year. Core PCE price inflation, which excludes changes in food and energy prices, was 1¾ percent over those same 12 months, held down in part by decreases in the prices of non-energy imports over part of this period. Over the same 12-month period, total consumer prices as measured by the consumer price index (CPI) rose a bit more than 2 percent, while core CPI inflation was 2¼ percent. Survey-based measures of median longer-run inflation expectations—such as those from the Michigan survey and from the Desk's Survey of Primary Dealers and Survey of Market Participants—were unchanged, on net, over December and January.

Foreign real GDP growth appeared to slow somewhat in the fourth quarter from its relatively strong third-quarter pace. Nevertheless, recent data on foreign industrial production and trade seemed to be stronger than private analysts had anticipated and were consistent with moderate economic growth abroad. Economic growth in both the euro area and the United Kingdom continued at relatively solid rates. In the emerging market economies (EMEs), GDP growth remained robust in China but slowed elsewhere in the Asian EMEs and in Mexico, while the pace of economic contraction appeared to lessen in South America. Inflation in the advanced foreign economies (AFEs) continued to rise, largely reflecting the pass-through of earlier increases in crude oil prices into retail energy prices. Inflation also rose in many EMEs, in part because of rising food and fuel prices; however, inflation fell notably in much of South America.

Staff Review of the Financial Situation

Domestic financial conditions were mostly little changed, on balance, since the December FOMC meeting. Broad equity price indexes fluctuated in a relatively narrow range and ended the intermeeting period about unchanged. Nominal Treasury yields moved up across most maturities in the days following the December FOMC meeting but subsequently reversed and ended the period little changed on net. Measures of inflation compensation based on Treasury Inflation-Protected Securities (TIPS) rose somewhat on balance. Amid notable volatility, the broad dollar index declined slightly on net. Meanwhile, financing conditions for nonfinancial businesses and households remained generally accommodative.

Although the FOMC's decision to raise the target range for the federal funds rate to ½ to ¾ percent at the December meeting was widely anticipated in financial markets, contacts generally characterized some of the communications associated with the FOMC meeting as less accommodative than expected. In particular, market commentaries highlighted the upward revision of 25 basis points to the median projection for the federal funds rate at the end of 2017 in the SEP. Nonetheless, the expected path of the federal funds rate implied by futures quotes was little changed, on net, since the December meeting. Market-based estimates indicated that

investors saw the probability of an increase in the target range for the federal funds rate at the January 31–February 1 FOMC meeting as very low, and the estimated probability of an increase in the target range at or before the March meeting was about 25 percent. Consistent with readings based on market quotes, results from the Desk's January Survey of Primary Dealers and Survey of Market Participants indicated that the median respondent assigned a probability of about 25 percent to the next increase in the target range occurring at or before the March FOMC meeting. Market-based estimates of the probability of an increase in the target range at or before the June meeting were about 70 percent.

Yields on nominal Treasury securities increased across most maturities following the December FOMC meeting, but they fell, on balance, over the remainder of the intermeeting period. While market commentary suggested that a number of factors contributed to the decline, a clear catalyst was difficult to identify. Treasury yields ended the period about unchanged and remained significantly higher than just before the U.S. elections in November. TIPS-based measures of inflation compensation edged up over the intermeeting period.

Broad U.S. equity price indexes fluctuated in a relatively narrow range and were little changed, on net, over the intermeeting period. However, equity prices remained notably higher than just before the November elections, apparently reflecting investors' expectations that fiscal and other policy changes would boost corporate profits and economic activity in the medium term. Implied volatility on the S&P 500 index edged down since the December meeting and remained relatively low. Corporate bond spreads for both investment- and speculative-grade firms continued to narrow over the intermeeting period and were near the bottom of their ranges of the past several years.

Money market rates responded as expected to the change in the target range for the federal funds rate. The effective federal funds rate was 66 basis points—25 basis points higher than previously—every day following the change, except at year-end. Conditions in other domestic short-term funding markets were generally stable over the intermeeting period. Assets under management by money market funds changed little, with government funds experiencing modest net outflows and prime fund assets remaining about flat.

Financing conditions for nonfinancial businesses continued to be accommodative overall. Corporate bond issuance by nonfinancial firms rebounded in December to about its robust average pace of the past few years, and issuance of syndicated leveraged loans was strong. Gross equity issuance was solid in November and December. Meanwhile, after a slowdown in the third quarter, the growth of commercial and industrial (C&I) loans on banks' books picked up in the fourth quarter, although the pace remained slower than earlier in the year. The January Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) indicated that banks left C&I lending standards for large and middle-market firms and for small firms unchanged, on balance, in the fourth quarter. On net, banks expected to ease their standards for C&I loans somewhat in 2017.

Credit continued to be broadly available in the commercial real estate (CRE) sector, although results from the January SLOOS indicated that banks continued to tighten their lending standards in the fourth quarter and expected to tighten them somewhat further in 2017. CRE loans on banks' balance sheets continued to grow in the fourth quarter, although at a somewhat slower rate than earlier in the year, while issuance of commercial mortgage-backed securities (CMBS) was solid over the period, in part because issuers tried to complete deals before the implementation of new risk retention rules in late December. The delinquency rate on CMBS moved up further in November and December; the increase largely reflected delinquencies on loans originated before the financial crisis.

Credit conditions for residential mortgages were little changed, on net, over the intermeeting period. Mortgage credit was broadly available to households with average to high credit scores, while credit remained tight for borrowers with low credit scores, hard-to-document income, or high debt-to-income ratios. According to the January SLOOS, banks reportedly left lending standards unchanged, on net, on most categories of home-purchase loans. The interest rate on 30-year fixed-rate mortgages moved about in line with rates on comparable-maturity Treasury securities, rising notably after the November elections but retracing part of that increase since mid-December. The pace of purchase originations was little changed in recent months despite higher mortgage rates, while refinance originations fell sharply. Bank lending for residential mortgages was solid in the fourth quarter, and the issuance of mortgage-backed securities was robust.

Financing conditions in consumer credit markets remained generally accommodative, although lending

standards for credit cards continued to be tight for subprime borrowers. Respondents to the January SLOOS indicated that, over the previous three months, they had tightened standards and terms on auto and credit card loans, and that they expected to tighten standards further in 2017. Consumer loan balances increased at a robust rate through November, with credit card loans, student loans, and auto loans all expanding at a similar pace. Measures of consumer credit quality were little changed, on net, in the fourth quarter.

Foreign economic data that were better than expected and perceptions of an ebbing of some potential downside risks in Europe appeared to contribute to an improvement in investor sentiment in global financial markets. Importantly, a large euro-area bank reached a settlement with the U.S. Department of Justice on issues related to mortgage-backed securities, and the Italian government approved a funding package and other measures to support struggling banks. Reflecting the improved sentiment and positive economic news, global equity prices and longer-term sovereign yields in most AFEs increased moderately over the period. Yield spreads on EME sovereign bonds narrowed somewhat, and flows into EME mutual funds turned positive. The broad dollar index increased immediately after the December FOMC meeting but subsequently retraced its gains and ended the period slightly lower. In contrast, the dollar strengthened further against the Mexican peso over the intermeeting period.

The staff provided its latest report on potential risks to financial stability, indicating that it continued to judge the vulnerabilities of the U.S. financial system as moderate on balance. The staff's assessment took into account the increase in asset valuation pressures since the November elections, the overall low level of financial leverage, the strong capital positions at banks, and the subdued growth of debt among households and businesses. In addition, with money market fund reforms in place, the vulnerabilities from maturity and liquidity transformation were viewed as being somewhat below their longer-run average.

Staff Economic Outlook

In the U.S. economic projection prepared by the staff for this FOMC meeting, the near-term forecast was little changed from the December meeting. Real GDP growth in the fourth quarter of last year was estimated to have been a little faster than the staff had expected in December, and the pace of economic growth in the first half of this year was projected to be essentially the same as in the fourth quarter. The staff's forecast for real GDP growth over the next several years was little changed. The staff continued to project that real GDP would expand at a modestly faster pace than potential output in 2017 through 2019. The unemployment rate was forecast to edge down gradually through the end of 2019 and to run below the staff's estimate of its longer-run natural rate; the path for the unemployment rate was little changed from the previous projection.

The staff's forecast for consumer price inflation was unchanged on balance. The staff continued to project that inflation would increase over the next several years, as food and energy prices, along with the prices of non-energy imports, were expected to begin steadily rising either this year or next. However, inflation was projected to be marginally below the Committee's longer-run objective of 2 percent in 2019.

The staff viewed the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as similar to the average of the past 20 years. The risks to the forecast for real GDP were seen as tilted to the downside, primarily reflecting the staff's assessment that monetary policy appeared to be better positioned to offset large positive shocks than substantial adverse ones. However, the staff viewed the risks to the forecast from developments abroad as less pronounced than in the recent past. Consistent with the downside risks to aggregate demand, the staff viewed the risks to its outlook for the unemployment rate as tilted to the upside. The risks to the projection for inflation were seen as roughly balanced. The downside risks from the possibility that longer-term inflation expectations may have edged down or that the dollar could appreciate substantially further were seen as roughly counterbalanced by the upside risk that inflation could increase more than expected in an economy that was projected to continue operating above its longer-run potential.

Participants' Views on Current Conditions and the Economic Outlook

In their discussion of the economic situation and the outlook, meeting participants agreed that information received over the intermeeting period indicated that the labor market had continued to strengthen and that economic activity had continued to expand at a moderate pace. Job gains had remained solid, and the unemployment rate had stayed near its recent

low. Household spending had continued to rise moderately, while business fixed investment had remained soft. Measures of consumer and business sentiment had improved of late. Inflation had increased in recent quarters but was still below the Committee's 2 percent longer-run objective. Market-based measures of inflation compensation remained low; most survey-based measures of inflation compensation were little changed on balance.

Participants generally indicated that their economic forecasts had changed little since the December FOMC meeting. They continued to anticipate that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace, labor market conditions would strengthen somewhat further, and inflation would rise to 2 percent over the medium term. They also judged that near-term risks to the economic outlook appeared roughly balanced. Participants again emphasized their considerable uncertainty about the prospects for changes in fiscal and other government policies as well as about the timing and magnitude of the net effects of such changes on economic activity. In discussing the risks to the economic outlook, participants continued to view the possibility of more expansionary fiscal policy as having increased the upside risks to their economic forecasts, although some noted that several potential changes in government policies could pose downside risks. In addition, several viewed the downside risks from weaker economic activity abroad as having diminished somewhat. But several indicated that they continued to be concerned about the downside risks to economic activity associated with the possibility of additional appreciation of the foreign exchange value of the dollar or financial vulnerabilities in some foreign economies, together with the proximity of the federal funds rate to the effective lower bound. Regarding the outlook for inflation, some participants continued to be concerned that faster-than-expected economic growth or a substantial undershooting of the longer-run normal unemployment rate posed upside risks to inflation. However, several others continued to see downside risks to the inflation outlook, citing still-low measures of inflation compensation and inflation expectations or the possibility of further appreciation of the dollar. Participants generally agreed that the Committee should continue to closely monitor inflation indicators and global economic and financial developments.

Regarding the household sector, consumer spending posted a moderate increase in the fourth quarter, and participants generally anticipated that further gains in consumer spending would contribute importantly to economic growth in 2017. They expected that, although interest rates had moved higher, household spending would continue to be supported by rising employment and income as well as high levels of household wealth. The recent improvement in consumer sentiment was also viewed as a potentially positive factor in the outlook for spending, although several participants cautioned that an elevated level of sentiment, even if it was sustained, was likely to make only a small contribution to household spending beyond those from income, wealth, and credit conditions.

Recent indicators of activity in the housing sector were generally positive. Starts and permits for single-family housing and sales of existing homes rose moderately in the fourth quarter, and real residential investment bounced back after two quarterly declines. A couple of participants commented that supply constraints might be holding back new homebuilding. In addition, a few participants noted that prospects for residential investment would also depend on whether household formation picked up and how housing market activity responded to the recent rise in mortgage interest rates.

The outlook for the business sector improved further over the intermeeting period. Business investment in E&I, which had been contracting earlier in 2016, increased at a moderate rate in the fourth quarter. In addition, new orders for nondefense capital goods posted widespread gains in recent months. The available reports from District surveys of activity and revenues in the manufacturing and services industries were very positive. Moreover, a number of national surveys of sentiment among corporate executives and small business owners as well as information from participants' District contacts indicated a high level of optimism about the economic outlook. Many participants indicated that their business contacts attributed the improvement in business sentiment to the expectation that firms would benefit from possible changes in federal spending, tax, and regulatory policies. A few participants indicated that some of their contacts had already increased their planned capital expenditures. However, participants' contacts in some Districts, while optimistic, intended to wait for more clarity about federal policy initiatives before adjusting their capital spending and hiring. In addition, contacts in some industries remained concerned that their businesses might be adversely affected by some of the government policy changes being consid-

ered. Activity in the energy sector continued to improve, with District contacts reporting an increase in capital spending, better access to credit, and a pickup in hiring. However, reports from a couple of Districts indicated that the agricultural sector was still weak, with low commodity prices continuing to put financial pressure on farm-related businesses.

The labor market continued to strengthen in recent months. Monthly gains in nonfarm payroll employment averaged 165,000 over the period from October to December, a pace that, if it continued, would be expected to increase labor utilization over time. At 4.7 percent in December, the unemployment rate remained close to levels that most participants judged to be consistent with the Committee's maximum-employment objective. Some participants cited other indicators confirming the strengthening in the labor market, such as a decline in the broader measures of labor underutilization that include workers marginally attached to the labor force, the rise in the quits rate, and faster increases in some measures of labor compensation. Moreover, several participants' business contacts reported shortages of workers in some occupations or the need for training programs to expand the supply of skilled workers. Several other participants thought that some margins of labor underutilization remained, citing the still-high rate of prime-age workers outside the labor force, the elevated share of workers who were employed part time for economic reasons, or the potential for further firming in labor force participation. However, a couple of participants pointed out that the uncertainty attending estimates of longer-run trends in part-time employment and labor force participation made it difficult to assess the scope for additional increases in labor utilization. Most participants still expected that if economic growth remained moderate, labor markets would continue to tighten gradually, with the unemployment rate running only modestly below their estimates of the longer-run normal rate. However, several participants projected a more substantial undershooting.

Information on inflation received over the intermeeting period was broadly in line with participants' expectations and was consistent with a view that PCE inflation was moving closer to the Committee's 2 percent objective. The 12-month change in headline PCE prices increased further, to 1.6 percent in December, as the effects of the earlier declines in consumer energy prices waned. The 12-month change in core PCE prices stayed near 1.7 percent for a fifth consecutive month. A few participants noted that other measures provided additional evidence that inflation was approaching the Committee's objective; for example, the 12-month changes in the headline and core CPI, the median CPI, and the trimmed mean PCE price index had also moved up from year-earlier levels. The available information on pricing from District business contacts varied, with a couple of participants reporting that firms were experiencing rising cost pressures from input costs or had been able to raise their prices, while a few other participants said that firms in their Districts were not experiencing price pressures or that the appreciation of the dollar was continuing to hold down import prices. Most survey-based measures of longer-term inflation expectations had been little changed in recent months. The median response to the Michigan survey of longer-run inflation expectations moved back up to 2.6 percent in January, in line with the average of readings during 2016, and the measure at the three-year horizon from the Federal Reserve Bank of New York's survey rose slightly in December; the measures calculated by the Federal Reserve Bank of Cleveland had been stable over the preceding three months. Some market-based measures of inflation compensation had turned up noticeably in late 2016, but a number of participants noted that they remained relatively low. Most participants continued to expect that inflation would rise to the Committee's 2 percent objective over the medium term. Some saw a risk that inflationary pressures might develop more rapidly than currently anticipated as resource utilization tightened, while several others thought that progress in achieving the Committee's inflation objective might lag if further appreciation of the dollar continued to depress non-energy commodity prices or if inflation was slow to respond to tighter resource utilization.

Financial conditions appeared to have changed little, on net, in recent months: Equity prices had risen and credit spreads had narrowed, but longer-term interest rates had increased and the dollar had appreciated further. In their discussion, participants considered how recent developments had affected their assessment of the stability of the U.S. financial system. Overall, valuation pressures appeared to have risen for some types of assets, while financial-sector leverage remained low and risks associated with maturity and liquidity transformation had declined. A few participants commented that the recent increase in equity prices might in part reflect investors' anticipation of a boost to earnings from a cut in corporate taxes or more expansionary fiscal policy, which might not materialize. They also expressed concern that the

low level of implied volatility in equity markets appeared inconsistent with the considerable uncertainty attending the outlook for such policy initiatives.

Recent reforms had diminished the risk of runs on or by prime money market funds. However, it was noted that other risks to financial stability might arise as the structure of funding markets evolved or if real estate asset values declined sharply. More broadly, it was pointed out that an environment of low interest rates and a relatively flat yield curve, if it persisted, had the potential to boost incentives to take on leverage and risk. Several participants emphasized that the increased resilience of the financial system since the financial crisis had importantly been the result of the key safety and soundness reforms put in place in recent years. However, having additional macroprudential tools could prove useful in addressing problems that could arise in real estate financing or in the shadow banking sector.

Participants discussed whether their current assessments of economic conditions and the medium-term outlook warranted altering their earlier views of the appropriate path for the target range for the federal funds rate. Participants generally characterized their economic forecasts and their judgments about monetary policy as little changed since the December meeting. Against this backdrop, they thought it appropriate to maintain the target range for the federal funds rate at ½ to ¾ percent at this meeting.

Most participants continued to judge that, while the outlook was subject to considerable uncertainty, a gradual pace of rate increases over time was likely to be appropriate to promote the Committee's objectives of maximum employment and 2 percent inflation. Some participants viewed a gradual pace as likely to be warranted because inflation was still running below the Committee's objective or because the proximity of the federal funds rate to the effective lower bound placed constraints on the ability of monetary policy to respond to adverse shocks to the aggregate demand for goods and services. In addition, it was noted that the downward pressure on longer-term interest rates exerted by the Federal Reserve's asset holdings was expected to diminish in the years ahead in light of an anticipated gradual reduction in the size and duration of the Federal Reserve's balance sheet. Finally, the view that gradual increases in the federal funds rate were likely to be appropriate also reflected the assessment that the neutral real rate—defined as the real interest rate that is neither expansionary nor contractionary when the economy is operating at or near its potential—was currently quite low and was likely to rise only slowly over time.

Participants emphasized that the Committee might need to change its communications regarding the anticipated path for the policy rate if economic conditions evolved differently than the Committee expected or if the economic outlook changed. They pointed to a number of risks that, if realized, might call for a different policy trajectory than they currently thought most likely to be appropriate. These included upside risks such as appreciably more expansionary fiscal policy or a more rapid buildup of inflationary pressures, as well as downside risks associated with a possible further appreciation of the dollar or financial vulnerabilities in some foreign economies, together with the proximity of the federal funds rate to the effective lower bound. Moreover, most participants continued to see heightened uncertainty regarding the size, composition, and timing of possible changes to fiscal and other government policies, and about their net effects on the economy and inflation over the medium term, and they thought some time would likely be required for the outlook to become clearer. A couple of participants argued that such uncertainty should not deter the Committee from taking further steps in the near term to remove monetary policy accommodation, because fiscal and other policies were only some of the many factors that were likely to influence progress toward the Committee's dual-mandate objectives and thus the appropriate course of monetary policy. However, other participants cautioned against adjusting monetary policy in anticipation of policy proposals that might not be enacted or that, if enacted, might turn out to have different consequences for economic activity and inflation than currently anticipated.

In discussing the outlook for monetary policy over the period ahead, many participants expressed the view that it might be appropriate to raise the federal funds rate again fairly soon if incoming information on the labor market and inflation was in line with or stronger than their current expectations or if the risks of overshooting the Committee's maximum-employment and inflation objectives increased. A few participants noted that continuing to remove policy accommodation in a timely manner, potentially at an upcoming meeting, would allow the Committee greater flexibility in responding to subsequent changes in economic conditions. Several judged that the risk of a sizable undershooting of the longer-run

normal unemployment rate was high, particularly if economic growth was faster than currently expected. If that situation developed, the Committee might need to raise the federal funds rate more quickly than most participants currently anticipated to limit the buildup of inflationary pressures. However, with inflation still short of the Committee's objective and inflation expectations remaining low, a few others continued to see downside risks to inflation or anticipated only a gradual return of inflation to the 2 percent objective as the labor market strengthened further. A couple of participants expressed concern that the Committee's communications about a gradual pace of policy firming might be misunderstood as a commitment to only one or two rate hikes per year and stressed the importance of communicating that policy will respond to the evolving economic outlook as appropriate to achieve the Committee's objectives. Participants also generally agreed that the Committee should begin discussions at upcoming meetings about the economic conditions that could warrant changes in the existing policy of reinvesting proceeds from maturing Treasury securities and principal payments from agency debt and mortgage-backed securities, as well as how those changes would be implemented and communicated.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members judged that the information received since the Committee met in December indicated that the labor market had continued to strengthen and that economic activity had continued to expand at a moderate pace. Job gains had remained solid, and the unemployment rate had stayed near its recent low. Household spending had continued to rise moderately, while business fixed investment had remained soft. Measures of consumer and business sentiment had improved of late. Inflation had increased in recent quarters but was still below the Committee's 2 percent longer-run objective. Market-based measures of inflation compensation remained low; most survey-based measures of longer-term inflation expectations were little changed on balance.

With respect to the economic outlook and its implications for monetary policy, members continued to expect that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace and labor market conditions would strengthen somewhat further. Members agreed that there was heightened uncertainty about the effects of possible changes in fiscal and other government policies, but that near-term risks to the economic outlook appeared roughly balanced. Many members continued to see only a modest risk of a scenario in which the unemployment rate would substantially undershoot its longer-run normal level and inflation pressures would increase significantly. These members expressed the view that inflation was likely to rise toward 2 percent gradually, and that policymakers would likely have ample time to respond if signs of rising inflationary pressures did begin to emerge. Other members indicated that if the labor market appeared to be tightening significantly more than anticipated or if inflation pressures appeared to be developing more rapidly than expected as resource utilization tightened, it might become necessary to adjust the Committee's communications about the expected path of the federal funds rate. One member noted that, even if incoming data on the economy and inflation were consistent with expectations, taking the next step in reducing policy accommodation relatively soon would give the Committee greater flexibility in calibrating policy to evolving economic conditions.

At this meeting, members continued to expect that, with gradual adjustments in the stance of monetary policy, inflation would rise to the Committee's 2 percent objective over the medium term. This view was reinforced by the rise in inflation and increases in inflation compensation in recent months. Against this backdrop and in light of the current shortfall in inflation from 2 percent, members agreed that they would continue to closely monitor actual and expected progress toward the Committee's inflation goal.

After assessing current conditions and the outlook for economic activity, the labor market, and inflation, members agreed to maintain the target range for the federal funds rate at ½ to ¾ percent. They judged that the stance of monetary policy remained accommodative, thereby supporting some further strengthening in labor market conditions and a return to 2 percent inflation.

The Committee agreed that, in determining the timing and size of future adjustments to the target range for the federal funds rate, it would assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee

expected that economic conditions would evolve in a manner that would warrant only gradual increases in the federal funds rate and that the federal funds rate was likely to remain, for some time, below levels expected to prevail in the longer run. However, members emphasized that the actual path of the federal funds rate would depend on the evolution of the economic outlook as informed by incoming data.

The Committee also decided to maintain its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction, and it anticipated doing so until normalization of the level of the federal funds rate is well under way. Members noted that this policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until it was instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective February 2, 2017, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of ½ to ¾ percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 0.50 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a percounterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over maturing Treasury securities at auction and to continue reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

> "Information received since the Federal Open Market Committee met in December indicates that the labor market has continued to strengthen and that economic activity has continued to expand at a moderate pace. Job gains remained solid and the unemployment rate stayed near its recent low. Household spending has continued to rise moderately while business fixed investment has remained soft. Measures of consumer and business sentiment have improved of late. Inflation increased in recent quarters but is still below the Committee's 2 percent longer-run objective. Market-based measures of inflation compensation remain low; most survey-based measures of longer-term inflation expectations are little changed, on balance.
>
> Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, labor market conditions will strengthen somewhat further, and inflation will rise to 2 percent over the medium term. Near-term risks to the economic outlook appear roughly balanced. The Committee continues to closely monitor inflation indicators and global economic and financial developments.
>
> In view of realized and expected labor market conditions and inflation, the Committee decided to maintain the target range for the federal funds rate at ½ to ¾ percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a return to 2 percent inflation.
>
> In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. In light of the current shortfall of inflation from 2 percent, the Committee will

carefully monitor actual and expected progress toward its inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant only gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.

The Committee is maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction, and it anticipates doing so until normalization of the level of the federal funds rate is well under way. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions."

Voting for this action: Janet L. Yellen, William C. Dudley, Lael Brainard, Charles L. Evans, Stanley Fischer, Patrick Harker, Robert S. Kaplan, Neel Kashkari, Jerome H. Powell, and Daniel K. Tarullo.

Voting against this action: None.

Consistent with the Committee's decision to leave the target range for the federal funds rate unchanged, the Board of Governors voted unanimously to leave the interest rates on required and excess reserve balances unchanged at 0.75 percent and voted unanimously to approve establishment of the primary credit rate (discount rate) at the existing level of 1.25 percent.[7]

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, March 14–15, 2017. The meeting adjourned at 10:05 a.m. on February 1, 2017.

Notation Vote

By notation vote completed on January 3, 2017, the Committee unanimously approved the minutes of the Committee meeting held on December 13–14, 2016.

Brian F. Madigan
Secretary

[7] The second vote of the Board also encompassed approval of the establishment of the interest rates for secondary and seasonal credit under the existing formulas for computing such rates.

Meeting Held on March 14–15, 2017

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, March 14, 2017, at 10:00 a.m. and continued on Wednesday, March 15, 2017, at 9:00 a.m.[1]

Present

Janet L. Yellen
Chair

William C. Dudley
Vice Chairman

Lael Brainard

Charles L. Evans

Stanley Fischer

Patrick Harker

Robert S. Kaplan

Neel Kashkari

Jerome H. Powell

Daniel K. Tarullo

Marie Gooding, Jeffrey M. Lacker, Loretta J. Mester, and John C. Williams
Alternate Members of the Federal Open Market Committee

James Bullard, Esther L. George, and Eric Rosengren
Presidents of the Federal Reserve Banks of St. Louis, Kansas City, and Boston, respectively

Brian F. Madigan
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Scott G. Alvarez
General Counsel

Michael Held[2]
Deputy General Counsel

1 The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

2 Attended Tuesday session only.

Steven B. Kamin
Economist

Thomas Laubach
Economist

David W. Wilcox
Economist

James A. Clouse, Michael Dotsey, Evan F. Koenig, Daniel G. Sullivan, and William Wascher
Associate Economists

Simon Potter
Manager, System Open Market Account

Lorie K. Logan
Deputy Manager, System Open Market Account

Robert deV. Frierson
Secretary, Office of the Secretary, Board of Governors

Matthew J. Eichner[3]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Michael S. Gibson
Director, Division of Supervision and Regulation, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Daniel M. Covitz
Deputy Director, Division of Research and Statistics, Board of Governors

Michael T. Kiley
Deputy Director, Division of Financial Stability, Board of Governors

Stephen A. Meyer
Deputy Director, Division of Monetary Affairs, Board of Governors

Trevor A. Reeve
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

David Bowman, Andrew Figura, Joseph W. Gruber, and David Reifschneider
Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

3 Attended through the discussion of System Open Market Account reinvestment policy.

David E. Lebow and Michael G. Palumbo
Senior Associate Directors, Division of Research and Statistics, Board of Governors

Antulio N. Bomfim and Ellen E. Meade
Senior Advisers, Division of Monetary Affairs, Board of Governors

Brian M. Doyle
Associate Director, Division of International Finance, Board of Governors

Jane E. Ihrig and David López-Salido
Associate Directors, Division of Monetary Affairs, Board of Governors

Stacey Tevlin
Associate Director, Division of Research and Statistics, Board of Governors

Min Wei
Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Christopher J. Gust and Jason Wu
Assistant Directors, Division of Monetary Affairs, Board of Governors

Paul R. Wood
Assistant Director, Division of International Finance, Board of Governors

Penelope A. Beattie[3]
Assistant to the Secretary, Office of the Secretary, Board of Governors

Michele Cavallo and Jeffrey Huther
Section Chiefs, Division of Monetary Affairs, Board of Governors

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Andrea Ajello
Principal Economist, Division of Monetary Affairs, Board of Governors

Randall A. Williams
Information Manager, Division of Monetary Affairs, Board of Governors

James M. Lyon and Mark L. Mullinix
First Vice Presidents, Federal Reserve Banks of Minneapolis and Richmond, respectively

David Altig, Jeff Fuhrer, and Glenn D. Rudebusch
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Boston, and San Francisco, respectively

Paolo A. Pesenti, Julie Ann Remache, and Ellis W. Tallman
Senior Vice Presidents, Federal Reserve Banks of New York, New York, and Cleveland, respectively

George A. Kahn
Vice President, Federal Reserve Bank of Kansas City

William Dupor
Assistant Vice President, Federal Reserve Bank of St. Louis

Roy H. Webb
Senior Economist, Federal Reserve Bank of Richmond

Developments in Financial Markets and Open Market Operations

The manager of the System Open Market Account (SOMA) reported on developments in U.S. and global financial markets during the period since the Committee met on January 31 and February 1, 2017. Global equity prices generally increased further, credit spreads on corporate debt and emerging market bonds narrowed, and yields on Treasury securities rose somewhat. In survey responses, market participants again reported elevated uncertainty about the outlook for U.S. economic policies and about financial asset prices, but various measures of implied volatility nonetheless declined further. The monetary policies of other advanced-economy central banks remained quite accommodative, and some signs of progress on central banks' inflation mandates were evident. Late in the intermeeting period, market participants came to interpret U.S. monetary policy communications as implying high odds of a firming of monetary policy at this meeting, and changes in market prices suggested a slightly steeper path for the federal funds rate over the next few years than was previously anticipated. Survey results indicated that market participants saw a change in the FOMC's policy of reinvesting principal payments on its securities holdings as most likely to be announced in late 2017 or the first half of 2018. Most market participants anticipated that, once a change to reinvestment policy was announced, reinvestments would most likely be phased out rather than stopped all at once.

The deputy manager followed with a briefing on developments in money markets and open market operations. Over the intermeeting period, federal funds continued to trade near the center of the Committee's ½ to ¾ percent target range except on

month-ends. Spreads of rates on market repurchase agreements (repos) over the rate at the System's overnight reverse repurchase agreement (ON RRP) facility remained relatively low. Market participants attributed some of the recent decline in market repo rates to a reduction in the supply of Treasury bills in advance of the reinstatement of the statutory debt limit on March 16. The lower market repo rates had led to moderately higher take-up at the ON RRP facility in recent weeks.

By unanimous vote, the Committee ratified the Open Market Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

System Open Market Account Reinvestment Policy

The staff provided several briefings that summarized issues related to potential changes to the Committee's policy of reinvesting principal payments from securities held in the SOMA. These briefings discussed the macroeconomic implications of alternative strategies the Committee could employ with respect to reinvestments, including making the timing of an end to reinvestments either date dependent or dependent on economic conditions. The briefings also considered the advantages and disadvantages of phasing out reinvestments or ending them all at once as well as whether using the same approach would be appropriate for both Treasury securities and agency mortgage-backed securities (MBS).

In their discussion, policymakers reaffirmed the approach to balance sheet normalization articulated in the Committee's Policy Normalization Principles and Plans announced in September 2014. In particular, participants agreed that reductions in the Federal Reserve's securities holdings should be gradual and predictable, and accomplished primarily by phasing out reinvestments of principal received from those holdings. Most participants expressed the view that changes in the target range for the federal funds rate should be the primary means for adjusting the stance of monetary policy when the federal funds rate was above its effective lower bound. A number of participants indicated that the Committee should resume asset purchases only if substantially adverse economic circumstances warranted greater monetary policy accommodation than could be provided by lowering the federal funds rate to the effective lower bound. Moreover, it was noted that the Committee's policy of maintaining reinvestments until normalization of the level of the federal funds rate was well under way had supported the smooth and effective conduct of monetary policy and had helped maintain accommodative financial conditions.

Consistent with the Policy Normalization Principles and Plans, nearly all participants preferred that the timing of a change in reinvestment policy depend on an assessment of economic and financial conditions. Several participants indicated that the timing should be based on a quantitative threshold or trigger tied to the target range for the federal funds rate. Some other participants expressed the view that the timing should depend on a qualitative judgment about economic and financial conditions. Such a judgment would importantly encompass an assessment by the Committee of the risks to the outlook, including the degree of confidence that evolving circumstances would not soon require a reversal in the direction of policy. Taking these considerations into account, policymakers discussed the likely level of the federal funds rate when a change in the Committee's reinvestment policy would be appropriate. Provided that the economy continued to perform about as expected, most participants anticipated that gradual increases in the federal funds rate would continue and judged that a change to the Committee's reinvestment policy would likely be appropriate later this year. Many participants emphasized that reducing the size of the balance sheet should be conducted in a passive and predictable manner. Some participants expressed the view that it might be appropriate for the Committee to restart reinvestments if the economy encountered significant adverse shocks that required a reduction in the target range for the federal funds rate.

When the time comes to implement a change to reinvestment policy, participants generally preferred to phase out or cease reinvestments of both Treasury securities and agency MBS. Policymakers also discussed the potential benefits and costs of approaches that would either phase out or cease all at once reinvestments of principal from these securities. An approach that phased out reinvestments was seen as reducing the risks of triggering financial market volatility or of potentially sending misleading signals about the Committee's policy intentions while only modestly slowing reductions in the Committee's securities holdings. An approach that ended reinvestments all at once, however, was generally viewed as easier to communicate while allowing for somewhat swifter normalization of the size of the balance sheet.

To promote rapid normalization of the size and composition of the balance sheet, one participant preferred to set a minimum pace for reductions in MBS holdings and, if and when necessary, to sell MBS to maintain such a pace.

Nearly all participants agreed that the Committee's intentions regarding reinvestment policy should be communicated to the public well in advance of an actual change. It was noted that the Committee would continue its deliberations on reinvestment policy during upcoming meetings and would release additional information as it becomes available. In that context, several participants indicated that, when the Committee announces its plans for a change to its reinvestment policy, it would be desirable to also provide more information to the public about the Committee's expectations for the size and composition of the Federal Reserve's assets and liabilities in the longer run.

Staff Review of the Economic Situation

The information reviewed for the March 14–15 meeting suggested that the labor market strengthened further in January and February and that real gross domestic product (GDP) was continuing to expand in the first quarter, albeit at a slower pace than in the fourth quarter, with some of the slowing likely reflecting transitory factors. The 12-month change in consumer prices moved up in recent months and was close to the Committee's longer-run objective of 2 percent; excluding food and energy prices, inflation was little changed and continued to run somewhat below 2 percent.

Total nonfarm payroll employment increased at a brisk pace in January and February. The unemployment rate edged back down to 4.7 percent in February, and the labor force participation rate rose over the first two months of the year. The share of workers employed part time for economic reasons was little changed on net. The rate of private-sector job openings was unchanged at a high level in December, while the rate of hiring edged up and the rate of quits edged down. The four-week moving average of initial claims for unemployment insurance benefits was at a very low level in early March. Measures of labor compensation continued to rise at a moderate rate. Compensation per hour in the nonfarm business sector increased 3¼ percent over the four quarters of 2016, and average hourly earnings for all employees increased 2¾ percent over the 12 months ending in February. The unemployment rates for African Americans, for Hispanics, and for whites were close to the levels seen just before the most recent recession, but the unemployment rates for African Americans and for Hispanics remained above the rate for whites. Over the past year or so, the jobless rate for African Americans moved lower, while the rates for Hispanics and for whites moved roughly sideways.

Total industrial production declined in January, as unseasonably warm weather reduced the demand for heating, which held down the output of utilities. Mining output expanded further following a large gain in the fourth quarter, and manufacturing production continued to rise at a modest pace. Automakers' assembly schedules suggested that motor vehicle production would remain near its January pace, on average, over the next few months, while broader indicators of manufacturing production, such as the new orders indexes from national and regional manufacturing surveys, pointed to further modest gains in factory output over the near term.

Real personal consumption expenditures (PCE) appeared to be rising at a slower pace in the first quarter than in the fourth quarter. Motor vehicle sales stepped down in January and February from their brisk year-end pace, and unseasonably warm weather prompted a further decline in consumer spending for energy services. Taken together, the components of the nominal retail sales data used by the Bureau of Economic Analysis to construct its estimate of PCE were unchanged in February after a robust gain in January. Recent readings on some key factors that influence consumer spending—including further gains in employment, real disposable personal income, and households' net worth—were consistent with moderate increases in real PCE in early 2017. In addition, consumer sentiment, as measured by the University of Michigan Surveys of Consumers, remained at an elevated level in February.

Recent information on housing activity suggested that residential investment increased at a solid pace early in the year. Starts for both new single-family homes and multifamily units strengthened in the fourth quarter and remained near those levels in January. Issuance of building permits for new single-family homes—which tends to be a reliable indicator of the underlying trend in construction—also moved up in the fourth quarter and remained near that level in January. Sales of existing homes rose in January, while new home sales maintained their fourth-quarter pace.

Real private expenditures for business equipment and intellectual property appeared to be rising in the first quarter after a moderate gain in the fourth quarter. Nominal new orders of nondefense capital goods excluding aircraft recorded a solid net gain over the three months ending in January, and indicators of business sentiment were upbeat. Firms' nominal spending for nonresidential structures excluding drilling and mining was fairly flat in recent months, but the number of crude oil and natural gas rigs in operation, an indicator of spending for structures in the drilling and mining sector, continued to increase through early March. The limited available data suggested that inventory investment was likely to make a smaller contribution to real GDP growth in the early part of the year than it did in the fourth quarter.

Total real government purchases appeared to be moving sideways in the first quarter after having been little changed in the fourth quarter. Nominal outlays for defense in January and February pointed to an increase in real federal purchases. Although state and local government payrolls expanded in January and February, nominal construction spending by these governments fell sharply in January.

Net exports exerted a significant drag on real GDP growth in the fourth quarter of 2016, and the January trade data suggested that net exports would continue to weigh on growth in the first quarter of this year. The U.S. international trade deficit widened in January in nominal terms, with imports—led by consumer goods—rising more than exports. Over the past six months, nominal imports grew at a much faster pace than nominal exports.

Total U.S. consumer prices, as measured by the PCE price index, increased a little less than 2 percent over the 12 months ending in January. Core PCE price inflation, which excludes changes in food and energy prices, was 1¾ percent over those same 12 months, held down in part by decreases in the prices of non-energy imports over part of this period. Over the 12 months ending in February, total consumer prices as measured by the consumer price index (CPI) rose 2¾ percent, while core CPI inflation was 2¼ percent. The medians of survey-based measures of longer-run inflation expectations—such as those from the Michigan survey, the Survey of Professional Forecasters, and the Desk's Survey of Primary Dealers and Survey of Market Participants—were little changed, on balance, in recent months.

Foreign real GDP growth slowed a bit in the fourth quarter from a relatively strong rate in the third quarter, but it was still somewhat higher than its average pace over the past two years. In much of the world, including Europe, Japan, and most of emerging Asia, economic activity continued to grow at a moderate pace. In Canada and Mexico—two important trading partners of the United States—growth stepped down from unusually strong third-quarter rates to a still-solid pace in the fourth quarter, and Brazil's recession deepened. Recently released purchasing managers indexes and confidence indicators from abroad were generally upbeat and pointed to continued moderate foreign growth in early 2017, although indicators from Mexico suggested a further slowing. Inflation in the advanced foreign economies (AFEs) continued to rise, largely reflecting increases in retail energy prices and currency depreciation. Among the emerging market economies (EMEs), inflation rose in Mexico, in part reflecting a substantial hike in fuel prices, but fell in China and parts of South America.

Staff Review of the Financial Situation

Financial markets were generally quiet over the intermeeting period. The Committee's decision to keep the target range for the federal funds rate unchanged at the January–February FOMC meeting was well anticipated. Broad equity price indexes rose further, leaving some standard measures of valuations above historical norms. Treasury yields rose late in the intermeeting period, following monetary policy communications by several Federal Reserve officials. The broad dollar index was about unchanged. Financing conditions for nonfinancial businesses, households, and state and local governments remained generally accommodative in recent months. Federal Reserve communications over the intermeeting period contributed to increased expectations of a decision to raise the target range for the federal funds rate at the March meeting. The Chair's semiannual monetary policy testimony reportedly led market participants to price in a slightly higher probability of a monetary policy firming in the near term. Subsequently, investors took note of the mention in the minutes of the January–February FOMC meeting that many participants expressed the view that it might be appropriate to raise the federal funds rate again fairly soon if incoming information on the labor market and inflation was in line with or stronger than their current expectations or if the risks of overshooting the Committee's maximum-employment and inflation objec-

tives increased. Late in the period, communications from several Federal Reserve officials led to an increase in market-based measures of the probability that the target range for the federal funds rate would rise at the March meeting.

Nominal Treasury yields increased over the intermeeting period, particularly for shorter maturities. Treasury yields reacted only modestly over most of the period to domestic economic data releases that were reportedly seen as a little stronger than expected on balance. Yields on longer-dated Treasury securities rose late in the period following comments by Federal Reserve officials. Measures of inflation compensation based on Treasury Inflation-Protected Securities were little changed, on net, since the February FOMC meeting.

Broad U.S. equity price indexes increased over the intermeeting period, and some measures of valuations, such as price-to-earnings ratios, rose further above historical norms. A standard measure of the equity risk premium edged lower, declining into the lower quartile of its historical distribution of the previous three decades. Stock prices rose across most industries, and equity prices for financial firms outperformed broader indexes. Meanwhile, spreads of yields on bonds issued by nonfinancial corporations over those on comparable-maturity Treasury securities were little changed.

Since the previous FOMC meeting, better-than-expected economic data and earnings releases abroad also supported risk sentiment: Foreign equity prices increased, flows to emerging market mutual funds picked up, and emerging market bond spreads narrowed. Consistent with improved sentiment toward the EMEs, the dollar depreciated against EME currencies. The Mexican peso appreciated substantially against the dollar, although it remained weaker than just before the U.S. elections. In contrast, the dollar appreciated against the AFE currencies, reflecting continued divergence in monetary policy expectations for the United States and AFEs as well as political uncertainty in Europe. The broad dollar index was little changed over the period. Sovereign yields in AFEs generally increased slightly. In the United Kingdom, however, gilt yields declined and the pound weakened against the dollar in response to weaker-than-expected inflation data and to an upward revision by the Bank of England, at its early February policy meeting, of its assessment of the degree of slack in the labor market. As expected by market participants, the European Central Bank, at its meeting in early March, kept its policy rate and the pace of its asset purchases unchanged.

In U.S. financial markets, credit flows to large firms remained solid in recent months, with strong bond issuance by investment-grade corporations and brisk originations of leveraged loans. Bank loans continued to be largely available for small businesses, although small business credit demand reportedly remained subdued.

In the municipal bond market, issuance was strong in January but decreased somewhat in February. Yields increased a little, about in line with the rise in Treasury yields. The number of ratings upgrades notably outpaced the number of downgrades in January and February.

Commercial real estate loans on banks' books continued to grow in January and February. Spreads on highly rated commercial mortgage-backed securities (CMBS) over Treasury securities were little changed. However, the volumes of CMBS issuance and of deals in the pipeline were lower in the first two months of the year than in each of the previous two years. Market commentators attributed some of the slowdown to the response of issuers to risk retention rules that took effect in late 2016. The delinquency rate on loans in CMBS pools had risen since the spring of 2016, reflecting increased delinquencies on loans originated before the financial crisis.

Mortgage credit continued to be readily available for households with strong credit scores and documented incomes. Despite the increase in Treasury yields, the interest rate on 30-year fixed-rate mortgages was little changed over the intermeeting period. Closed-end residential mortgage loans on banks' books were about flat in January and February, while banks' holdings of home equity lines of credit continued their long contraction. Financing conditions in the market for asset-backed securities remained favorable. Consumer credit continued to increase at a steady pace, with similar growth rates across credit card, automobile, and student loans. The growth of consumer lending at banks continued in January and February, albeit at a slower pace than in the fourth quarter of 2016. Financing conditions for consumers remained accommodative except in the market for subprime credit card loans.

Staff Economic Outlook

In the U.S. economic projection prepared by the staff for the March FOMC meeting, the near-term forecast for real GDP growth was a little weaker, on net, than in the previous projection. Real GDP was expected to expand at a slower rate in the first quarter than in the fourth quarter, reflecting some data for January that were judged to be transitorily weak, but growth was projected to move back up in the second quarter. The staff maintained its assumption—provisionally included starting with the December 2016 forecast—of a more expansionary fiscal policy in the coming years, but it pushed back the timing of when those policy changes were anticipated to take effect. The negative effect of this timing change on projected real GDP growth through 2019 was offset by a higher assumed path for equity prices and by a lower assumed path for the exchange value of the dollar. All told, the staff's forecast for the level of real GDP at the end of 2019 was essentially unrevised from the previous forecast, and the staff continued to project that real GDP would expand at a modestly faster pace than potential output in 2017 through 2019. The unemployment rate was forecast to edge down gradually through the end of 2019 and to run below the staff's estimate of its longer-run natural rate; the path for the unemployment rate was little changed from the previous projection.

The staff's forecast for consumer price inflation, as measured by changes in the PCE price index, was unchanged for 2017 as a whole and over the next couple of years. The staff continued to project that inflation would increase gradually over this period, as food and energy prices, along with the prices of non-energy imports, were expected to begin steadily rising this year. However, inflation was projected to be slightly below the Committee's longer-run objective of 2 percent in 2019.

The staff viewed the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as similar to the average of the past 20 years. The risks to the forecast for real GDP were seen as tilted to the downside, primarily reflecting the staff's assessment that monetary policy appeared to be better positioned to respond to large positive shocks to the economic outlook than substantial adverse ones. However, the staff viewed the risks to the forecast as less pronounced than in the recent past, reflecting both somewhat diminished risks to the foreign outlook and an increase in U.S. consumer and business confidence over recent months. Consistent with the downside risks to aggregate demand, the staff viewed the risks to its outlook for the unemployment rate as tilted to the upside. The risks to the projection for inflation were seen as roughly balanced. The downside risks from the possibility that longer-term inflation expectations may have edged down or that the dollar could appreciate substantially further were seen as roughly counterbalanced by the upside risk that inflation could increase more than expected in an economy that was projected to continue operating above its longer-run potential.

Participants' Views on Current Conditions and the Economic Outlook

In conjunction with this FOMC meeting, members of the Board of Governors and Federal Reserve Bank presidents submitted their projections of the most likely outcomes for real output growth, the unemployment rate, and inflation for each year from 2017 through 2019 and over the longer run, based on their individual assessments of the appropriate path for the federal funds rate.[4] The longer-run projections represented each participant's assessment of the rate to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy.[5] These projections and policy assessments are described in the Summary of Economic Projections (SEP), which is an addendum to these minutes.

In their discussion of the economic situation and the outlook, meeting participants agreed that information received over the intermeeting period indicated that the labor market had continued to strengthen and that economic activity had continued to expand at a moderate pace. Job gains had remained solid and the unemployment rate was little changed in recent months. Household spending had continued to rise moderately while business fixed investment appeared to have firmed somewhat. Inflation had increased in recent quarters and moved close to the Committee's 2 percent longer-run objective; excluding energy and food prices, inflation was little changed and had continued to run somewhat below 2 percent. Market-based measures of inflation compensation had

[4] The office of the president of the Federal Reserve Bank of Atlanta was vacant at the time of this FOMC meeting; the incoming president of the Federal Reserve Bank of Atlanta is scheduled to assume office on June 5, 2017. Marie Gooding, First Vice President of the Federal Reserve Bank of Atlanta, submitted economic projections.

[5] One participant did not submit longer-run projections for real output growth, the unemployment rate, or the federal funds rate.

remained low; survey-based measures of inflation compensation were little changed on balance.

Participants generally saw the incoming economic information as consistent, overall, with their expectations and indicated that their views about the economic outlook had changed little since the January–February FOMC meeting. Although GDP appeared to be expanding relatively slowly in the current quarter, that development seemed primarily to reflect temporary factors, possibly including residual seasonality. Participants continued to anticipate that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace, labor market conditions would strengthen somewhat further, and inflation would stabilize around 2 percent over the medium term.

Participants generally judged that risks to the economic outlook remained roughly balanced overall, although they saw some of the considerations underlying that assessment as having changed modestly. Participants continued to underscore the considerable uncertainty about the timing and nature of potential changes to fiscal policies as well as the size of the effects of such changes on economic activity. However, several participants now anticipated that meaningful fiscal stimulus would likely not begin until 2018. In view of the substantial uncertainty, about half of the participants did not incorporate explicit assumptions about fiscal policy in their projections. Nonetheless, most participants continued to view the prospect of more expansionary fiscal policies as an upside risk to their economic forecasts. At the same time, some participants and their business contacts saw downside risks to labor force and economic growth from possible changes to other government policies, such as those affecting immigration and trade. Participants generally viewed the downside risks associated with the global economic outlook, particularly those related to the economic situation in China and Europe, as having diminished over recent months. At the same time, several participants cautioned that upcoming elections in EU countries posed both near-term and longer-term risks.

Regarding the outlook for inflation, several participants noted that the apparently modest response of inflation to measures of resource slack in recent years, along with inflation expectations that appeared to have remained well anchored, limited the risk of a marked pickup in inflation as the labor market tightened further. In contrast, some other participants continued to express concern that a substantial undershooting of the longer-run normal rate of unemployment, if it was to occur, posed a significant upside risk to inflation, in part because of the possibility that the behavior of inflation could differ from that in recent decades. Participants generally agreed that it would be appropriate to continue to closely monitor inflation indicators and global economic and financial developments.

In their discussion of developments in the household sector, participants agreed that consumer spending was likely to contribute significantly to economic growth this year. Although motor vehicle sales had fallen early in the year and some other components of PCE had also declined, many participants suggested that the slowdown in consumer spending in January would likely be temporary. The slowing appeared to mainly reflect transitory factors like lower energy consumption induced by warm weather or delays in processing income tax refunds. In addition, conditions conducive to growth in consumer spending, such as a strong labor market or higher levels of household wealth, were expected to persist. A number of participants also cited buoyant consumer confidence as potentially supporting household expenditures, although some also mentioned that improved sentiment did not appear to have appreciably altered the trajectory of consumer spending so far. In the housing market, access to mortgage credit that was still restricted for some borrowers, constraints on buildable land in some regions, and rising interest rates were cited as having continued to restrain the recovery in housing.

Participants generally agreed that recent momentum in the business sector had been sustained over the intermeeting period. Many reported that manufacturing activity in their Districts had strengthened further, and reports from the service sector were positive. Business optimism remained elevated in a number of Districts. A few participants reported increased capital expenditures by businesses in their Districts, but business contacts in several other Districts said they were waiting for more clarity about government policy initiatives before implementing capital expansion plans. Investment in oil drilling, and particularly extraction from shale, was described as increasing in a couple of Districts, and demand for related production inputs was also said to be expanding. Nonetheless, slower economic growth, ample

existing capacity, and modest returns in the energy sector were noted as factors that were continuing to restrain overall capital spending.

Labor market conditions had continued to improve. Monthly increases in nonfarm payroll employment averaged nearly 210,000 over the three months ending in February, the unemployment rate edged down, and the labor force participation rate ticked up. Some participants cited anecdotal evidence of a tightening of labor markets. Business contacts in many Districts reported difficulty recruiting qualified workers and indicated that they had to either offer higher wages or hire workers with lower qualifications than desired. A couple of participants reported that the ongoing mismatch between the skill requirements of available jobs and the qualifications of job applicants was a factor boosting the number of unfilled positions. Tight labor markets were said to increasingly be a factor in businesses' planning. More employers reportedly were addressing the scarcity of labor by expanding vocational programs, but contacts emphasized that, to be effective, such efforts needed to be complemented by other programs such as assistance with child care and transportation. Shortages of production crews were said to have restricted oil drilling in a couple of Districts. In contrast, several other participants cited evidence that some slack remained in the labor market, such as still-modest aggregate wage growth and the unevenness of wage gains across industries, an elevated share of employees working part time for economic reasons, or other broad measures of labor underutilization. Participants noted the continued stability of the labor force participation rate in the face of its demographically driven downward trend. A few participants interpreted that development as suggesting that slack in the labor market was minimal. A few others saw it as an indication that labor force participation could increase a bit more relative to trend and thus that some further reduction in labor market slack could occur. Most participants still expected that if economic growth stayed moderate, as they projected, the unemployment rate would remain only modestly below their estimates of the longer-run normal rate of unemployment over the next few years. Some other participants, however, anticipated a more substantial undershoot.

Participants generally viewed the information received over the intermeeting period as reinforcing their expectation that inflation would stabilize around the Committee's 2 percent objective over the medium term. The 12-month change in headline PCE prices increased from 1.7 percent in December to 1.9 percent in January, as the effects of firmer consumer energy prices were registered. Core PCE prices rose at a relatively quick pace of 0.3 percent for the month of January, although it was noted that residual seasonality might have exaggerated the increase. The Federal Reserve Bank of Dallas's 12-month trimmed mean PCE inflation rate had gradually increased over the past couple of years, reaching 1.9 percent in January. Although market-based measures of inflation compensation had remained low, they were somewhat above the levels seen last year. In addition, longer-term inflation expectations in the Michigan survey had been relatively stable since the beginning of the year, while other survey measures of inflation expectations, such as the three-year-ahead measure from the Federal Reserve Bank of New York's Survey of Consumer Expectations, had increased in recent months. Notwithstanding these developments, some participants cautioned that progress toward the Committee's inflation objective should not be overstated; they noted that inflation had been persistently below 2 percent during the current economic expansion and that core inflation on a 12-month basis was little changed in recent months at a level below 2 percent. In contrast, a few other participants commented that recent inflation data were stronger than they had expected and that they anticipated that inflation would reach the Committee's objective of 2 percent this year.

In their discussion of recent developments in financial markets, participants noted that financial conditions remained accommodative despite the rise in longer-term interest rates in recent months and continued to support the expansion of economic activity. Many participants discussed the implications of the rise in equity prices over the past few months, with several of them citing it as contributing to an easing of financial conditions. A few participants attributed the recent equity price appreciation to expectations for corporate tax cuts or to increased risk tolerance among investors rather than to expectations of stronger economic growth. Some participants viewed equity prices as quite high relative to standard valuation measures. It was observed that prices of other risk assets, such as emerging market stocks, high-yield corporate bonds, and commercial real estate, had also risen significantly in recent months. In contrast, prices of farmland reportedly had edged lower, in part because low commodity prices continued to

weigh on farm income. Still, farmland valuations were said to remain quite high as gauged by standard benchmarks such as rent-to-price ratios.

In their consideration of monetary policy, participants generally agreed that the data over the intermeeting period were broadly in line with their expectations, providing evidence of further strengthening of labor market conditions and ongoing progress toward the Committee's objective of 2 percent inflation. Participants noted that their views of the economic outlook were essentially unchanged from those of the past couple of meetings. Almost all participants saw the incoming data as consistent with an increase of 25 basis points in the target range for the federal funds rate at this meeting. They judged that, even after an increase in the target range, the stance of monetary policy would remain accommodative, supporting some additional strengthening in labor market conditions and a sustained return to 2 percent inflation.

With their views of the outlook for the economy little changed, participants generally continued to judge that a gradual pace of rate increases was likely to be appropriate to promote the Committee's objectives of maximum employment and 2 percent inflation. Participants pointed to several reasons for their assessment that a gradual removal of policy accommodation likely would be appropriate. A few noted that it could take some time for inflation to rise to 2 percent on a sustained basis, and thus monetary policy would likely need to remain accommodative for a while longer in order to support the economic conditions that would foster such an increase. Several participants remarked that risk-management considerations still argued for a gradual removal of accommodation because the proximity of the federal funds rate to the effective lower bound placed constraints on the ability of monetary policy to respond to adverse shocks. Moreover, the neutral real rate—defined as the real interest rate that is neither expansionary nor contractionary when the economy is operating at or near its potential—still appeared to be low by historical standards. Furthermore, uncertainty about current and prospective values of the neutral real rate reinforced the argument for a gradual approach to removing monetary policy accommodation over the next few years.

Participants emphasized that they stood ready to change their assessments of, and communications about, the appropriate path for the federal funds rate in response to unanticipated developments. They pointed to several risks that, if realized, could lead them to reassess their views of the appropriate policy path. These risks included the possibility of stronger spending by businesses and households as a result of improved sentiment, appreciably more expansionary fiscal policy, or a more rapid buildup of inflationary pressures than anticipated. In addition, a number of participants remarked that recent and prospective changes in financial conditions posed upside risks to their economic projections, to the extent that financial developments provided greater stimulus to spending than currently anticipated, as well as downside risks to their economic projections if, for example, financial markets were to experience a significant correction. Participants also mentioned potential developments abroad that could have adverse implications for the U.S. economy.

Nearly all participants judged that the U.S. economy was operating at or near maximum employment. In contrast, participants held different views regarding prospects for the attainment of the Committee's inflation goal. A number of participants noted that core inflation was a useful indicator of future headline inflation, and the latest reading on 12-month core inflation suggested that it could still be some time before headline inflation reached 2 percent on a sustained basis. Moreover, several participants remarked that even though inflation was currently not that far below the Committee's 2 percent objective, it was important for the Committee to remove accommodation gradually to help ensure that inflation would stabilize around that objective over the medium term. These participants emphasized that a sustained return to 2 percent inflation was particularly important in light of the persistent shortfall of inflation from its objective over the past several years. However, several other participants judged that—with the headline PCE price index rising nearly 2 percent and the core PCE index increasing close to 1¾ percent over the 12-month period ending in January—the Committee essentially had met its inflation goal or was poised to meet it later this year. In the view of these participants, such circumstances could warrant a faster pace of scaling back accommodation than implied by the medians of participants' assessments in the SEP.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members judged that the information received since the Committee's previous meeting indicated that the labor market had continued to strengthen

and that economic activity had continued to expand at a moderate pace. Job gains had remained solid, and the unemployment rate had changed little in recent months. Household spending had continued to rise moderately, while business fixed investment appeared to have firmed somewhat.

Inflation had increased in recent quarters, with the 12-month change in the headline PCE price index rising to nearly 2 percent in January, close to the Committee's longer-run objective. However, nearly all members judged that the Committee had not yet achieved its objective for headline inflation on a sustained basis. Members generally viewed it as important to highlight that core inflation—which excludes volatile energy and food prices and historically has tended to be a good indicator of future headline inflation—was little changed and continued to run somewhat below 2 percent. Moreover, market-based measures of inflation compensation had remained low.

With respect to the economic outlook and its implications for monetary policy, members continued to expect that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace and labor market conditions would strengthen somewhat further. It was noted that recent increases in consumer energy prices could cause inflation to temporarily reach or even rise a bit above 2 percent in the near term. Members anticipated that inflation would stabilize around 2 percent over the medium term and commented that transitory deviations above and below 2 percent were to be expected. Members continued to judge that there was significant uncertainty about the effects of possible changes in fiscal and other government policies but that near-term risks to the economic outlook appeared roughly balanced. A few members noted that domestic upside risks may have increased somewhat in recent months, partly reflecting potential changes in fiscal policy, while some downside risks from abroad appeared to have diminished. Members agreed that they would continue to closely monitor inflation indicators and global economic and financial developments.

After assessing current conditions and the outlook for economic activity, the labor market, and inflation, all but one member agreed to raise the target range for the federal funds rate to ¾ to 1 percent. This increase was viewed as appropriate in light of the further progress that had been made toward the Committee's objectives of maximum employment and 2 percent inflation. Members generally noted that the increase in the target range did not reflect changes in their assessments of the economic outlook or the appropriate path of the federal funds rate, adding that the increase was consistent with the gradual pace of removal of accommodation that was anticipated in December, when the Committee last raised the target range.

In the view of one member, it was premature to raise the target range for the federal funds rate at this meeting. That member preferred to await additional information on the amount of slack remaining in the labor market and increased evidence that inflation would stabilize at the Committee's objective before taking another step to remove monetary policy accommodation.

Members agreed that, in determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee would assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. Partly in light of the likelihood that the recent higher readings on headline inflation had mostly reflected the temporary effect of increases in consumer energy prices, members agreed that the Committee would continue to carefully monitor actual and expected inflation developments relative to its inflation goal. A few members expressed the view that the Committee should avoid policy actions or communications that might be interpreted as suggesting that the Committee's 2 percent inflation objective was actually a ceiling. Several members observed that an explicit recognition in the statement that the Committee's inflation goal was symmetric could help support inflation expectations at a level consistent with that goal, and it was noted that a symmetric inflation objective implied that the Committee would adjust the stance of monetary policy in response to inflation that was either persistently above or persistently below 2 percent. Members also reiterated that they expected that economic conditions would evolve in a manner that would warrant gradual increases in the federal funds rate. They agreed that the federal funds rate was likely to remain, for some time, below levels expected to prevail in the longer run. However, they noted that the actual path of the federal funds rate would depend on the economic outlook as informed by incoming data.

The Committee decided to maintain its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction. Members anticipated doing so until normalization of the level of the federal funds rate was well under way. They noted that this policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until it was instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective March 16, 2017, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of ¾ to 1 percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 0.75 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over maturing Treasury securities at auction and to continue reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

> "Information received since the Federal Open Market Committee met in February indicates that the labor market has continued to strengthen and that economic activity has continued to expand at a moderate pace. Job gains remained solid and the unemployment rate was little changed in recent months. Household spending has continued to rise moderately while business fixed investment appears to have firmed somewhat. Inflation has increased in recent quarters, moving close to the Committee's 2 percent longer-run objective; excluding energy and food prices, inflation was little changed and continued to run somewhat below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.
>
> Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, labor market conditions will strengthen somewhat further, and inflation will stabilize around 2 percent over the medium term. Near-term risks to the economic outlook appear roughly balanced. The Committee continues to closely monitor inflation indicators and global economic and financial developments.
>
> In view of realized and expected labor market conditions and inflation, the Committee decided to raise the target range for the federal funds rate to ¾ to 1 percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.
>
> In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the

federal funds rate will depend on the economic outlook as informed by incoming data.

The Committee is maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction, and it anticipates doing so until normalization of the level of the federal funds rate is well under way. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions."

Voting for this action: Janet L. Yellen, William C. Dudley, Lael Brainard, Charles L. Evans, Stanley Fischer, Patrick Harker, Robert S. Kaplan, Jerome H. Powell, and Daniel K. Tarullo.

Voting against this action: Neel Kashkari.

Mr. Kashkari dissented because he preferred to maintain the existing target range for the federal funds rate at this meeting. In his view, recent data had not pointed to further progress on the Committee's dual objectives and thus had not provided a compelling case to firm monetary policy at this meeting. He preferred to await additional information on the amount of slack remaining in the labor market and increased evidence that inflation would stabilize at the Committee's symmetric 2 percent inflation objective before taking another step to remove monetary policy accommodation. Mr. Kashkari also preferred that when data do support a removal of monetary policy accommodation, the FOMC first publish a detailed plan to normalize its balance sheet before proceeding with further increases in the federal funds rate.

To support the Committee's decision to raise the target range for the federal funds rate, the Board of Governors voted unanimously to raise the interest rates on required and excess reserve balances ¼ percentage point, to 1 percent, effective March 16, 2017. The Board of Governors also voted unanimously to approve a ¼ percentage point increase in the primary credit rate (discount rate) to 1½ percent, effective March 16, 2017.[6]

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, May 2–3, 2017. The meeting adjourned at 10:40 a.m. on March 15, 2017.

Notation Vote

By notation vote completed on February 21, 2017, the Committee unanimously approved the minutes of the Committee meeting held on January 31–February 1, 2017.

Brian F. Madigan
Secretary

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[6] In taking this action, the Board approved requests submitted by the boards of directors of the Federal Reserve Banks of Boston, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, Kansas City, Dallas, and San Francisco. This vote also encompassed approval by the Board of Governors of the establishment of a 1½ percent primary credit rate by the remaining Federal Reserve Banks, effective on the later of March 16, 2017, and the date such Reserve Banks informed the Secretary of the Board of such a request. (Secretary's note: Subsequently, the Federal Reserve Banks of New York, St. Louis, and Minneapolis were informed by the Secretary of the Board of the Board's approval of their establishment of a primary credit rate of 1½ percent, effective March 16, 2017.) The second vote of the Board also encompassed approval of the establishment of the interest rates for secondary and seasonal credit under the existing formulas for computing such rates.

Addendum: Summary of Economic Projections

In conjunction with the Federal Open Market Committee (FOMC) meeting held on March 14–15, 2017, meeting participants submitted their projections of the most likely outcomes for real output growth, the unemployment rate, and inflation for each year from 2017 to 2019 and over the longer run.[7] Each participant's projection was based on information available at the time of the meeting, together with his or her assessment of appropriate monetary policy, including a path for the federal funds rate and its longer-run value, and assumptions about other factors likely to affect economic outcomes. The longer-run projections represent each participant's assessment of the value to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy.[8] "Appropriate monetary policy" is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her individual interpretation of the Federal Reserve's objectives of maximum employment and stable prices.

Most FOMC participants expected that, under appropriate monetary policy, growth in real gross domestic product (GDP) would run somewhat above their individual estimates of its longer-run rate this year and in 2018, while about half of the participants projected that economic growth would slow in 2019 and run at or slightly below their individual longer-run estimates. A substantial majority of participants projected that the unemployment rate would run below their estimates of its longer-run normal level in 2017 and remain below that level through 2019. A large majority of participants projected that inflation, as measured by the four-quarter percentage change in the price index for personal consumption expenditures (PCE), would increase over the next two years; a majority of participants projected that inflation would be at the Committee's 2 percent objective in 2019, and all participants projected that inflation would be within a couple of tenths of a percentage point of the objective in that year. Participants' economic projections were generally quite similar to those submitted in December. Table 1 and figure 1 provide summary statistics for the projections.

As shown in figure 2, all but one participant expected that the evolution of economic conditions would likely warrant gradual increases in the federal funds rate to achieve and sustain maximum employment and 2 percent inflation. The medians of projections for the federal funds rate in 2017, 2018, and 2019 were essentially the same as those in the December Summary of Economic Projections (SEP). The median for 2019 was equal to the median of the longer-run projections. However, the economic outlook is uncertain, and participants noted that their economic projections and assessments of appropriate monetary policy could change in response to incoming information.

Most participants viewed the uncertainty attached to their projections as broadly similar to the average of the past 20 years, although some participants saw the uncertainty associated with their forecasts as higher than average. Most participants also judged the risks around their projections for economic growth, the unemployment rate, and inflation as broadly balanced, while several participants saw the risks to their forecasts of real GDP growth and inflation as weighted to the upside and several participants viewed the risks to their unemployment rate forecasts as tilted to the downside.

Figures 4.A, 4.B, and 4.C for real GDP growth, the unemployment rate, and inflation, respectively, present for the first time "fan charts" as well as charts of participants' current qualitative assessments of the uncertainty and risks surrounding their economic projections. The fan charts (the panels at the top of these three figures) show the medians of participants' projections surrounded by confidence intervals that are computed from the forecast errors of various private and government projections made over the past 20 years. The width of the confidence interval for each variable at a given point provides a measure of forecast uncertainty at that horizon. For all three macroeconomic variables, these charts illustrate that forecast uncertainty is substantial and generally increases as the forecast horizon lengthens. Reflecting in part the uncertainty about the future evolution of GDP growth, the unemployment rate, and inflation, participants' assessments of appropriate monetary policy are also subject to considerable uncertainty. To illustrate the uncertainty regarding the appropriate path for monetary policy, figure 5 shows a compa-

[7] The office of the president of the Federal Reserve Bank of Atlanta was vacant at the time of this FOMC meeting; the incoming president is scheduled to assume office on June 5, 2017. Marie Gooding, First Vice President of the Federal Reserve Bank of Atlanta, submitted economic projections.

[8] One participant did not submit longer-run projections for real output growth, the unemployment rate, or the federal funds rate.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assessments of projected appropriate monetary policy, March 2017
Percent

Variable	Median[1]				Central tendency[2]				Range[3]			
	2017	2018	2019	Longer run	2017	2018	2019	Longer run	2017	2018	2019	Longer run
Change in real GDP	2.1	2.1	1.9	1.8	2.0–2.2	1.8–2.3	1.8–2.0	1.8–2.0	1.7–2.3	1.7–2.4	1.5–2.2	1.6–2.2
December projection	2.1	2.0	1.9	1.8	1.9–2.3	1.8–2.2	1.8–2.0	1.8–2.0	1.7–2.4	1.7–2.3	1.5–2.2	1.6–2.2
Unemployment rate	4.5	4.5	4.5	4.7	4.5–4.6	4.3–4.6	4.3–4.7	4.7–5.0	4.4–4.7	4.2–4.7	4.1–4.8	4.5–5.0
December projection	4.5	4.5	4.5	4.8	4.5–4.6	4.3–4.7	4.3–4.8	4.7–5.0	4.4–4.7	4.2–4.7	4.1–4.8	4.5–5.0
PCE inflation	1.9	2.0	2.0	2.0	1.8–2.0	1.9–2.0	2.0–2.1	2.0	1.7–2.1	1.8–2.1	1.8–2.2	2.0
December projection	1.9	2.0	2.0	2.0	1.7–2.0	1.9–2.0	2.0–2.1	2.0	1.7–2.0	1.8–2.2	1.8–2.2	2.0
Core PCE inflation[4]	1.9	2.0	2.0		1.8–1.9	1.9–2.0	2.0–2.1		1.7–2.0	1.8–2.1	1.8–2.2	
December projection	1.8	2.0	2.0		1.8–1.9	1.9–2.0	2.0		1.7–2.0	1.8–2.2	1.8–2.2	
Memo: Projected appropriate policy path												
Federal funds rate	1.4	2.1	3.0	3.0	1.4–1.6	2.1–2.9	2.6–3.3	2.8–3.0	0.9–2.1	0.9–3.4	0.9–3.9	2.5–3.8
December projection	1.4	2.1	2.9	3.0	1.1–1.6	1.9–2.6	2.4–3.3	2.8–3.0	0.9–2.1	0.9–3.4	0.9–3.9	2.5–3.8

Note: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The December projections were made in conjunction with the meeting of the Federal Open Market Committee on December 13–14, 2016. One participant did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate in conjunction with the December 13–14, 2016, meeting, and one participant did not submit such projections in conjunction with the March 14–15, 2017, meeting.

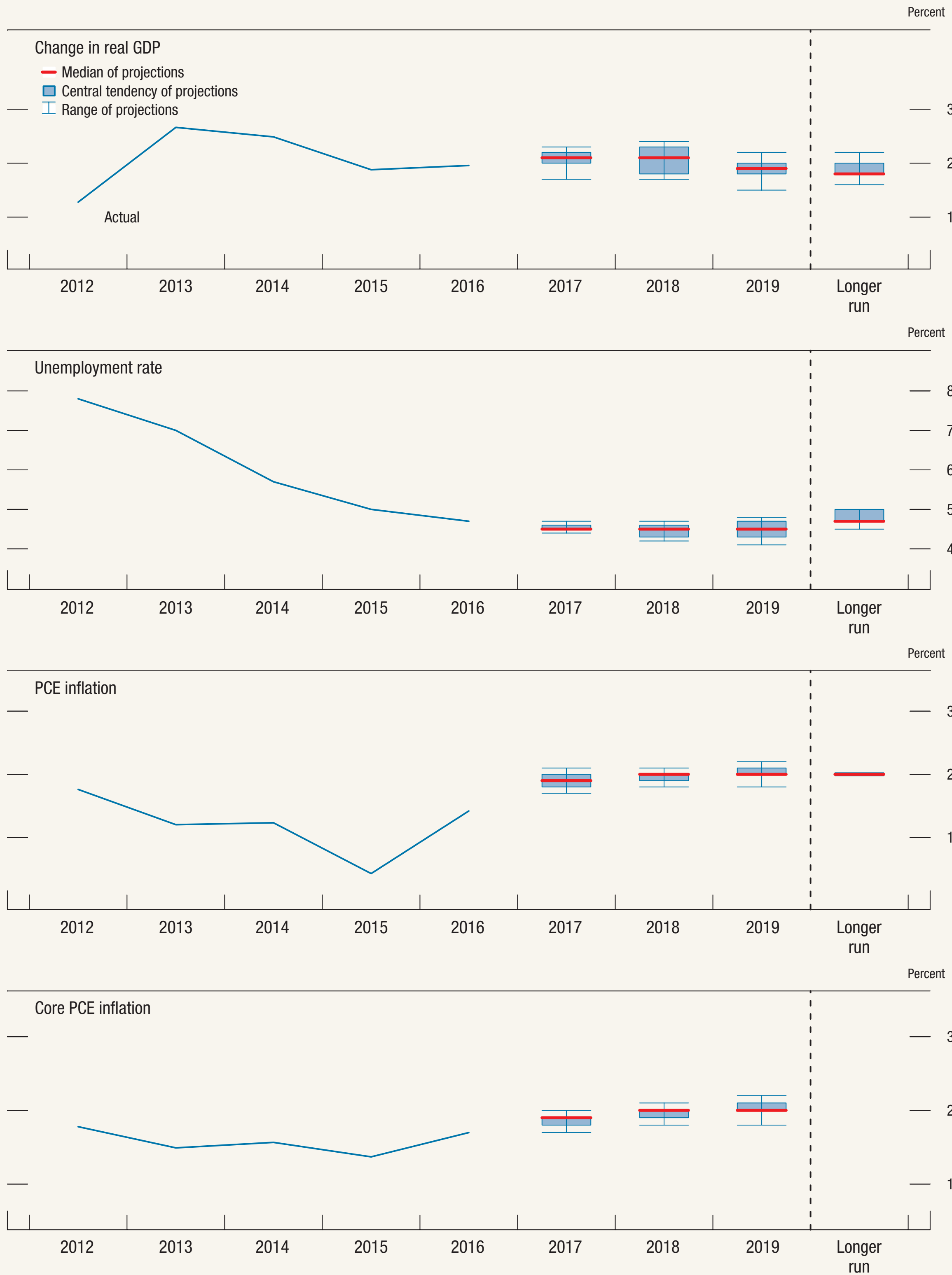
1 For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.

2 The central tendency excludes the three highest and three lowest projections for each variable in each year.

3 The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.

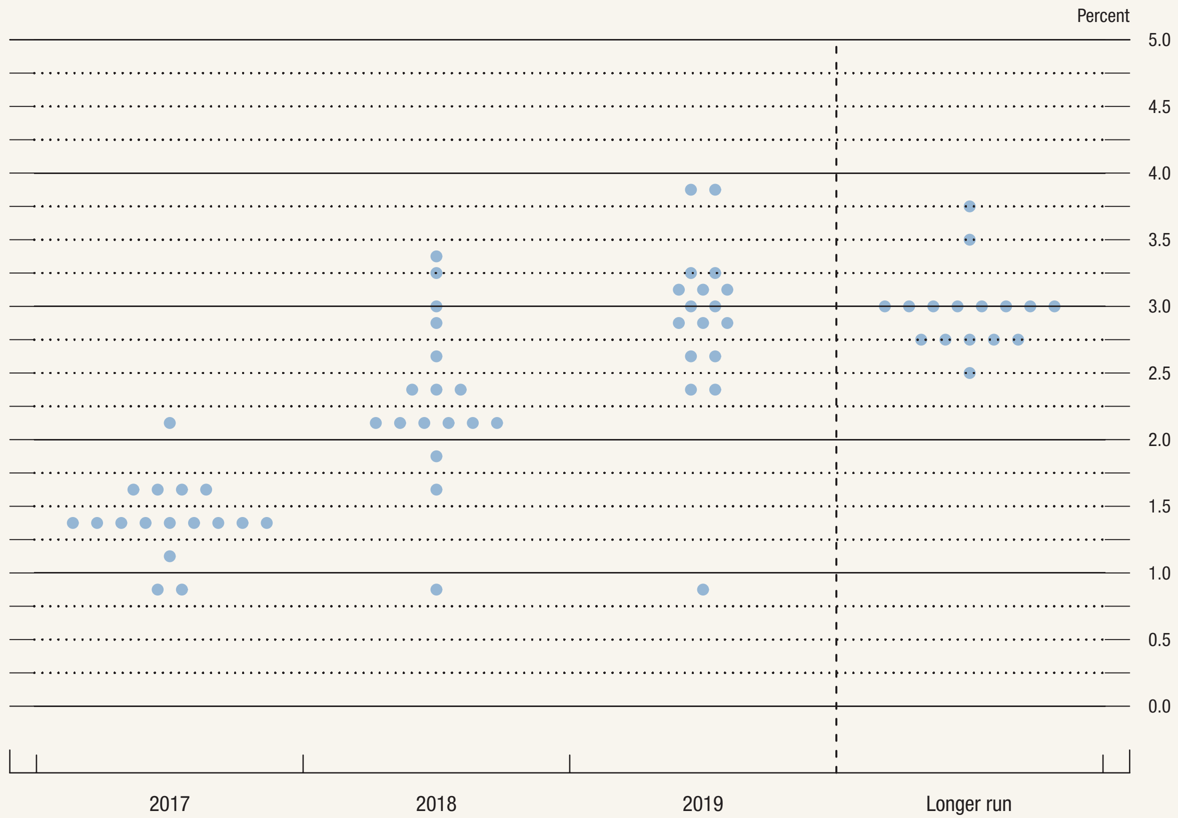
4 Longer-run projections for core PCE inflation are not collected.

Figure 1. Medians, central tendencies, and ranges of economic projections, 2017–19 and over the longer run



Note: Definitions of variables and other explanations are in the notes to table 1. The data for the actual values of the variables are annual.

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate



Note: Each shaded circle indicates the value (rounded to the nearest ⅛ percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. One participant did not submit longer-run projections for the federal funds rate.

rable fan chart around the medians of participants' assessments for the federal funds rate.[9] As with the macroeconomic variables, forecast uncertainty for short-term interest rates is substantial and increases as the horizon lengthens.

The Outlook for Economic Activity

The median of participants' projections for the growth rate of real GDP, conditional on their individual assumptions about appropriate monetary policy, was 2.1 percent in 2017 and 2018 and 1.9 percent in 2019; the median of projections for the longer-run normal rate of real GDP growth was 1.8 percent. Compared with the December SEP, the medians of the forecasts for real GDP growth over the period from 2017 to 2019, as well as the median assessment of the longer-run growth rate, were mostly unchanged. As in December, about half of the participants incorporated expectations of fiscal stimulus into their projections; almost all in this group projected slightly higher real GDP growth next year relative to their December projections.

The median of projections for the unemployment rate in the fourth quarter of 2017 was 4.5 percent, unchanged from December and 0.2 percentage point below the median assessment of its longer-run normal level. Almost all participants projected that the unemployment rate would not change much over the subsequent two years. Based on the median projections, the anticipated path of the unemployment rate for coming years was also unchanged from the previous forecast. The median estimate of the longer-run normal rate of unemployment was 4.7 percent, slightly lower than in December.

Figures 3.A and 3.B show the distributions of participants' projections for real GDP growth and the unemployment rate from 2017 to 2019 and in the longer run. The distribution of individual projections of real GDP growth for this year was less dispersed relative to the distribution of the December projections, while the distribution for 2018 shifted up slightly. The distributions of projections for the unemployment rate were unchanged for 2017 and 2018, while they shifted slightly lower for 2019 and for the longer-run normal rate.

The Outlook for Inflation

The medians of projections for headline PCE price inflation were 1.9 percent in 2017 and 2.0 percent in 2018 and 2019; these medians were unchanged from December. Only a few participants saw inflation continuing to run below 2 percent in 2019, while several participants projected that inflation would run modestly above the Committee's objective in that year. The medians of projections for core inflation were 1.9 percent in 2017 and 2.0 percent in 2018 and 2019, very similar to the contour in December.

Figures 3.C and 3.D provide information on the distributions of participants' views about the outlook for inflation. The distributions of projections for headline PCE price inflation were largely unchanged from December, while the distributions for core PCE price inflation shifted up slightly. Some participants attributed the upward shift in their projections for core inflation to recent data that were somewhat above expectations.

Appropriate Monetary Policy

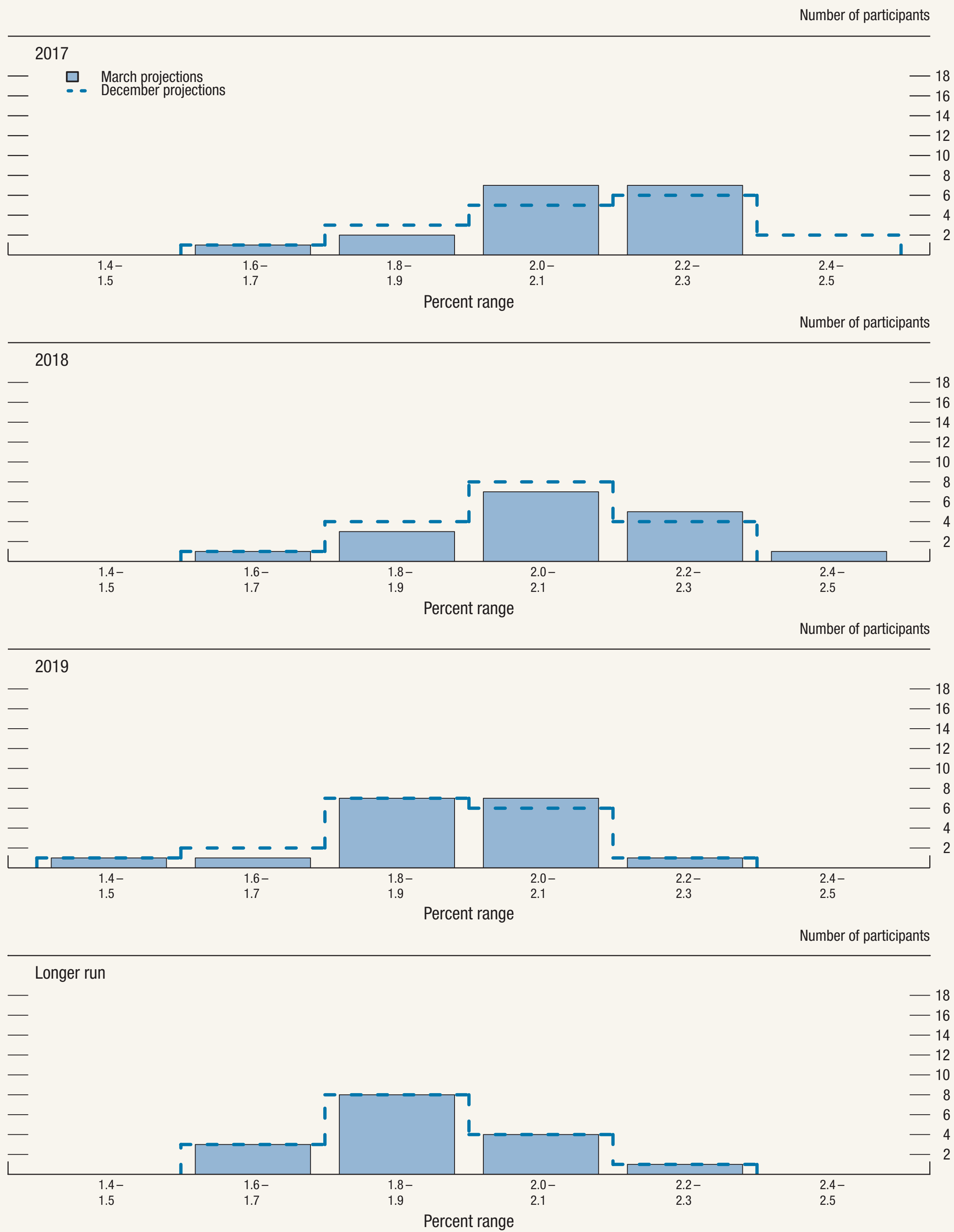
Figure 3.E provides the distribution of participants' judgments regarding the appropriate target or midpoint of the target range for the federal funds rate at the end of each year from 2017 to 2019 and over the longer run.[10] The distributions for 2017 through 2019 shifted up modestly. The median projections of the federal funds rate continued to show gradual increases, with the median assessment for 2017 standing at 1.38 percent, consistent with three 25 basis point rate increases this year. Thereafter, the medians of the projections were 2.13 percent at the end of 2018 and 3.00 percent at the end of 2019; the median of the longer-run projections of the federal funds rate was 3.00 percent. Compared with the December SEP, the median of the projections for the federal funds rate rose only for 2019, and in that case just slightly.

In discussing their March forecasts, many participants continued to express the view that the appropriate upward trajectory of the federal funds rate

[9] The fan chart for the federal funds rate provides a depiction of the uncertainty around the median assessment of the future path of appropriate monetary policy and is closely connected with the uncertainty about the future value of economic variables. In contrast, the dot plot shown in figure 2 displays the dispersion of views across individual participants about the appropriate level of the federal funds rate.

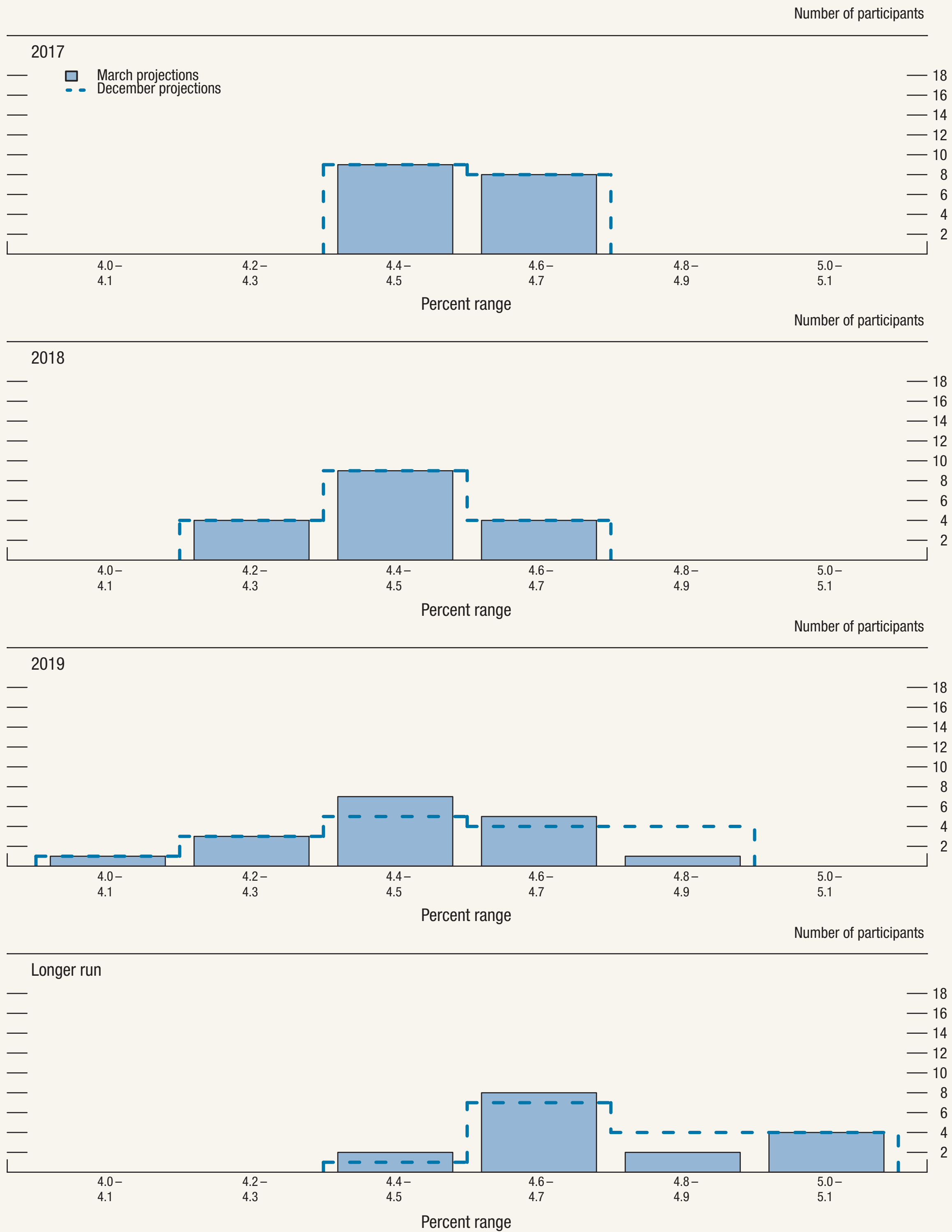
[10] One participant's projections for the federal funds rate, real GDP growth, the unemployment rate, and inflation were informed by the view that there are multiple possible medium-term regimes for the U.S. economy, that these regimes are persistent, and that the economy shifts between regimes in a way that cannot be forecast. Under this view, the economy currently is in a regime characterized by expansion of economic activity with low productivity growth and a low short-term real interest rate, but longer-term outcomes for variables other than inflation cannot be usefully projected.

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2017–19 and over the longer run



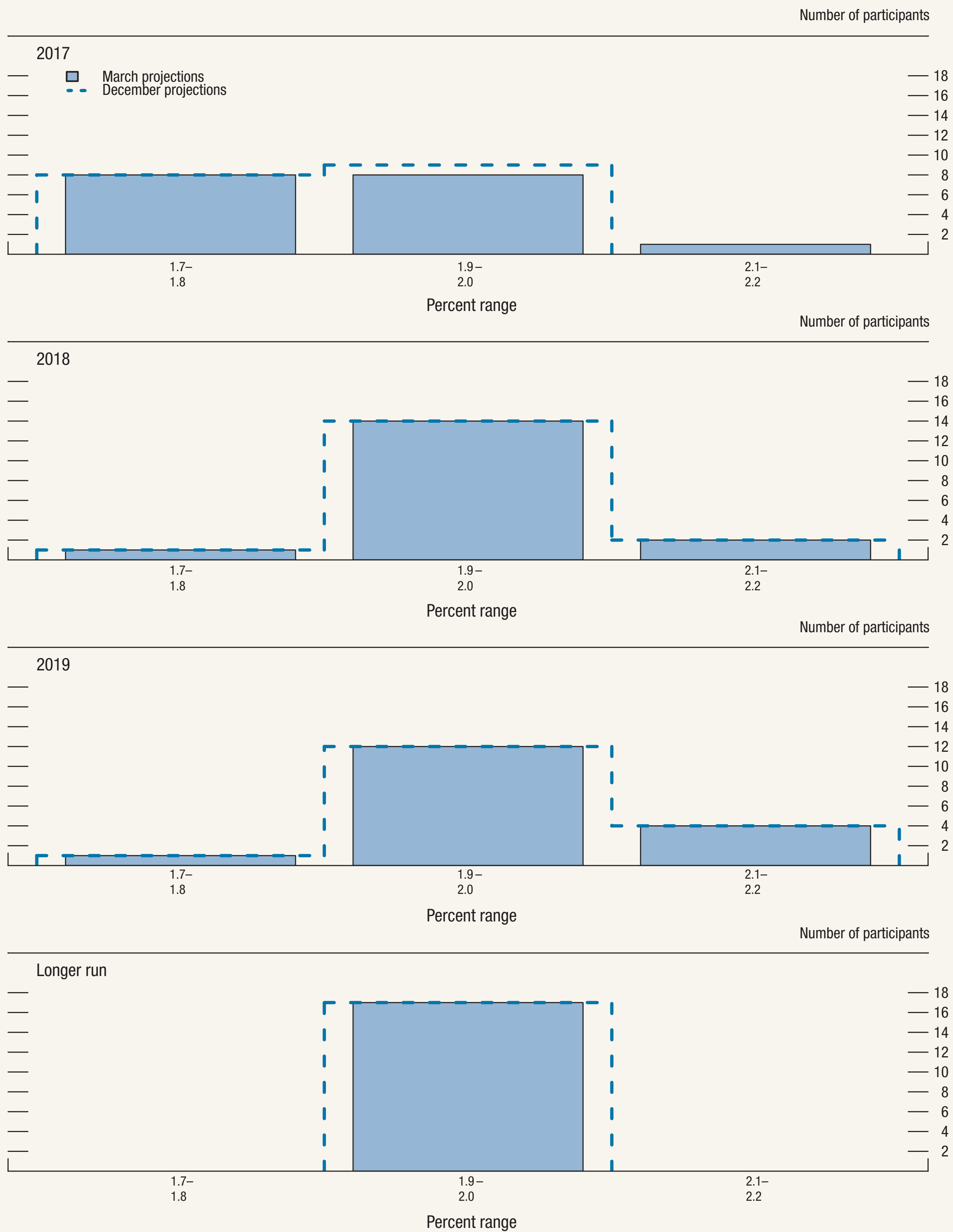
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2017–19 and over the longer run



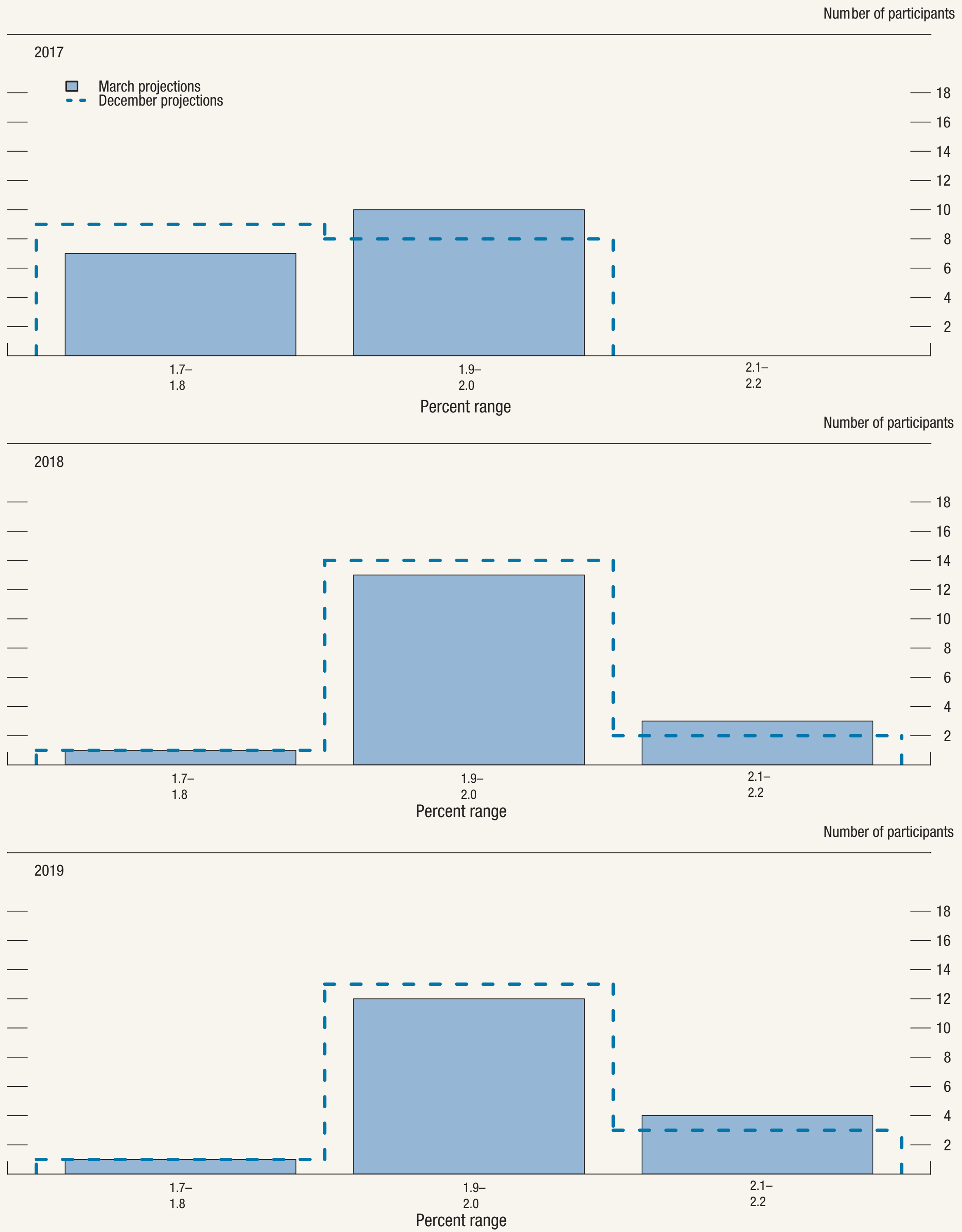
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2017–19 and over the longer run



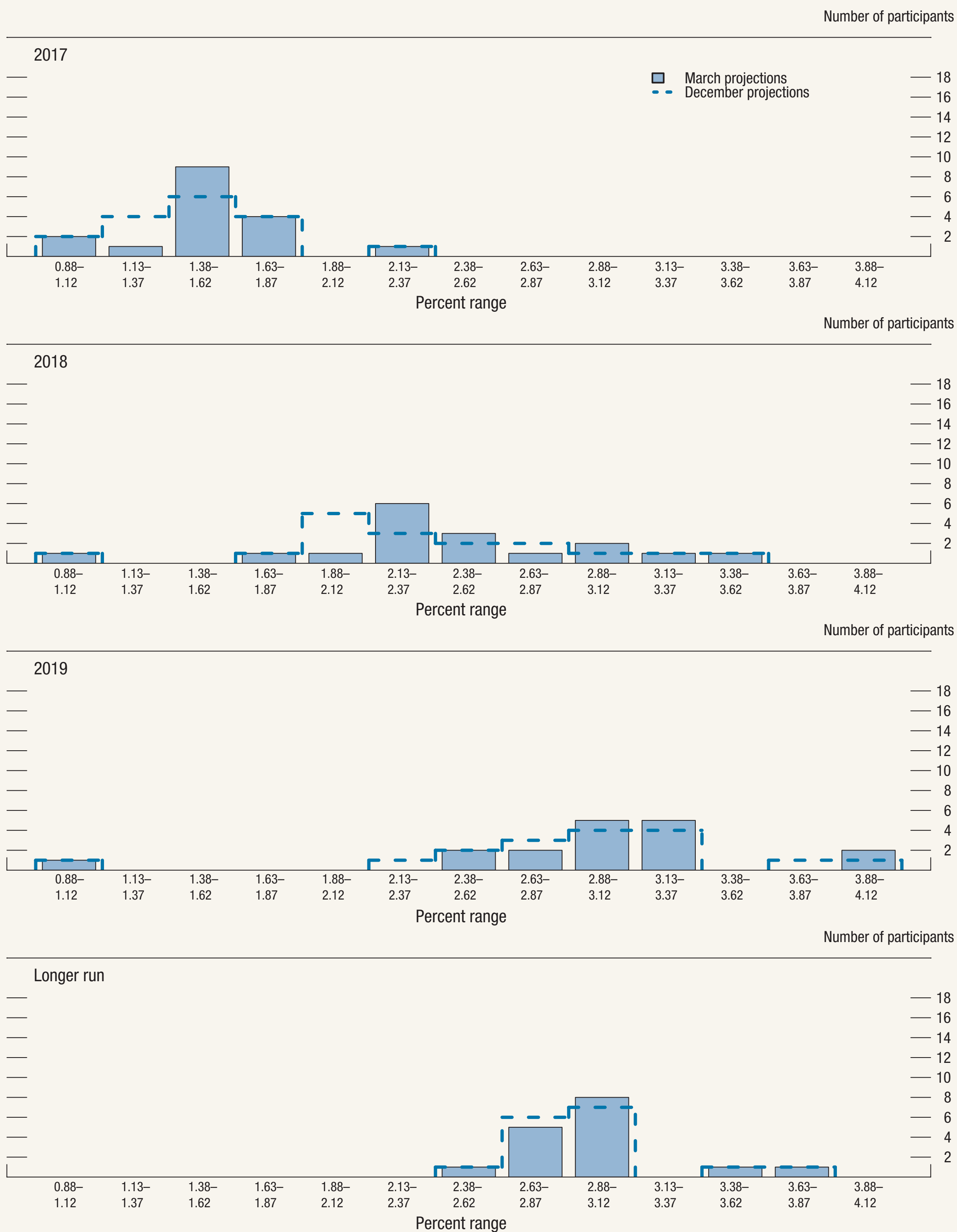
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2017–19



Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.E. Distribution of participants' judgments of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate, 2017–19 and over the longer run



Note: Definitions of variables and other explanations are in the notes to table 1.

Table 2. Average historical projection error ranges
Percentage points

Variable	2017	2018	2019
Change in real GDP[1]	±1.6	±2.1	±2.1
Unemployment rate[1]	±0.5	±1.3	±1.8
Total consumer prices[2]	±0.9	±1.1	±1.1
Short-term interest rates[3]	±0.9	±2.0	±2.4

Note: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1997 through 2016 that were released in the spring by various private and government forecasters. As described in the box "Forecast Uncertainty," under certain assumptions, there is about a 70 percent probability that actual outcomes for real GDP, unemployment, consumer prices, and the federal funds rate will be in ranges implied by the average size of projection errors made in the past. For more information, see David Reifschneider and Peter Tulip (2017), "Gauging the Uncertainty of the Economic Outlook Using Historical Forecasting Errors: The Federal Reserve's Approach," Finance and Economics Discussion Series 2017-020 (Washington: Board of Governors of the Federal Reserve System, February), available at www.federalreserve.gov/econresdata/feds/2017/files/2017020pap.pdf.

1 Definitions of variables are in the general note to table 1.

2 Measure is the overall consumer price index, the price measure that has been most widely used in government and private economic forecasts. Projection is percent change, fourth quarter of the previous year to the fourth quarter of the year indicated.

3 For Federal Reserve staff forecasts, measure is the federal funds rate. For other forecasts, measure is the rate on 3-month Treasury bills. Historical projections are the average level, in percent, in the fourth quarter of the year indicated.

over the next few years would likely be gradual. That anticipated pace reflected a few factors, such as a short-term neutral real interest rate that was currently low and was expected to move up only slowly as well as a gradual return of inflation to the Committee's 2 percent objective. A few participants indicated that positive news on inflation and the continued strengthening of labor market conditions in recent months had increased their confidence that inflation would move toward or to the 2 percent objective. Some participants judged that a slightly firmer path of monetary policy than in their previous projections would likely be appropriate. Most of the participants who commented on the Committee's reinvestment policy anticipated that a change in that policy would be appropriate before the end of this year if the economic outlook evolved as projected.

Uncertainty and Risks

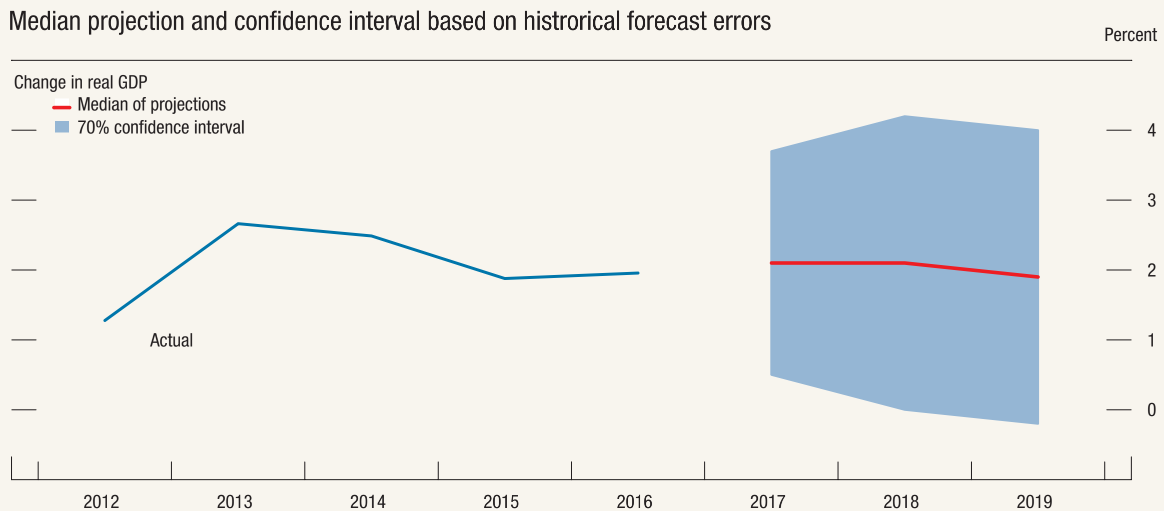
The economic projections of FOMC participants are generally subject to considerable uncertainty and risks, and, in assessing the path of appropriate monetary policy, FOMC participants take account of the range of possible outcomes, the likelihood of their occurring, and the potential benefits and costs to the economy should they occur. Table 2 provides one measure of the forecast uncertainty for the change in real GDP, the unemployment rate, and total consumer price inflation—the root mean squared error (RMSE) for forecasts made over the past 20 years. This measure of forecast uncertainty is incorporated graphically in the top panels of figures 4.A, 4.B, and 4.C, which display fan charts plotting the medians of participants' projections for real GDP growth, the unemployment rate, and PCE price inflation surrounded by symmetric confidence intervals derived from the RMSEs presented in table 2. If the degree of uncertainty attending these projections is similar to the typical magnitude of past forecast errors and if the risks around the projections are broadly balanced, then future outcomes of these variables would have about a 70 percent probability of occurring within these confidence intervals. For all three variables, this measure of forecast uncertainty is substantial and generally increases as the forecast horizon lengthens.

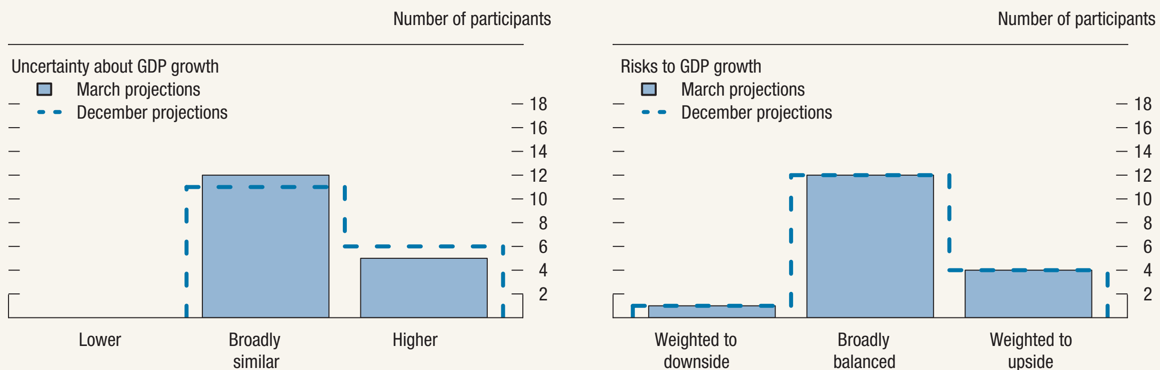
FOMC participants may judge that the widths of the confidence intervals in the historical fan charts shown in figures 4.A through 4.C do not adequately capture their current assessments of the degree of uncertainty that surrounds their economic projections. Participants' assessments of the current level of uncertainty surrounding their economic projections are shown in the bottom-left panels of figures 4.A, 4.B, and 4.C. Most participants continued to view the uncertainty attached to their economic projections as broadly similar to the average of the past 20 years, with one fewer participant than in December seeing uncertainty about GDP growth, the unemployment rate, and headline inflation as higher than its historical average.[11] In their discussion of the uncertainty attached to their current projections relative to levels of uncertainty over the past 20 years, as in December, about half of the participants expressed the view that, at this point, uncertainty surrounding prospective changes in fiscal and other policies is very large or that there is not yet enough information to make reasonable assumptions about the timing, nature, and magnitude of the changes.

The fan charts—which are symmetric around the median projections by assumption—also do not necessarily reflect participants' assessments of the balance of risks to their economic projections. Participants' assessments of the balance of risks to their economic projections are shown in the bottom-right panels of figures 4.A, 4.B, and 4.C. As in December, most participants judged the risks to their projections

11 At the end of this summary, the box "Forecast Uncertainty" discusses the sources and interpretation of uncertainty in the economic forecasts and explains the approach used to assess the uncertainty and risks attending the participants' projections.

Figure 4.A. Uncertainty and risks in projections of GDP growth

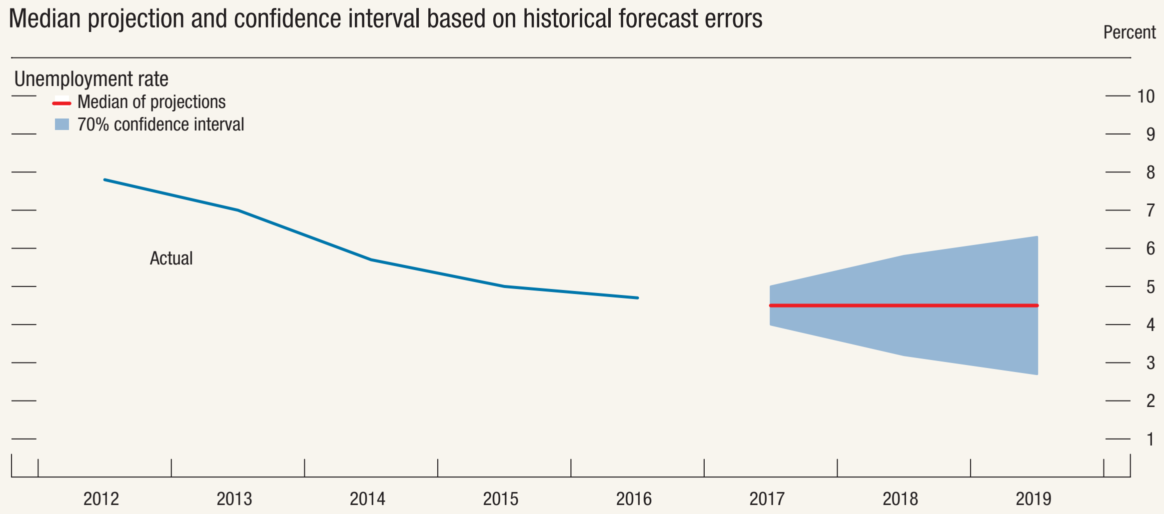




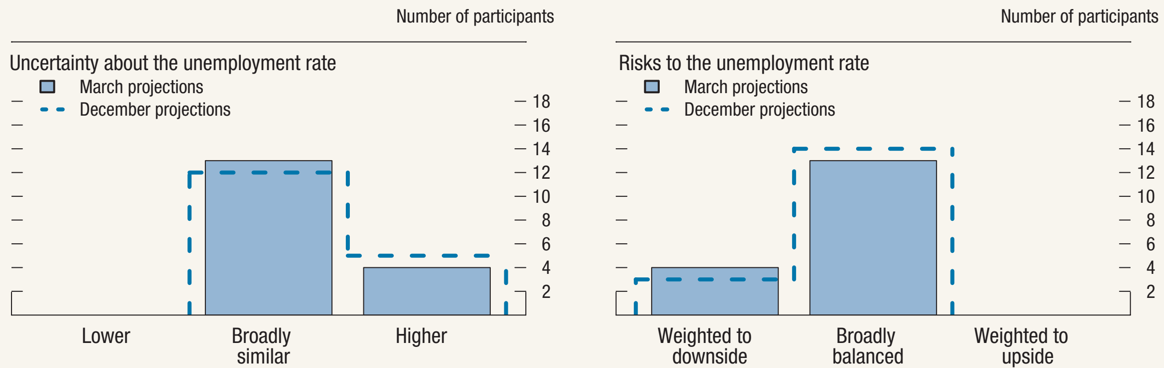
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Figure 4.B. Uncertainty and risks in projections of the unemployment rate

Median projection and confidence interval based on historical forecast errors

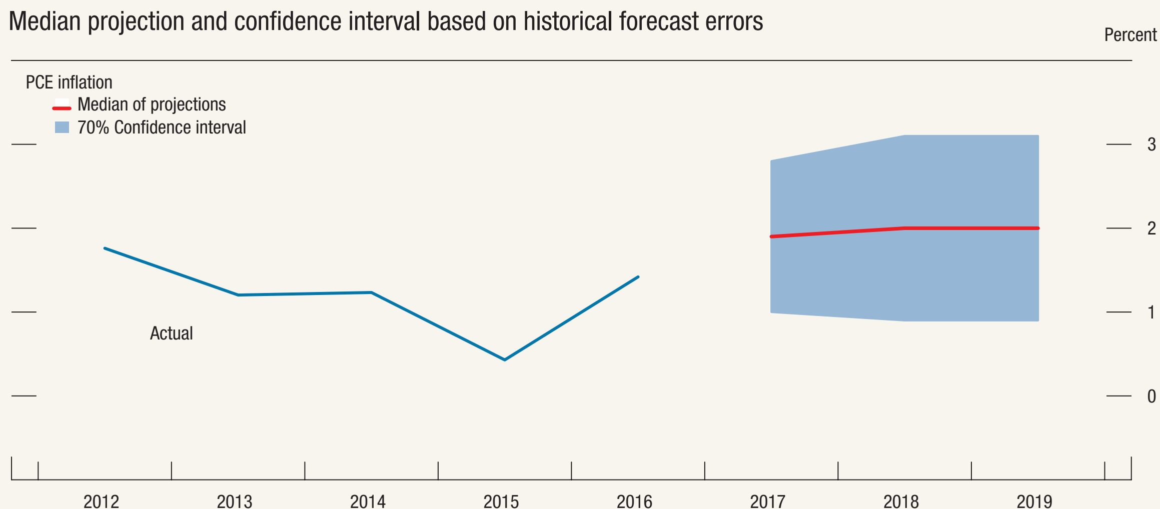


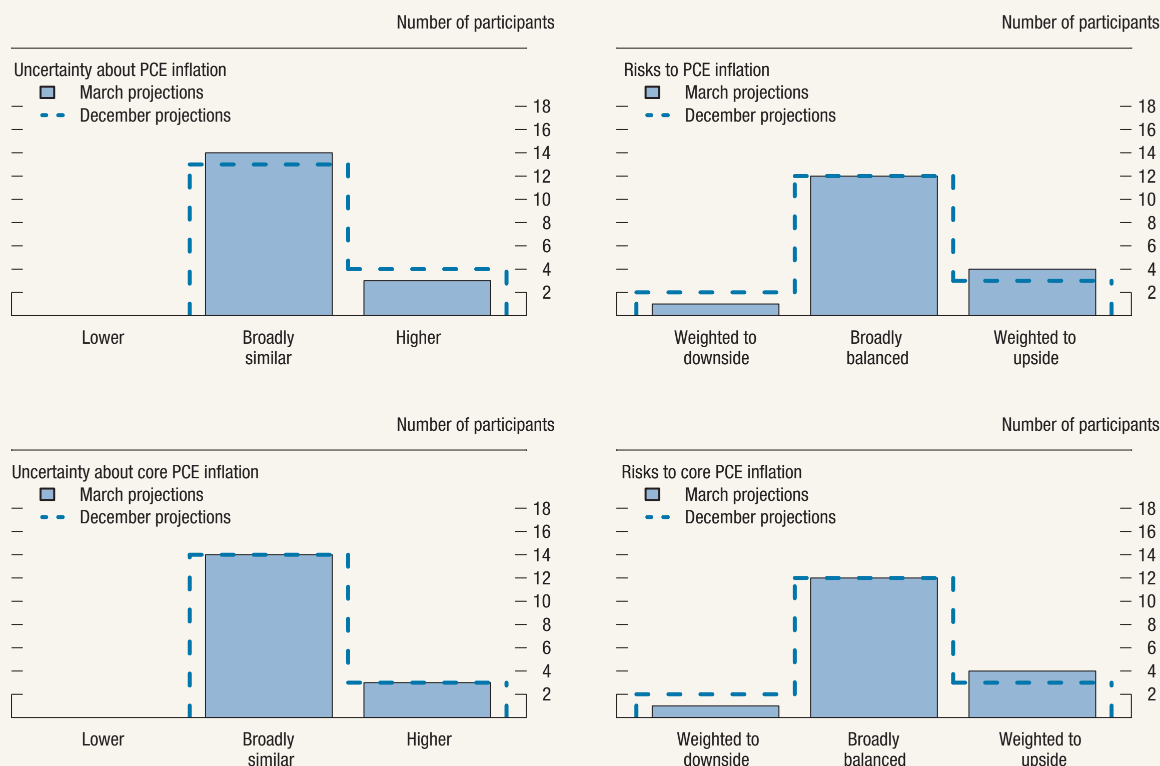
FOMC participants' assessments of uncertainty and risks around their economic projections



Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Figure 4.C. Uncertainty and risks in projections of PCE inflation





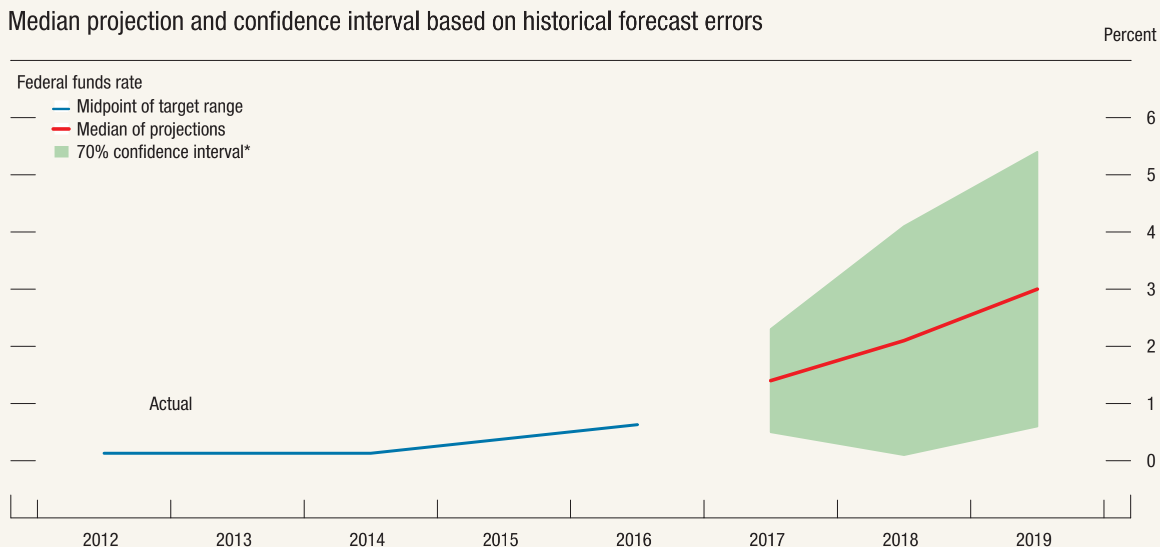
Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

of real GDP growth, the unemployment rate, headline inflation, and core inflation as broadly balanced—in other words, as broadly consistent with a symmetric fan chart. One more participant saw the risks to unemployment as weighted to the downside than in December (the bottom-right panel of figure 4.B). The balance of risks to the inflation projection shifted up slightly relative to December, as one fewer participant judged the risks to both headline and core inflation as weighted to the downside and one more participant viewed the risks as weighted to the upside (the lower-right panels of figure 4.C). In discussing the balance of risks around their projections, some participants mentioned improvements in recent readings of household and business confidence as well as somewhat reduced risks from abroad. Moreover, a number of participants noted that the possibility of a more expansionary U.S. fiscal policy might present upside risks to real GDP growth and inflation and downside risks to unemployment.

Participants' assessments of the future path of the federal funds rate consistent with appropriate policy are generally subject to considerable uncertainty, reflecting in part uncertainty about the evolution of GDP growth, the unemployment rate, and inflation over time. The final line in table 2 shows the RMSEs for forecasts of short-term interest rates. These RMSEs are not strictly consistent with participants' projections of the federal funds rate, in part because these assessments are not forecasts of the likeliest outcomes but rather reflect each participant's individual judgment of appropriate monetary policy. However, the associated confidence intervals may provide a sense of the likely uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that may be appropriate to offset the effects of shocks to the economy.

Figure 5 shows a fan chart plotting the medians of participants' assessments of the appropriate path of the federal funds rate surrounded by confidence intervals derived from the results presented in table 2. As with the macroeconomic variables, forecast uncertainty is substantial and increases at longer horizons. If at some point in the future the confidence interval around the federal funds rate were to extend below zero, it would be truncated at zero for purposes of the chart shown in figure 5; zero is the bottom of the lowest target range for the federal funds rate that has been adopted by the Committee in the past. This approach to the construction of the federal funds rate fan chart would be merely a convention and would not have any implication for possible future policy decisions regarding the use of negative interest rates to provide additional monetary policy accommodation if doing so were appropriate.

Figure 5. Uncertainty in projections of the federal funds rate



Note: The blue and red lines are based on actual values and median projected values, respectively, of the Committee's target for the federal funds rate at the end of the year indicated. The actual values are the midpoint of the target range; the median projected values are based on either the midpoint of the target range or the target level. The confidence interval around the median projected values is based on root mean squared errors of various private and government forecasts made over the previous 20 years. The confidence interval is not strictly consistent with the projections for the federal funds rate, primarily because these projections are not forecasts of the likeliest outcomes for the federal funds rate, but rather projections of participants' individual assessments of appropriate monetary policy. Still, historical forecast errors provide a broad sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that may be appropriate to offset the effects of shocks to the economy.

The confidence interval is assumed to be symmetric except when it is truncated at zero—the bottom of the lowest target range for the federal funds rate that has been adopted in the past by the Committee. This truncation would not be intended to indicate the likelihood of the use of negative interest rates to provide additional monetary policy accommodation if doing so was judged appropriate. In such situations, the Committee could also employ other tools, including forward guidance and large-scale asset purchases, to provide additional accommodation. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections.

* The confidence interval is derived from forecasts of the average level of short-term interest rates in the fourth quarter of the year indicated; more information about these data is available in table 2. The shaded area encompasses less than a 70 percent confidence interval if the confidence interval has been truncated at zero.

Forecast Uncertainty

The economic projections provided by the members of the Board of Governors and the presidents of the Federal Reserve Banks inform discussions of monetary policy among policymakers and can aid public understanding of the basis for policy actions. Considerable uncertainty attends these projections, however. The economic and statistical models and relationships used to help produce economic forecasts are necessarily imperfect descriptions of the real world, and the future path of the economy can be affected by myriad unforeseen developments and events. Thus, in setting the stance of monetary policy, participants consider not only what appears to be the most likely economic outcome as embodied in their projections, but also the range of alternative possibilities, the likelihood of their occurring, and the potential costs to the economy should they occur.

Table 2 summarizes the average historical accuracy of a range of forecasts, including those reported in past *Monetary Policy Reports* and those prepared by the Federal Reserve Board's staff in advance of meetings of the Federal Open Market Committee (FOMC). The projection error ranges shown in the table illustrate the considerable uncertainty associated with economic forecasts. For example, suppose a participant projects that real gross domestic product (GDP) and total consumer prices will rise steadily at annual rates of, respectively, 3 percent and 2 percent. If the uncertainty attending those projections is similar to that experienced in the past and the risks around the projections are broadly balanced, the numbers reported in table 2 would imply a probability of about 70 percent that actual GDP would expand within a range of 1.4 to 4.6 percent in the current year, and 0.9 to 5.1 percent in the second and third years. The corresponding 70 percent confidence intervals for overall inflation would be 1.1 to 2.9 percent in the current year, and 0.9 to 3.1 percent in the second and third years. Figures 4.A through 4.C illustrate these confidence bounds in "fan charts" that are symmetric and centered on the medians of FOMC participants' projections for GDP growth, the unemployment rate, and inflation. However, in some instances, the risks around the projections may not be symmetric. In particular, the unemployment rate cannot be negative; furthermore, the risks around a particular projection might be tilted to either the upside or the downside, in which case the corresponding fan chart would be asymmetrically positioned around the median projection.

Because current conditions may differ from those that prevailed, on average, over history, participants provide judgments as to whether the uncertainty attached to their projections of each economic variable is greater than, smaller than, or broadly similar to typical levels of forecast uncertainty seen in the past 20 years, as presented in table 2 and reflected in the widths of the confidence intervals shown in the top panels of figures 4.A through 4.C. Participants' current assessments of the uncertainty surrounding their projections are summarized in the bottom-left panels of those figures. Participants also provide judgments as to whether the risks to their projections are weighted to the upside, are weighted to the downside, or are broadly balanced. That is, while the symmetric historical fan charts shown in the top panels of figures 4.A through 4.C imply that the risks to participants' projections are balanced, participants may judge that there is a greater risk that a given variable will be above rather than below their projections. These judgments are summarized in the lower-right panels of figures 4.A through 4.C.

As with real activity and inflation, the outlook for the future path of the federal funds rate is subject to considerable uncertainty. This uncertainty arises primarily because each participant's assessment of the appropriate stance of monetary policy depends importantly on the evolution of real activity and inflation over time. If economic conditions evolve in an unexpected manner, then assessments of the appropriate setting of the federal funds rate would change from that point forward. The final line in table 2 shows the error ranges for forecasts of short-term interest rates. They suggest that the historical confidence intervals associated with projections of the federal funds rate are quite wide. It should be noted, however, that these confidence intervals are not strictly consistent with the projections for the federal funds rate, as these projections are not forecasts of the most likely quarterly outcomes but rather are projections of participants' individual assessments of appropriate monetary policy and are on an end-of-year basis. However, the forecast errors should provide a sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that would be appropriate to offset the effects of shocks to the economy.

If at some point in the future the confidence interval around the federal funds rate were to extend below zero, it would be truncated at zero for purposes of the fan chart shown in figure 5; zero is the bottom of the lowest target range for the federal funds rate that has been adopted by the Committee in the past. This approach to the construction of the federal funds rate fan chart would be merely a convention; it would not have any implications for possible future policy decisions regarding the use of negative interest rates to provide additional monetary policy accommodation if doing so were appropriate. In such situations, the Committee could also employ other tools, including forward guidance and asset purchases, to provide additional accommodation.

While figures 4.A through 4.C provide information on the uncertainty around the economic projections, figure 1 provides information on the range of views across FOMC participants. A comparison of figure 1 with figures 4.A through 4.C shows that the dispersion of the projections across participants is much smaller than the average forecast errors over the past 20 years.

Meeting Held on May 2–3, 2017

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, May 2, 2017, at 1:00 p.m. and continued on Wednesday, May 3, 2017, at 9:00 a.m.[1]

Present

Janet L. Yellen
Chair

William C. Dudley
Vice Chairman

Lael Brainard

Charles L. Evans

Stanley Fischer

Patrick Harker

Robert S. Kaplan

Neel Kashkari

Jerome H. Powell

Marie Gooding, Loretta J. Mester, Mark L. Mullinix, Michael Strine, and John C. Williams
Alternate Members of the Federal Open Market Committee

James Bullard, Esther L. George, and Eric Rosengren
Presidents of the Federal Reserve Banks of St. Louis, Kansas City, and Boston, respectively

Brian F. Madigan
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Scott G. Alvarez
General Counsel

Michael Held[2]
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

David W. Wilcox
Economist

James A. Clouse, Thomas A. Connors, Michael Dotsey, Evan F. Koenig, Daniel G. Sullivan, William Wascher, and Beth Anne Wilson
Associate Economists

Simon Potter
Manager, System Open Market Account

Lorie K. Logan
Deputy Manager, System Open Market Account

Ann E. Misback
Secretary, Office of the Secretary, Board of Governors

Matthew J. Eichner[3]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Michael S. Gibson
Director, Division of Supervision and Regulation, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Stephen A. Meyer
Deputy Director, Division of Monetary Affairs, Board of Governors

Trevor A. Reeve
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

Joseph W. Gruber, David Reifschneider, and John M. Roberts
Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

Christopher J. Erceg
Senior Associate Director, Division of International Finance, Board of Governors

[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

[2] Attended Tuesday session only.

[3] Attended the discussions on developments in financial markets and System Open Market Account reinvestment policy.

Diana Hancock and David E. Lebow
Senior Associate Directors, Division of Research and Statistics, Board of Governors

Gretchen C. Weinbach
Senior Associate Director, Division of Monetary Affairs, Board of Governors

Antulio N. Bomfim, Ellen E. Meade, Edward Nelson, and Joyce K. Zickler
Senior Advisers, Division of Monetary Affairs, Board of Governors

Rochelle M. Edge
Associate Director, Division of Financial Stability, Board of Governors

Jane E. Ihrig[4] and David López-Salido
Associate Directors, Division of Monetary Affairs, Board of Governors

John J. Stevens
Associate Director, Division of Research and Statistics, Board of Governors

Glenn Follette
Assistant Director, Division of Research and Statistics, Board of Governors

Patrick E. McCabe
Adviser, Division of Research and Statistics, Board of Governors

Penelope A. Beattie[2]
Assistant to the Secretary, Office of the Secretary, Board of Governors

Dana L. Burnett, Michele Cavallo,[5] and Dan Li
Section Chiefs, Division of Monetary Affairs, Board of Governors

Benjamin K. Johannsen
Senior Economist, Division of Monetary Affairs, Board of Governors

Arsenios Skaperdas[5]
Economist, Division of Monetary Affairs, Board of Governors

Ellen J. Bromagen
First Vice President, Federal Reserve Bank of Chicago

David Altig, Kartik B. Athreya, Geoffrey Tootell, and Christopher J. Waller
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, Boston, and St. Louis, respectively

Troy Davig, Julie Ann Remache,[4] and Nathaniel Wuerffel[5]
Senior Vice Presidents, Federal Reserve Banks of Kansas City, New York, and New York, respectively

Todd E. Clark, Terry Fitzgerald, and Òscar Jordà
Vice Presidents, Federal Reserve Banks of Cleveland, Minneapolis, and San Francisco, respectively

Rania Perry[5]
Assistant Vice President, Federal Reserve Bank of New York

David Lucca
Research Officer, Federal Reserve Bank of New York

Developments in Financial Markets and Open Market Operations

The manager of the System Open Market Account (SOMA) reported on developments in domestic and foreign financial markets over the period since the March FOMC meeting. Yields on U.S. Treasury securities declined, and the broad index of the foreign exchange value of the dollar fell modestly. These changes reportedly reflected revisions to investors' expectations for fiscal and other economic policies; some increase in geopolitical tensions; economic and inflation indicators that, on balance, were weaker than anticipated; and monetary policy communications. In response to political developments abroad, spreads on some European sovereign debt securities narrowed noticeably. Measures of implied volatility in equity markets declined, on net, to levels that were historically very low. Market pricing and survey evidence indicated that investors anticipated no change in the target range for the federal funds rate at this meeting but saw a substantial probability of an increase at the June FOMC meeting; market expectations for the path of the federal funds rate further ahead fell somewhat. Federal funds continued to trade well within the FOMC's target range. Reinvestment of principal payments from Treasury and mortgage-backed securities held in the SOMA proceeded smoothly. The manager updated the Committee on various small-value tests of System operations.

The manager also briefed the Committee on developments regarding certain reference interest rates. Changes in the practices of some domestic and for-

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[4] Attended the discussions on monetary policy and System Open Market Account reinvestment policy.

[5] Attended the discussion on System Open Market Account reinvestment policy.

eign banks for booking certain types of liabilities, as well as the effects of recent changes in the regulation of money market funds, had resulted in a reduction in the volume of Eurodollar transactions reported on the Federal Reserve's Report of Selected Money Market Rates (FR 2420). The staff was in the process of analyzing possible revisions to the report that would guard against a further erosion of reported transactions and support the robustness of the overnight bank funding rate calculated by the Federal Reserve Bank of New York. Such revisions might be implemented in conjunction with the periodic renewal of authorization for the report, which is expected to be completed by the third quarter of 2018. The manager also noted that aspects of plans to publish reference interest rates for market repurchase agreements (repos) were being modified to incorporate a newly available source of data on cleared bilateral repo transactions; the modifications were expected to extend the time frame for publication of the new rates by several months.

The Committee voted unanimously to renew the reciprocal currency arrangements with the Bank of Canada and the Bank of Mexico; these arrangements are associated with the Federal Reserve's participation in the North American Framework Agreement of 1994. In addition, the Committee voted unanimously to renew the dollar and foreign currency liquidity swap arrangements with the Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank, and the Swiss National Bank. The votes to renew the Federal Reserve's participation in these standing arrangements are taken annually at the April or May FOMC meeting.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Staff Review of the Economic Situation

The information reviewed for the May 2–3 meeting indicated that the labor market strengthened further in March but that growth of real gross domestic product (GDP) slowed in the first quarter, with the slowing likely reflecting transitory factors. The 12-month change in overall consumer prices was close to the Committee's longer-run objective of 2 percent in recent months; excluding food and energy, consumer prices declined in March, and the 12-month change in core consumer prices remained somewhat below 2 percent. Survey-based measures of inflation expectations were little changed on balance.

Total nonfarm payroll employment rose in March, but the gain was smaller than in recent months, likely reflecting both warmer-than-usual temperatures in February that probably caused some hiring to be moved forward and a major winter storm in the Northeast in March that probably held down hiring somewhat; nevertheless, the increase in employment for the first quarter as a whole was solid. The unemployment rate decreased to 4.5 percent in March, and the labor force participation rate was unchanged. The share of workers employed part time for economic reasons declined. The rates of private-sector job openings, hiring, and quits were all little changed in January and February. The four-week moving average of initial claims for unemployment insurance benefits remained at a very low level through mid-April. Measures of labor compensation accelerated modestly. The employment cost index for private workers increased 2¼ percent over the 12 months ending in March, and average hourly earnings for all employees increased 2¾ percent over the same period; both increases were somewhat larger than those over the 12 months ending in March 2016.

The average unemployment rate for whites in the first quarter of this year was ½ percentage point lower than its annual average for 2015, while the unemployment rates for Hispanics and for African Americans were about 1 percentage point and 1¾ percentage points lower, respectively. The larger improvements in the rates for Hispanics and for African Americans mirrored the larger increases in those rates during the most recent recession. As of the first quarter, the unemployment rates for African Americans and for Hispanics remained above the rate for whites both overall and for people with similar educational backgrounds. Unemployment rates for Asians remained below those for whites.

Total industrial production rose in February and March, primarily reflecting a further expansion of mining output as well as a net increase in the output of utilities. Manufacturing production declined in March after advancing in each of the previous six months; about half of the decline in March was due to a decrease in the output of motor vehicles and parts. Automakers' assembly schedules suggested that motor vehicle production would increase in the second quarter despite somewhat elevated levels of vehicle inventories. Broader indicators of manufacturing production, such as the new orders indexes

from national and regional manufacturing surveys, pointed to modest gains in factory output over the near term.

Real personal consumption expenditures (PCE) rose only modestly in the first quarter, although monthly data indicated some improvement late in the quarter. Indeed, after declining in January and February, real PCE increased in March, partly reflecting a rebound in spending on energy services, which had been held down by unseasonably warm weather through February, as well as an increase in outlays for a variety of consumer goods. Motor vehicle sales picked up in April after declining in March, although sales remained somewhat below their average pace in the first quarter and noticeably below the high levels seen in the fourth quarter. Recent readings on key factors that influence consumer spending pointed to solid growth in real PCE in coming quarters, including further gains in employment, real disposable personal income, and households' net worth. Moreover, consumer sentiment, as measured by the University of Michigan Surveys of Consumers, remained upbeat in March and April.

Residential investment increased at a brisk pace in the first quarter. Starts for both new single-family homes and multifamily units moved up, and issuance of building permits for new single-family homes—which tends to be a reliable indicator of the underlying trend in residential construction—also rose. Sales of both new and existing homes in the first quarter were above their levels in the previous quarter.

Real private expenditures for business equipment and intellectual property increased at a solid pace in the first quarter after a moderate gain in the fourth quarter. Nominal shipments and new orders of nondefense capital goods excluding aircraft both rose over the three months ending in March, and the level of new orders remained higher than that of shipments, pointing to further near-term gains in shipments. In addition, indicators of business sentiment were upbeat in recent months. Real business expenditures for nonresidential structures increased briskly in the first quarter, and the number of oil and gas rigs in operation, an indicator of spending for structures in the drilling and mining sector, continued to rise through mid-April. Business inventory investment slowed sharply last quarter and held down real GDP growth significantly.

Real federal purchases declined in the first quarter, as defense expenditures decreased and nondefense spending rose at a slower pace than in the final quarter of 2016. Real state and local government purchases also declined in the first quarter, with a sharp decrease in real construction spending by these governments more than offsetting a modest expansion in state and local government payrolls.

The U.S. international trade deficit narrowed in February. Exports rose and imports fell sharply, with imports of automotive products and consumer goods declining after robust increases in January. Preliminary data on trade in goods suggested that the trade deficit was about unchanged in March. The Bureau of Economic Analysis estimated that real net exports added slightly to growth of real GDP in the first quarter.

Total U.S. consumer prices, as measured by the PCE price index, increased 1¾ percent over the 12 months ending in March. Core PCE price inflation, which excludes changes in food and energy prices, was about 1½ percent over those same 12 months. Over the 12 months ending in March, total consumer prices as measured by the consumer price index (CPI) rose 2½ percent, while core CPI inflation was 2 percent. On a month-over-month basis, both the PCE price index and the CPI decreased in March, partly reflecting declines in some categories of prices that appeared unlikely to be repeated. The median of longer-run inflation expectations from the Michigan survey edged down a bit, on balance, in recent months, while the medians from the Desk's Survey of Primary Dealers and Survey of Market Participants were little changed.

Foreign real GDP growth appeared to have strengthened in the first quarter after slowing somewhat in the fourth quarter. In the advanced foreign economies (AFEs), indicators for the first quarter pointed to faster economic growth in Canada and solid growth in the euro area and Japan. By contrast, real GDP growth in the United Kingdom slowed significantly. More recent indicators were consistent with moderate economic growth in most AFEs. In the emerging market economies (EMEs), growth picked up in China and some Asian economies in the first quarter but slowed moderately in Mexico. Recent data also suggested that economic activity improved in parts of South America, most notably in Brazil where positive growth likely resumed in the first quarter. Inflation in the AFEs continued to rise, largely because of the pass-through of earlier increases in crude oil prices into retail energy prices. In the EMEs, inflation fell in China in the first quar-

ter, reflecting a sharp drop in food prices, but was pushed up in Mexico by fuel price hikes and pass-through from past currency depreciation.

Staff Review of the Financial Situation

Domestic financial market conditions remained generally accommodative over the intermeeting period. Prices of risky assets increased a bit on net, Treasury yields declined, and the dollar depreciated. The decline in Treasury yields reportedly was driven in part by investor expectations of a somewhat slower pace of policy rate increases following FOMC communications after the March meeting and some waning of investor optimism about prospects for more expansionary fiscal policies.

FOMC communications over the intermeeting period reportedly were interpreted as indicating a somewhat slower pace of policy rate increases than previously expected but an earlier change to the Committee's reinvestment policy. Although the Committee's decision to raise the target range for the federal funds rate at the March meeting was widely anticipated, some of the accompanying communications were viewed as more accommodative than expected. Investors reportedly also took note of the discussion in the March FOMC minutes of the Committee's reinvestment policy as well as statements from some FOMC participants and appeared to pull forward their expectations for when the FOMC will either announce or start to implement a change to that policy. Overall, however, the market reaction to news related to potential changes in reinvestment policy appeared to be fairly limited. Quotes on overnight index swap (OIS) rates pointed to a flattening of the expected path of the federal funds rate through 2020, but a staff model suggested that a reduction in term premiums accounted for about half the decline in OIS rates.

Yields on intermediate- and longer-term nominal Treasury securities decreased 20 to 35 basis points over the intermeeting period. Investors' interpretations of FOMC communications, market perceptions of a reduced likelihood of domestic fiscal and regulatory policy changes, weaker-than-expected domestic economic data releases, and geopolitical factors and foreign political developments all reportedly placed downward pressure on yields. A staff term structure model attributed about one-third of the decline in the 10-year Treasury yield to a decrease in the average expected future short-term rate and the remaining two-thirds to a lower term premium. While inflation compensation based on Treasury Inflation-Protected Securities decreased at near-term horizons, partly reflecting the lower-than-expected March CPI release, far-term inflation compensation was little changed on net.

Broad U.S. equity price indexes increased slightly, on net, since the March FOMC meeting. One-month-ahead option-implied volatility on the S&P 500 index—the VIX—rose appreciably in mid-April, reflecting in part increased investor concerns about geopolitical factors and foreign political developments, but ended the period slightly lower, as investor concerns appeared to ease after the first round of the French presidential election. Over the intermeeting period, spreads of yields on investment- and speculative-grade nonfinancial corporate bonds over comparable-maturity Treasury securities narrowed a bit on net. Private-sector analysts continued to project robust profit growth for S&P 500 firms over 2017 even as first-quarter earnings, on a seasonally adjusted basis, were estimated to be a bit lower than in the fourth quarter.

Conditions in short-term funding markets were stable over the intermeeting period. Reflecting the FOMC's policy action in March, yields on a broad set of money market instruments moved higher. Treasury bills outstanding, which had declined before the reimposition of the federal debt ceiling on March 15, moved higher thereafter, partly in connection with the Treasury's steps to rebuild its cash balance. Take-up at the System's overnight reverse repurchase agreement facility, which had risen ahead of the debt ceiling date, remained high through March and then fell to relatively low levels after quarter-end.

Financing conditions for large nonfinancial firms stayed accommodative. Gross issuance of corporate bonds and leveraged loans remained strong in March, with a large share of lower-rated debt issued for refinancing purposes. Net debt financing by nonfinancial businesses increased in the first quarter but remained noticeably below the pace of the same time last year. According to the April Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS), a modest share of domestic banks reported weaker demand for commercial and industrial (C&I) loans, on net, in the first quarter, mainly citing several factors that pertained to customers' reduced needs for financing. C&I lending continued to be soft early in the second quarter.

Financing conditions for commercial real estate (CRE) were broadly unchanged on net. Spreads on commercial mortgage-backed securities (CMBS) widened slightly over the period since the March FOMC meeting but remained near the lower end of the range seen since the financial crisis. CMBS issuance picked up in March, reportedly reflecting a return to a more normal pace after the adoption of a credit risk retention rule in late December caused some issuance to be shifted from January and February into the fourth quarter. Growth of CRE loans on banks' books slowed in the first quarter but continued to be robust overall. Domestic respondents to the April SLOOS generally reported tightening their lending standards and experiencing weaker loan demand across all major CRE loan categories during the first quarter.

Financing conditions in the residential mortgage market were little changed over the intermeeting period. Credit availability continued to be relatively tight for households with low credit scores or harder-to-document incomes but relatively accommodative for other households. Mortgage rates declined in line with yields on longer-term Treasury securities and mortgage-backed securities, but they remained elevated compared with the very low levels of the third quarter of 2016. Consistent with these developments, refinance originations slowed considerably since the third quarter. In the April SLOOS, banks reported roughly unchanged standards on residential real estate (RRE) loans on average. Banks also reported that demand for some categories of RRE loans weakened during the first quarter, including those insured or guaranteed by government agencies. In line with lower reported demand, growth in RRE loans on banks' balance sheets declined.

Financing conditions in consumer credit markets remained accommodative, on balance, in early 2017. Consumer credit appeared to be broadly available even as interest rates charged on credit card balances and new auto loans drifted up in line with their benchmark shorter-term interest rates. Growth in consumer loan balances moderated a bit further from the relatively strong pace seen during the past few years, although year-over-year growth in credit card balances, student loans, and auto loans stayed in the 6 to 7 percent range through February. In the April SLOOS, banks reported tightening standards on auto loans and easing standards on credit card loans; banks also reported facing weaker demand for both auto and credit card loans.

Over the intermeeting period, movements in foreign financial markets were driven by central bank communications in the United States and abroad, geopolitical risks, and changes in investors' perceptions about future U.S. fiscal and other government policies. Concerns about the outcome of the French presidential election and tensions in the Korean peninsula pushed down 10-year sovereign yields in the advanced economies for several weeks. Sentiment improved following the outcome of the first round of the French presidential election on April 23, which led to a partial retracement in yields. At their meetings on April 27, the European Central Bank and the Bank of Japan each left their policy stance unchanged. On net, foreign yields declined somewhat less than U.S. yields, contributing to a modest depreciation of the dollar against both the AFE and EME currencies. Equity indexes in most advanced and emerging economies rose. Flows to emerging market mutual funds remained strong, and spreads on emerging market debt were little changed.

The staff provided its latest report on the potential risks to financial stability; it continued to characterize the financial vulnerabilities of the U.S. financial system as moderate on balance. This overall assessment reflected the staff's judgment that leverage as well as vulnerabilities from maturity and liquidity transformation in the financial sector were low, that leverage in the nonfinancial sector was moderate, and that asset valuation pressures in some markets were notable. Although these assessments were unchanged from January's assessment, vulnerabilities appeared to have increased for asset valuation pressures, though not by enough to warrant raising the assessment of these vulnerabilities to elevated.

Staff Economic Outlook

In the U.S. economic forecast prepared by the staff for the May FOMC meeting, real GDP growth was projected to bounce back in the second quarter from its weak first-quarter reading. The staff judged that the weakness in first-quarter real GDP was probably not attributable to residual seasonality and that it instead reflected transitorily soft consumer expenditures and inventory investment. Importantly, PCE growth was expected to pick up to a stronger pace in the spring, which would be more consistent with ongoing gains in employment, real disposable personal income, and households' net worth. In addition, the sharp decrease in the contribution to GDP growth from the change in inventory investment in the first quarter was not

expected to be repeated. Beyond the near term, the forecast for real GDP growth was a little stronger, on net, than in the previous projection, mostly due to the effect of a somewhat lower assumed path for the exchange value of the dollar. The staff continued to project that real GDP would expand at a modestly faster pace than potential output in 2017 through 2019, supported in part by the staff's maintained assumption that fiscal policy would become more expansionary in the coming years. The unemployment rate was projected to decline gradually over the next couple of years and to run somewhat below the staff's estimate of its longer-run natural rate over this period; the staff's estimate of the natural rate was revised down slightly in this forecast.

The staff's forecast for consumer price inflation, as measured by changes in the PCE price index, was revised down marginally for 2017 as a whole after incorporating the soft data on consumer prices for March, but it was essentially unrevised thereafter. Inflation was still expected to be somewhat higher this year than last year, reflecting an upturn in the prices for food and non-energy imports as well as a slightly faster increase in energy prices. The staff continued to project that inflation would increase gradually in 2018 and 2019 and that it would be marginally below the Committee's longer-run objective of 2 percent in 2019.

The staff viewed the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as similar to the average of the past 20 years. The risks to the forecast for real GDP were seen as tilted to the downside, primarily reflecting the staff's assessment that monetary policy appeared to be better positioned to respond to large positive shocks to the economic outlook than to substantial adverse ones. However, the staff viewed the risks to the forecast as less pronounced than late last year, with both somewhat diminished risks to the foreign outlook and an increase in U.S. consumer and business confidence. Consistent with the downside risks to aggregate demand, the staff viewed the risks to its outlook for the unemployment rate as tilted to the upside. The risks to the projection for inflation were judged to be roughly balanced. The downside risks from the possibility that longer-term inflation expectations may have edged down or that the dollar could appreciate substantially were seen as roughly counterbalanced by the upside risk that inflation could increase more than expected in an economy that was projected to continue operating above its longer-run potential.

Participants' Views on Current Conditions and the Economic Outlook

In their discussion of the economic situation and the outlook, meeting participants agreed that the information received over the intermeeting period indicated that the labor market had continued to strengthen even as growth in economic activity slowed in the first quarter. Job gains remained solid, on average, in recent months, and the unemployment rate declined. Household spending rose only modestly, but the fundamentals underpinning the continued growth of consumption remained solid. Business fixed investment firmed in the first quarter after increasing only slowly over the previous two years. Inflation measured on a 12-month basis recently had been running close to the Committee's 2 percent longer-run objective; consumer prices, both including and excluding prices of energy and food items, declined in March, and core inflation continued to run somewhat below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed on balance.

Although the incoming data showed that aggregate spending in the first quarter had been weaker than participants had expected, they viewed the slowing as likely to be transitory. They continued to expect that, with further gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace, labor market conditions would strengthen somewhat further, and inflation would stabilize around 2 percent over the medium term.

Participants generally indicated that their assessments of the medium-term economic outlook had changed little since the March meeting, and they discussed various reasons why the softness in consumer spending in the first quarter was likely to be transitory. Some participants judged that the low reading on GDP growth also could partly reflect residual seasonality and so would likely be followed by stronger GDP growth in subsequent quarters, repeating a pattern evidenced in recent years. A few emphasized the uncertainty with regard to the reasons for the unexpected weakness in consumer spending but considered it too early to judge the implications for the outlook. Many pointed to the recent firming of the housing market and business fixed investment as welcome developments.

Overall, participants continued to see the near-term risks to the economic outlook as roughly balanced.

Many participants saw the risks stemming from global economic and financial developments as having receded further over the intermeeting period. They pointed to the encouraging tone of recent data on economic growth abroad, which suggested some upside risks to foreign economic activity. However, several noted that downside risks to the global outlook remained, either because of geopolitical developments and foreign political factors or because monetary policy normalization in the United States could lead to financial strains in EMEs. Many participants continued to view the possibility of expansionary fiscal policy changes in the United States as posing upside risks to their forecasts for U.S. economic growth, although they also noted that prospects for enactment of a more expansionary fiscal program, as well as its size, composition, and timing, remained highly uncertain. Regarding the outlook for inflation, a couple of participants expressed concern that a substantial undershooting of the longer-run normal rate of unemployment could pose an appreciable upside risk to inflation. However, several others continued to see downside risks to the inflation outlook, particularly given the low readings on inflation over the intermeeting period and the still-low measures of inflation compensation and inflation expectations. Participants agreed that the Committee should continue to closely monitor inflation indicators and global economic and financial developments.

While recent data suggested a significant slowdown of growth in consumption spending early in the year, participants expected to see a rebound in consumer spending in coming months in light of the solid fundamentals underpinning household spending, including ongoing job gains, rising household income and wealth, improved household balance sheets, and buoyant consumer sentiment. It was noted that much of the recent slowing likely reflected transitory factors, such as low consumer spending for energy services induced by an unusually mild winter and a decline in motor vehicle sales from an unsustainably high fourth-quarter pace. Nevertheless, contacts expected that demand for motor vehicles would be well maintained. District reports on the service sector were generally positive, although one District's contacts in the tourism industry reported a falloff in international visitors. One participant noted that retail contacts reported upbeat projections for online sales and associated package delivery services, in part reflecting structural shifts in the retail industry.

Several participants discussed the pickup in residential investment in the first quarter. Starts and permits for single-family housing continued to post moderate increases, while sales of new homes rose strongly from their level in the fourth quarter of 2016. Business contacts in some Districts reported that residential construction activity had not kept pace with demand, resulting in shortages in housing supply and upward pressure on prices.

Business fixed investment increased at a solid pace in the first quarter, led by a rebound in drilling for oil and natural gas. Several participants noted that rising orders for capital goods suggested further gains in business equipment investment over coming quarters. Business contacts reported increases in activity in the manufacturing and energy sectors. Contacts in many Districts were said to be generally optimistic about business prospects. Several participants noted that surveys of business conditions in their Districts continued to indicate expanding activity. A few participants commented that firms engaged in international trade were benefiting from improvements in global demand conditions. Several participants reported that firms in their Districts planned to increase capital expenditures, although in another District, uncertainty about changes in trade and regulatory policies was said to be weighing on capital spending. Conditions in the agricultural sector remained weak, partly as a result of low commodity prices.

Labor market conditions strengthened further in recent months. At 4.5 percent, the unemployment rate had reached or fallen below levels that participants judged likely to be normal over the longer run. Increases in nonfarm payroll employment averaged almost 180,000 per month during the first quarter, a pace that, if maintained, would be expected to result in further increases in labor utilization over time. Labor market conditions in many Districts were reported to have continued to improve. Contacts in several Districts reported a pickup in wage increases, shortages of workers in selected occupations, or pressures to train workers for hard-to-fill jobs. Even so, several other participants suggested some margins may remain along which labor market utilization could increase further without giving rise to inflationary pressures. In that regard, they noted that the recent rise in the labor force participation rate in the face of a downward trend from demographic factors was a positive development. However, a couple of participants pointed out that uncertainty about both

the longer-run normal rate of unemployment and labor force trends made it difficult to assess the scope for additional sustainable increases in labor utilization. Generally, participants continued to expect that if economic growth stayed moderate, as they projected, the unemployment rate would remain, for the next few years, below their estimates of its longer-run normal level. A few participants continued to anticipate a substantial undershooting of the longer-run normal level of the unemployment rate.

Readings on headline and core PCE price inflation in March had come in lower than expected. On a 12-month basis, headline PCE price inflation had edged above the Committee's 2 percent objective in February, but this measure dropped back to 1.8 percent in March, in part reflecting the effects of lower energy prices on the headline index. Core PCE price inflation, which historically has been a good predictor of future headline inflation, moved down to 1.6 percent over the 12 months ending in March. However, it was noted that some of this slowing reflected idiosyncratic factors such as a large drop in the measure of quality-adjusted prices for wireless telephone services. Several participants emphasized that inflation measured on a 12-month basis had been running very close to the Committee's 2 percent target. Overall, most participants viewed the recent softer inflation data as primarily reflecting transitory factors, but a few expressed concern that progress toward the Committee's objective may have slowed. Market-based measures of longer-term inflation compensation remained low, with five-year, five-year-forward CPI inflation compensation a bit below 2 percent—unchanged from the time of the March FOMC meeting but somewhat above levels registered last year. In addition, the median measure of inflation expectations over the next 5 to 10 years in the Michigan survey edged down from 2.5 percent in February to 2.4 percent in March and April. The three-year-ahead measure of inflation expectations from the Federal Reserve Bank of New York's Survey of Consumer Expectations decreased from 3.0 percent to 2.7 percent in March and rose to 2.9 percent in April.

In light of these developments, participants generally continued to expect that inflation would stabilize around the Committee's 2 percent objective over the medium run as the effects of transitory factors waned and conditions in the labor market and the overall economy improved further. Participants noted that import prices had begun to increase, supporting their expectation that inflation would gradually rise. A few participants, however, expressed uncertainty about the reasons for the recent unexpected weakness in inflation measures and about its implications for the inflation outlook.

In their discussion of recent developments in financial markets, some participants commented on changes in financial conditions in the wake of the Committee's decision to increase the target range for the federal funds rate in March. They noted variously that the decline in longer-term interest rates and the modest depreciation of the dollar over the intermeeting period would provide some stimulus to aggregate demand, that the Committee's recent policy actions had not resulted in a tightening of financial conditions, or that some of the decline in longer-term yields reflected investors' perceptions of diminished odds of significant fiscal stimulus and an increase in some geopolitical and foreign political risks.

With regard to financial stability, several participants emphasized that higher requirements for capital and liquidity in the banking system and other prudential standards had contributed to increased resilience in the financial system since the financial crisis. However, they expressed concerns that a possible easing of regulatory standards could increase risks to financial stability. In addition, it was noted that real estate values were elevated in some sectors of the CRE market, that a sharp decline in such valuations could pose risks to financial stability, and that potential reforms in the housing finance sector could have implications for such valuations.

In their consideration of monetary policy, participants judged that it was appropriate to leave the target range for the federal funds rate unchanged at this meeting. Although the data on aggregate spending and inflation received over the intermeeting period were, on balance, weaker than participants expected, they generally saw the outlook for the economy and inflation as little changed and judged that a continued gradual removal of monetary policy accommodation remained appropriate. A couple of participants indicated that increasing the target range for the federal funds rate at the current meeting would be warranted by their economic outlook, but they also noted that maintaining the current stance of policy for now would be consistent with the Committee's gradual approach or that the Committee's recent communications had not pointed to an increase at this meeting. Most participants judged that if economic information came in about in line with their expectations, it would soon be appropriate for the

Committee to take another step in removing some policy accommodation. A number of participants pointed out that clarification of prospective fiscal and other policy changes would remove one source of uncertainty for the economic outlook. Participants generally agreed that the current stance of monetary policy remained accommodative, supporting some additional strengthening in labor market conditions and a sustained return to 2 percent inflation.

Participants generally reiterated their support for a continued gradual approach to raising the federal funds rate. Some participants noted that core PCE price inflation had been running below the Committee's objective for overall inflation for the past eight years and that it was important to return inflation to 2 percent, or that the public's longer-term inflation expectations may have fallen somewhat, and that a gradual approach to tightening could help return expectations and inflation to 2 percent. One participant cited results of a District survey of businesses indicating that more than one-third of respondents saw the Federal Reserve as more likely to accept inflation below its 2 percent objective than above; that participant interpreted the survey results as suggesting that the Committee's communications about the symmetry of its inflation objective had not completely taken hold, a concern also mentioned by a couple of other participants. Another participant observed that a gradual approach was appropriate because the neutral rate of interest had declined and considerable uncertainty prevailed about its longer-run level. Several participants, however, pointed to conditions under which the Committee might need to consider a somewhat more rapid removal of monetary accommodation—for instance, if the unemployment rate fell appreciably further than currently projected, if wages increased more rapidly than expected, or if highly stimulative fiscal policy changes were to be enacted. In contrast, a couple of others judged that the Committee could withdraw monetary accommodation even more gradually than reflected in the medians of forecasts in the March Summary of Economic Projections, noting that slack might remain in the labor market or that inflation was not very sensitive to declines in the unemployment rate below its estimated longer-run normal level.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members judged that information received since the Committee met in March indicated that the labor market had continued to strengthen even as growth in economic activity had slowed. Job gains had remained solid, on average, in recent months, and the unemployment rate had declined. Household spending had risen only modestly, but the fundamentals underpinning the continued growth of consumption remained solid, while business fixed investment had firmed.

Inflation, measured as the 12-month change in the headline PCE price index, had been running close to the Committee's 2 percent longer-run objective. Core inflation continued to run somewhat below 2 percent. Both headline and core consumer price indexes fell in March. Market-based measures of inflation compensation had remained low, while survey-based measures of longer-term inflation expectations had changed little on balance.

With respect to the economic outlook and its implications for monetary policy, members agreed that the slowing in growth during the first quarter was likely to be transitory and continued to expect that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace, labor market conditions would strengthen somewhat further, and inflation would stabilize around 2 percent over the medium term. Members continued to judge that there was significant uncertainty about the effects of possible changes in fiscal and other government policies but that near-term risks to the economic outlook appeared roughly balanced. A couple of members noted that the outlook for global growth appeared to have brightened and that downside risks from abroad had waned. Members agreed that they would continue to closely monitor inflation indicators and global economic and financial developments.

After assessing current conditions and the outlook for economic activity, the labor market, and inflation, members agreed to maintain the target range for the federal funds rate at ¾ to 1 percent. They noted that the stance of monetary policy remained accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.

Members generally judged that it would be prudent to await additional evidence indicating that the recent slowing in the pace of economic activity had been transitory before taking another step in removing accommodation. Members agreed that, in determin-

ing the timing and size of future adjustments to the target range for the federal funds rate, the Committee would assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. Members also agreed to continue to carefully monitor actual and expected inflation developments relative to the Committee's symmetric inflation goal, with one member viewing further progress of inflation toward the 2 percent objective as necessary before taking another step to remove policy accommodation. Members expected that economic conditions would evolve in a manner that would warrant gradual increases in the federal funds rate. Members agreed that the federal funds rate was likely to remain, for some time, below levels that they expected to prevail in the longer run. However, they noted that the actual path of the federal funds rate would depend on the economic outlook as informed by incoming data.

The Committee also decided to maintain its existing policy of reinvesting all principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction. Members anticipated doing so until normalization of the level of the federal funds rate was well under way, and they noted that this policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until it was instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective May 4, 2017, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of ¾ to 1 percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 0.75 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over maturing Treasury securities at auction and to continue reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

> "Information received since the Federal Open Market Committee met in March indicates that the labor market has continued to strengthen even as growth in economic activity slowed. Job gains were solid, on average, in recent months, and the unemployment rate declined. Household spending rose only modestly, but the fundamentals underpinning the continued growth of consumption remained solid. Business fixed investment firmed. Inflation measured on a 12-month basis recently has been running close to the Committee's 2 percent longer-run objective. Excluding energy and food, consumer prices declined in March and inflation continued to run somewhat below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.
>
> Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee views the slowing in growth during the first quarter as likely to be transitory and continues to expect that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, labor market conditions will strengthen somewhat further, and inflation will stabilize around 2 percent over the medium term. Near-term risks to the economic outlook appear roughly balanced. The Committee continues to closely monitor inflation indicators and global economic and financial developments.

In view of realized and expected labor market conditions and inflation, the Committee decided to maintain the target range for the federal funds rate at ¾ to 1 percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.

In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.

The Committee is maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction, and it anticipates doing so until normalization of the level of the federal funds rate is well under way. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions."

Voting for this action: Janet L. Yellen, William C. Dudley, Lael Brainard, Charles L. Evans, Stanley Fischer, Patrick Harker, Robert S. Kaplan, Neel Kashkari, and Jerome H. Powell.

Voting against this action: None.

Consistent with the Committee's decision to leave the target range for the federal funds rate unchanged, the Board of Governors voted unanimously to leave the interest rates on required and excess reserve balances unchanged at 1 percent and voted unanimously to approve establishment of the primary credit rate (discount rate) at the existing level of 1½ percent.[6]

System Open Market Account Reinvestment Policy

Participants continued their discussion of issues related to potential changes to the Committee's policy of reinvesting principal payments from securities held in the SOMA. The staff provided a briefing that summarized a possible operational approach to reducing the System's securities holdings in a gradual and predictable manner. Under the proposed approach, the Committee would announce a set of gradually increasing caps, or limits, on the dollar amounts of Treasury and agency securities that would be allowed to run off each month, and only the amounts of securities repayments that exceeded the caps would be reinvested each month. As the caps increased, reinvestments would decline, and the monthly reductions in the Federal Reserve's securities holdings would become larger. The caps would initially be set at low levels and then be raised every three months, over a set period of time, to their fully phased-in levels. The final values of the caps would then be maintained until the size of the balance sheet was normalized.

Nearly all policymakers expressed a favorable view of this general approach. Policymakers noted that preannouncing a schedule of gradually increasing caps to limit the amounts of securities that could run off in any given month was consistent with the Committee's intention to reduce the Federal Reserve's securities holdings in a gradual and predictable manner as stated in the Committee's Policy Normalization Principles and Plans. Limiting the magnitude of the monthly reductions in the Federal Reserve's securities holdings on an ongoing basis could help mitigate the risk of adverse effects on market functioning or outsized effects on interest rates. The approach would also likely be fairly straightforward to communicate. Moreover, under this approach, the process of reducing the Federal Reserve's securities holdings, once begun, could likely proceed without a need for the Committee to make adjustments as long as there was no material deterioration in the economic outlook.

Policymakers agreed that the Committee's Policy Normalization Principles and Plans should be aug-

[6] The second vote of the Board also encompassed approval of the establishment of the interest rates for secondary and seasonal credit under the existing formulas for computing such rates.

mented soon to provide additional details about the operational plan to reduce the Federal Reserve's securities holdings over time. Nearly all policymakers indicated that as long as the economy and the path of the federal funds rate evolved as currently expected, it likely would be appropriate to begin reducing the Federal Reserve's securities holdings this year. Policymakers agreed to continue in June their discussion of plans for a change to the Committee's reinvestment policy.

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, June 13–14, 2017. The meeting adjourned at 11:45 a.m. on May 3, 2017.

Notation Vote

By notation vote completed on April 4, 2017, the Committee unanimously approved the minutes of the Committee meeting held on March 14–15, 2017.

Brian F. Madigan
Secretary

Meeting Held on June 13–14, 2017

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, June 13, 2017, at 1:00 p.m. and continued on Wednesday, June 14, 2017, at 9:00 a.m.[1]

Present

Janet L. Yellen
Chair

William C. Dudley
Vice Chairman

Lael Brainard

Charles L. Evans

Stanley Fischer

Patrick Harker

Robert S. Kaplan

Neel Kashkari

Jerome H. Powell

Raphael W. Bostic, Loretta J. Mester, Mark L. Mullinix, Michael Strine, and John C. Williams
Alternate Members of the Federal Open Market Committee

James Bullard, Esther L. George, and Eric Rosengren
Presidents of the Federal Reserve Banks of St. Louis, Kansas City, and Boston, respectively

Brian F. Madigan
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Scott G. Alvarez
General Counsel

Michael Held
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

David W. Wilcox
Economist

Beth Anne Wilson, James A. Clouse, Thomas A. Connors, Eric M. Engen, Evan F. Koenig, Jonathan P. McCarthy, William Wascher, and Mark L. J. Wright
Associate Economists

Simon Potter
Manager, System Open Market Account

Lorie K. Logan
Deputy Manager, System Open Market Account

Ann E. Misback
Secretary, Office of the Secretary, Board of Governors

Matthew J. Eichner[2]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Michael S. Gibson
Director, Division of Supervision and Regulation, Board of Governors

Michael T. Kiley
Deputy Director, Division of Financial Stability, Board of Governors

Stephen A. Meyer
Deputy Director, Division of Monetary Affairs, Board of Governors

William B. English
Senior Special Adviser to the Board, Office of Board Members, Board of Governors

Trevor A. Reeve
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

David Bowman, Joseph W. Gruber, David Reifschneider, and John M. Roberts
Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

Christopher J. Erceg
Senior Associate Director, Division of International Finance, Board of Governors

[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

[2] Attended through the discussion of System Open Market Account reinvestment policy.

Joshua Gallin
Senior Associate Director, Division of Research and Statistics, Board of Governors

Gretchen C. Weinbach[2]
Senior Associate Director, Division of Monetary Affairs, Board of Governors

Antulio N. Bomfim, Ellen E. Meade, and Edward Nelson
Senior Advisers, Division of Monetary Affairs, Board of Governors

Jeremy B. Rudd
Senior Adviser, Division of Research and Statistics, Board of Governors

Rochelle M. Edge
Associate Director, Division of Financial Stability, Board of Governors

Jane E. Ihrig
Associate Director, Division of Monetary Affairs, Board of Governors

Stacey Tevlin
Associate Director, Division of Research and Statistics, Board of Governors

Min Wei
Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Christopher J. Gust
Assistant Director, Division of Monetary Affairs, Board of Governors

Norman J. Morin and Karen M. Pence
Assistant Directors, Division of Research and Statistics, Board of Governors

Don Kim
Adviser, Division of Monetary Affairs, Board of Governors

Penelope A. Beattie
Assistant to the Secretary, Office of the Secretary, Board of Governors

Giovanni Favara and Rebecca Zarutskie
Section Chiefs, Division of Monetary Affairs, Board of Governors

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Kimberly Bayard
Group Manager, Division of Research and Statistics, Board of Governors

Stephen Lin
Principal Economist, Division of International Finance, Board of Governors

Lubomir Petrasek
Principal Economist, Division of Monetary Affairs, Board of Governors

Achilles Sangster II
Information Management Analyst, Division of Monetary Affairs, Board of Governors

Marie Gooding
First Vice President, Federal Reserve Bank of Atlanta

David Altig, Kartik B. Athreya, Mary Daly, Jeff Fuhrer, and Christopher J. Waller
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, San Francisco, Boston, and St. Louis, respectively

Spencer Krane and Ellis W. Tallman
Senior Vice Presidents, Federal Reserve Banks of Chicago and Cleveland, respectively

Roc Armenter and Kathryn B. Chen[3]
Vice Presidents, Federal Reserve Banks of Philadelphia and New York, respectively

Andrew T. Foerster
Senior Economist, Federal Reserve Bank of Kansas City

Selection of Committee Officer

By unanimous vote, the Committee selected Mark L. J. Wright to serve as Associate Economist, effective June 13, 2017, until the selection of his successor at the first regularly scheduled meeting of the Committee in 2018.

Developments in Financial Markets and Open Market Operations

The manager of the System Open Market Account (SOMA) reported on developments in domestic and foreign financial markets over the period since the May FOMC meeting. Yields on Treasury securities and the foreign exchange value of the dollar had declined modestly, while equity prices had continued to rise, contributing to a further easing of financial conditions according to some measures. Moreover, realized and implied volatility in financial markets remained low. Meanwhile, inflation compensation edged lower. Survey results and market pricing sug-

[3] Attended through the staff report on the economic and financial situation.

gested that market participants saw a high probability of an increase in the FOMC's target range for the federal funds rate at this meeting.

The deputy manager reviewed survey results on market expectations for SOMA reinvestment policy and for the evolution of the System's balance sheet over coming years. The deputy manager also commented on money market developments. Over the intermeeting period, the federal funds rate remained well within the FOMC's target range, and take-up at the System's overnight reverse repurchase agreement facility was little changed from the previous period. The spread between the three-month London interbank offered rate and the overnight index swap (OIS) rate had narrowed markedly in recent months after rising noticeably in advance of the implementation of money market fund reform in the fall of 2016. The deputy manager also summarized details of the operational approach that the Open Market Desk planned to follow if the Committee adopted the proposal for SOMA reinvestment policy to be considered at this meeting.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

System Open Market Account Reinvestment Policy

The Chair observed that, starting with the March 2017 FOMC meeting, Committee participants had been discussing approaches to reducing the Federal Reserve's securities holdings in a gradual and predictable manner. She noted that participants appeared to have reached a consensus on an approach that involved specifying caps on the monthly amount of principal payments from securities holdings that would not be reinvested; these caps would rise over the period of a year, after which they would remain constant. Given this consensus, the Chair proposed that participants approve the plan and that it be published as an addendum to the Committee's Policy Normalization Principles and Plans; the addendum would be released at the conclusion of this meeting so as to inform the public well in advance of implementing the reinvestment policy. It was anticipated that when the Committee determined that economic conditions warranted implementation of the program, that step would be communicated through the Committee's postmeeting statement. Participants unanimously supported the proposal.

Policy Normalization Principles and Plans (Addendum Adopted June 13, 2017)

All participants agreed to augment the Committee's Policy Normalization Principles and Plans by providing the following additional details regarding the approach the FOMC intends to use to reduce the Federal Reserve's holdings of Treasury and agency securities once normalization of the level of the federal funds rate is well under way.[4]

- The Committee intends to gradually reduce the Federal Reserve's securities holdings by decreasing its reinvestment of the principal payments it receives from securities held in the System Open Market Account. Specifically, such payments will be reinvested only to the extent that they exceed gradually rising caps.

    —For payments of principal that the Federal Reserve receives from maturing Treasury securities, the Committee anticipates that the cap will be $6 billion per month initially and will increase in steps of $6 billion at three-month intervals over 12 months until it reaches $30 billion per month.

    —For payments of principal that the Federal Reserve receives from its holdings of agency debt and mortgage-backed securities, the Committee anticipates that the cap will be $4 billion per month initially and will increase in steps of $4 billion at three-month intervals over 12 months until it reaches $20 billion per month.

    —The Committee also anticipates that the caps will remain in place once they reach their respective maximums so that the Federal Reserve's securities holdings will continue to decline in a gradual and predictable manner until the Committee judges that the Federal Reserve is holding no more securities than necessary to implement monetary policy efficiently and effectively.

- Gradually reducing the Federal Reserve's securities holdings will result in a declining supply of reserve balances. The Committee currently antici-

[4] The Committee's Policy Normalization Principles and Plans were adopted on September 16, 2014, and are available at www.federalreserve.gov/monetarypolicy/files/FOMC_PolicyNormalization.pdf. On March 18, 2015, the Committee adopted an addendum to the Policy Normalization Principles and Plans, which is available at www.federalreserve.gov/monetarypolicy/files/FOMC_PolicyNormalization.20150318.pdf.

pates reducing the quantity of reserve balances, over time, to a level appreciably below that seen in recent years but larger than before the financial crisis; the level will reflect the banking system's demand for reserve balances and the Committee's decisions about how to implement monetary policy most efficiently and effectively in the future. The Committee expects to learn more about the underlying demand for reserves during the process of balance sheet normalization.

- The Committee affirms that changing the target range for the federal funds rate is its primary means of adjusting the stance of monetary policy. However, the Committee would be prepared to resume reinvestment of principal payments received on securities held by the Federal Reserve if a material deterioration in the economic outlook were to warrant a sizable reduction in the Committee's target for the federal funds rate. Moreover, the Committee would be prepared to use its full range of tools, including altering the size and composition of its balance sheet, if future economic conditions were to warrant a more accommodative monetary policy than can be achieved solely by reducing the federal funds rate.

Staff Review of the Economic Situation

The information reviewed for the June 13–14 meeting showed that labor market conditions continued to strengthen in recent months and suggested that real gross domestic product (GDP) was expanding at a faster pace in the second quarter than in the first quarter. The 12-month change in overall consumer prices, as measured by the price index for personal consumption expenditures (PCE), slowed a bit further in April; total consumer price inflation and core inflation, which excludes consumer food and energy prices, were both running somewhat below 2 percent. Survey-based measures of longer-run inflation expectations were little changed on balance.

Total nonfarm payroll employment expanded further in April and May, and the average pace of job gains over the first five months of the year was solid. The unemployment rate moved down to 4.3 percent in May; the unemployment rates for African Americans and for Hispanics stepped down but remained above the unemployment rates for Asians and for whites. The overall labor force participation rate declined somewhat, and the share of workers employed part time for economic reasons decreased a little. The rate of private-sector job openings increased in March and April, while the quits rate was little changed and the hiring rate moved down. The four-week moving average of initial claims for unemployment insurance benefits remained at a very low level through early June. Measures of labor compensation continued to rise at moderate rates. Compensation per hour in the nonfarm business sector increased 2¼ percent over the four quarters ending in the first quarter, a bit slower than over the same period a year earlier. Average hourly earnings for all employees increased 2½ percent over the 12 months ending in May, about the same as over the comparable period a year earlier.

Total industrial production rose considerably in April, reflecting gains in manufacturing, mining, and utilities output. Automakers' assembly schedules suggested that motor vehicle production would slow in subsequent months, but broader indicators of manufacturing production, such as the new orders indexes from national and regional manufacturing surveys, pointed to modest gains in factory output over the near term.

Real PCE rose solidly in April after increasing only modestly in the first quarter. Light motor vehicle sales picked up in April but then moved down somewhat in May. The components of the nominal retail sales data used by the Bureau of Economic Analysis to construct its estimate of PCE were flat in May, but estimated increases in these components of sales for the previous two months were revised up. In addition, recent readings on key factors that influence consumer spending pointed to further solid growth in total real PCE in the near term, including continued gains in employment, real disposable personal income, and households' net worth. Moreover, consumer sentiment, as measured by the University of Michigan Surveys of Consumers, remained upbeat in May.

Residential investment appeared to be slowing after increasing briskly in the first quarter. The first-quarter strength may have reflected housing activity shifting earlier in response to unseasonably warm weather last quarter, to an anticipation of higher future interest rates, or to both. Starts of new single-family homes edged up in April, but the issuance of building permits for these homes declined somewhat. Meanwhile, starts of multifamily units fell. Moreover, sales of both new and existing homes decreased in April.

Real private expenditures for business equipment and intellectual property seemed to be increasing further after rising at a solid pace in the first quarter. Both nominal shipments and new orders of nondefense capital goods excluding aircraft rose in April, and new orders continued to exceed shipments, pointing to further gains in shipments in the near term. In addition, indicators of business sentiment were upbeat in recent months. Although firms' nominal spending for nonresidential structures excluding drilling and mining declined in April, the number of oil and gas rigs in operation, an indicator of spending for structures in the drilling and mining sector, continued to rise through early June.

Nominal federal government spending data for April and May pointed to essentially flat real federal purchases in the second quarter. Real state and local government purchases appeared to be moving down, as state and local government payrolls declined, on net, in April and May, and nominal construction expenditures by these governments decreased in April.

The nominal U.S. international trade deficit widened slightly in March, with a small decline in exports and a small increase in imports. The March data, together with revised estimates for earlier months, indicated that real exports grew briskly in the first quarter and at a faster pace than in the second half of 2016. Real imports also increased in the first quarter but at a slower pace than in the second half of 2016. In April, the nominal trade deficit widened, as imports picked up while exports declined slightly. Net exports were estimated to have made a small positive contribution to real GDP growth in the first quarter. However, the April trade data suggested that net exports might be a slight drag on real GDP growth in the second quarter.

Total U.S. consumer prices, as measured by the PCE price index, increased 1¾ percent over the 12 months ending in April. Core PCE price inflation was 1½ percent over those same 12 months. Over the 12 months ending in May, the consumer price index (CPI) rose a little less than 2 percent, while core CPI inflation was 1¾ percent. The median of inflation expectations over the next 5 to 10 years from the Michigan survey was unchanged in May, and the median expectation for PCE price inflation over the next 10 years from the Survey of Professional Forecasters also held steady in the second quarter. Likewise, the medians of longer-run inflation expectations from the Desk's Survey of Primary Dealers and Survey of Market Participants were essentially unchanged in June.

The economic expansions in Canada and the euro area as well as in China and many other emerging market economies (EMEs) continued to firm in the first quarter. In contrast, economic growth in the United Kingdom slowed sharply. Recent indicators suggested that real GDP growth in most foreign economies remained solid in the second quarter. Headline inflation across the advanced foreign economies (AFEs) generally appeared to moderate from the pace registered over the first quarter, as the effects of earlier increases in energy prices started to fade; core inflation continued to be subdued in many AFEs. Among the EMEs, inflation in China rose while inflation in Latin America fell. In Mexico, the effects of fuel price hikes in January and the pass-through from earlier currency depreciation to prices started to wane, but inflation remained above the central bank's target.

Staff Review of the Financial Situation

Domestic financial market conditions remained generally accommodative over the intermeeting period. U.S. equity prices increased over the period, longer-term Treasury yields declined, and the dollar depreciated. A decline in the perceived likelihood of a significant fiscal expansion and the below-expectations reading on the April CPI reportedly contributed to lower yields on longer-tenor Treasury securities. Market participants' perceptions of an improved global economic outlook appeared to provide some support to prices of risk assets.

FOMC communications over the intermeeting period were viewed as broadly in line with investors' expectations that the Committee would continue to remove policy accommodation at a gradual pace. Market participants interpreted the May FOMC statement and the meeting minutes as indicating that the Committee had not materially changed its economic outlook. In response to the discussion of SOMA reinvestment policy in the minutes, a number of market participants reportedly pulled forward their expectations for the most likely timing of a change to the Committee's reinvestment policy, a shift that was evident in the responses to the Desk's Survey of Primary Dealers and Survey of Market Participants. However, investors also reportedly viewed the Committee's planning as mitigating the risk that the process of reducing the size of the Federal Reserve's balance sheet would lead to outsized movements in interest rates or have adverse effects on market functioning.

The probability of an increase in the target range for the federal funds rate occurring at the June meeting, as implied by quotes on federal funds futures contracts, rose to a high level. However, the expected federal funds rate from late 2018 to the end of 2020 implied by OIS quotes declined slightly. Immediately following the May FOMC meeting, nominal Treasury yields rose at short and intermediate maturities, reportedly reflecting the response of investors to a passage in the postmeeting statement indicating the Committee's view that the slowing in real GDP growth during the first quarter was likely to be transitory. Later in the intermeeting period, yields declined in reaction to the release of weaker-than-expected April CPI data and the somewhat disappointing May employment report. On balance, the Treasury yield curve flattened, with short-term yields rising modestly and the 10-year yield declining. Both 5-year and 5-to-10-year-forward TIPS-based inflation compensation declined, in part reflecting the below-expectations inflation data.

Broad U.S. equity price indexes increased. One-month-ahead option-implied volatility on the S&P 500 index—the VIX—was little changed, on net, and remained near the lower end of its historical range.

Conditions in short-term funding markets were stable over the intermeeting period. Yields on a broad set of money market instruments remained in the ranges observed since the FOMC increased the target range for the federal funds rate in March. Term OIS rates rose as expectations firmed for an increase in the federal funds rate target at this meeting.

Financing conditions for nonfinancial businesses continued to be accommodative. Commercial and industrial loans outstanding increased in April and May after being weak in the first quarter, although the growth of these loans remained well below the pace seen a year ago. Issuance of both corporate debt and equity was strong. Gross issuance of institutional leveraged loans was solid in April and May, although it receded from the near-record levels seen over the previous two months.

Commercial real estate (CRE) loans on banks' books grew robustly in April and May, with nonfarm nonresidential loans leading the expansion. However, recent CRE loan growth was a bit slower than that during the first quarter, in part reflecting a slowdown in lending for both construction and multifamily units. Issuance of commercial mortgage-backed securities (CMBS) through the first five months of this year was similar to the issuance over the same period a year earlier. While delinquency rates on CRE loans held by banks edged down further in the first quarter, the delinquency rates on loans in CMBS pools continued to increase. The rise in CMBS delinquency rates was mostly confined to loans that were originated during the period of weak underwriting before the financial crisis. The increase in those delinquencies had generally been expected by market participants and was not anticipated to have a material effect on credit availability or market conditions.

Residential mortgage rates declined slightly, in line with yields on longer-term Treasury and mortgage-backed securities, but remained elevated relative to the third quarter of 2016. Despite the higher level of mortgage rates, growth in mortgage lending for home purchases remained near the upper end of its recent range during the first quarter. Delinquency rates on residential mortgage loans continued to edge down amid robust house price growth and still-tight lending standards for households with low credit scores and hard-to-document incomes.

Financing conditions in consumer credit markets remained generally accommodative, although some indicators pointed to modest reductions in credit availability in recent months. Tighter conditions for credit card borrowing were especially apparent within the subprime segment, where there had been some further deterioration of credit performance. On a year-over-year basis, overall credit card balances continued to grow in April at a robust rate, although the pace had moderated a bit from that of 2016.

Growth in auto loans remained solid through the first quarter. Overall delinquency rates on auto loans continued to be relatively low, but the delinquency rate among subprime borrowers remained elevated, reflecting easier lending standards in 2015 and 2016. Recent evidence suggested that these lending standards had tightened; the credit rating of the average borrower had trended higher, and new extensions of subprime auto loans had declined.

Over the period since the May FOMC meeting, foreign financial markets were influenced by incoming economic data and by political developments both abroad and in the United States. Most AFE and EME equity indexes edged higher, supported by robust first-quarter earnings reports and generally positive data releases overseas. The broad U.S. dollar depreciated about 1¾ percent over the intermeeting

period, weakening against both AFE and EME currencies. In particular, the dollar depreciated against the Canadian dollar following communications by the Bank of Canada suggesting that the removal of policy accommodation could occur sooner than previously expected by market participants. The dollar also depreciated against the euro, which was supported by the results of the French presidential election and by stronger-than-expected macroeconomic releases. Those data releases prompted the European Central Bank at its June 8 meeting to change its assessment of risks to the economic outlook from "tilted to the downside" to "balanced." U.S. developments, including mixed economic data reports, also weighed on the dollar. In contrast, the dollar strengthened against sterling following the U.K. parliamentary election. Changes in longer-dated AFE sovereign bond yields were mixed, while shorter-dated yields moved slightly higher. EME sovereign spreads were little changed, while flows into EME mutual funds remained robust. However, Brazilian sovereign spreads widened and the Brazilian *real* depreciated notably amid increased political uncertainty.

Staff Economic Outlook

In the U.S. economic projection prepared by the staff for the June FOMC meeting, real GDP growth was forecast to step up to a solid pace in the second quarter following its weak reading in the first quarter, primarily reflecting faster real PCE growth. On balance, the incoming data on aggregate spending were a little stronger than the staff had expected, and the forecast of real GDP growth for the current year was a bit higher than in the previous projection. Beyond this year, the projection for real GDP growth was essentially unchanged. The staff continued to project that real GDP would expand at a modestly faster pace than potential output in 2017 through 2019, supported in part by the staff's maintained assumption that fiscal policy would become more expansionary in the coming years. The unemployment rate was projected to decline gradually over the next couple of years and to continue running below the staff's estimate of its longer-run natural rate over this period.

The staff's forecast for consumer price inflation, as measured by the change in the PCE price index, was revised down slightly for 2017 because of the weaker-than-expected incoming data for inflation. However, the projection was little changed thereafter, as the recent weakness in inflation was viewed as transitory. Inflation was still expected to be somewhat higher this year than last year, largely reflecting an upturn in the prices for food and non-energy imports. The staff projected that inflation would increase further in the next couple of years, and that it would be close to the Committee's longer-run objective in 2018 and at 2 percent in 2019.

The staff viewed the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as similar to the average of the past 20 years. Many financial market indicators of uncertainty were subdued, and the uncertainty associated with the foreign outlook appeared to have subsided further, on balance, since late last year; these developments were judged as counterweights to elevated measures of economic policy uncertainty. The staff saw the risks to the forecasts for real GDP and the unemployment rate as balanced; the staff's assessment was that the downside risks associated with monetary policy not being well positioned to respond to adverse shocks had diminished since its previous forecast. The risks to the projection for inflation also were seen as roughly balanced. The downside risks from the possibility that longer-term inflation expectations may have edged down or that the dollar could appreciate substantially were seen as essentially counterbalanced by the upside risk that inflation could increase more than expected in an economy that was projected to continue operating above its longer-run potential.

Participants' Views on Current Conditions and the Economic Outlook

In conjunction with this FOMC meeting, members of the Board of Governors and Federal Reserve Bank presidents submitted their projections of the most likely outcomes for real output growth, the unemployment rate, and inflation for each year from 2017 through 2019 and over the longer run, based on their individual assessments of the appropriate path for the federal funds rate.[5] The longer-run projections represented each participant's assessment of the rate to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy.[6]

5 Four members of the Board of Governors, one fewer than in March 2017, were in office at the time of the June 2017 meeting and submitted economic projections. The office of the president of the Federal Reserve Bank of Richmond was vacant at the time of this FOMC meeting; First Vice President Mark L. Mullinix submitted economic projections.

6 One participant did not submit longer-run projections for real output growth, the unemployment rate, or the federal funds rate.

These projections and policy assessments are described in the Summary of Economic Projections (SEP), which is an addendum to these minutes.

In their discussion of the economic situation and the outlook, meeting participants agreed that the information received over the intermeeting period indicated that the labor market had continued to strengthen and that economic activity had been rising moderately, on average, so far this year. Job gains had moderated since the beginning of the year but had remained solid, on average, and the unemployment rate had declined. Household spending had picked up in recent months, and business fixed investment had continued to expand. Inflation measured on a 12-month basis had declined recently and, like the measure excluding food and energy prices, had been running somewhat below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed on balance.

Participants generally saw the incoming information on spending and labor market indicators as consistent, overall, with their expectations and indicated that their views of the outlook for economic growth and the labor market had changed only slightly since the May FOMC meeting. As anticipated, growth in consumer spending seemed to have bounced back from a weak first quarter, and participants continued to expect that, with further gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace and labor market conditions would strengthen somewhat further. In light of surprisingly low recent readings on inflation, participants expected that inflation on a 12-month basis would remain somewhat below 2 percent in the near term. However, participants judged that inflation would stabilize around the Committee's 2 percent objective over the medium term.

Growth in consumer spending appeared to be rebounding after slowing in the first quarter of this year. Participants generally continued to expect that ongoing job gains, rising household income and wealth, and improved household balance sheets would support moderate growth in household spending over the medium term. However, District contacts reported that automobile sales had slowed recently; some contacts expected sales to slow further, while others believed that sales were leveling out.

Participants generally agreed that business fixed investment had continued to expand in recent months, supported in particular by a rebound in the energy sector. District contacts suggested that an expansion in oil production capacity was likely to continue in the near term, though the longer-term outlook was more uncertain. Conditions in the manufacturing sector in several Districts were reportedly strong, but activity in a couple of them had slowed in recent months from a high level, and some contacts in the automobile industry reported declines in production that they expected to continue in the near term. District reports regarding the service sector were generally positive. In contrast, contacts in a couple of Districts indicated that conditions in the agricultural sector remained weak. Contacts in many Districts remained optimistic about business prospects, which were supported in part by improving global conditions. However, this optimism appeared to have recently abated somewhat, partly because contacts viewed the likelihood of significant fiscal stimulus as having diminished. Contacts at some large firms indicated that they had curtailed their capital spending, in part because of uncertainty about changes in fiscal and other government policies; some contacts at smaller firms, however, indicated that their capital spending plans had not been appreciably affected by news about government policy. Reports regarding housing construction from District contacts were mixed.

Labor market conditions continued to strengthen in recent months. The unemployment rate fell from 4.5 percent in March to 4.3 percent in May and was below levels that participants judged likely to be normal over the longer run. Monthly increases in nonfarm payrolls averaged 160,000 since the beginning of the year, down from 187,000 per month in 2016 but still well above estimates of the pace necessary to absorb new entrants in the labor force. A few participants interpreted this slowing in payroll growth as an expected development that reflected a tight labor market. Other labor market indicators, such as the number of job openings and broader measures of unemployment, were also seen as consistent with labor market conditions having strengthened in recent months. Moreover, contacts in several Districts reported shortages of workers in selected occupations and in some cases indicated that firms were significantly increasing salaries and benefits in order to attract or keep workers. However, other contacts reported only modest wage gains, and participants observed that measures of labor compensation for the overall economy continued to rise only moderately despite strengthening labor market conditions. A couple of participants saw the restrained increases

in labor compensation as consistent with the low productivity growth and moderate inflation experienced in recent years. In light of the recent behavior of labor compensation and consumer prices as well as demographic trends, a number of participants lowered their estimate of the longer-run normal level of the unemployment rate.

Recent readings on headline and core PCE price inflation had come in lower than participants had expected. On a 12-month basis, headline PCE price inflation was running somewhat below the Committee's 2 percent objective in April, partly because of factors that appeared to be transitory. Core PCE price inflation—which historically has been a more useful predictor of future inflation, although it, too, can be affected by transitory factors—moved down from 1.8 percent in March to 1.5 percent in April. In addition, CPI inflation in May came in lower than expected. Most participants viewed the recent softness in these price data as largely reflecting idiosyncratic factors, including sharp declines in prices of wireless telephone services and prescription drugs, and expected these developments to have little bearing on inflation over the medium run. Participants continued to expect that, as the effects of transitory factors waned and labor market conditions strengthened further, inflation would stabilize around the Committee's 2 percent objective over the medium term. Several participants suggested that recent increases in import prices were consistent with this expectation. However, several participants expressed concern that progress toward the Committee's 2 percent longer-run inflation objective might have slowed and that the recent softness in inflation might persist. Such persistence might occur in part because upward pressure on inflation from resource utilization may be limited, as the relationship between these two variables appeared to be weaker than in previous decades. However, a couple of other participants raised the concern that a tighter relationship between inflation and resource utilization could reemerge if the unemployment rate ran significantly below its longer-run normal level, which could result in inflation running persistently above the Committee's 2 percent objective.

Overall, participants continued to see the near-term risks to the economic outlook as roughly balanced. Participants again noted the uncertainty regarding the possible enactment, timing, and nature of changes to fiscal and other government policies and saw both upside and downside risks to the economic outlook associated with such changes. A number of participants, pointing to improved prospects for foreign economic growth, viewed the downside risks to the U.S. economic outlook stemming from international developments as having receded further over the intermeeting period. With regard to the outlook for inflation, some participants emphasized downside risks, particularly in light of the recent low readings on inflation along with measures of inflation compensation and some survey measures of inflation expectations that were still low. However, a couple of participants expressed concern that a substantial undershooting of the longer-run normal rate of unemployment could pose an appreciable upside risk to inflation or give rise to macroeconomic or financial imbalances that eventually could lead to a significant economic downturn. Participants agreed that the Committee should continue to monitor inflation developments closely.

In their discussion of recent developments in financial markets, participants observed that, over the intermeeting period, equity prices rose, longer-term interest rates declined, and volatility in financial markets was generally low. They also noted that, according to some measures, financial conditions had eased even as the Committee reduced policy accommodation and market participants continued to expect further steps to tighten monetary policy. Participants discussed possible reasons why financial conditions had not tightened. Corporate earnings growth had been robust; nevertheless, in the assessment of a few participants, equity prices were high when judged against standard valuation measures. Longer-term Treasury yields had declined since earlier in the year and remained low. Participants offered various explanations for low bond yields, including the prospect of sluggish longer-term economic growth as well as the elevated level of the Federal Reserve's longer-term asset holdings. Some participants suggested that increased risk tolerance among investors might be contributing to elevated asset prices more broadly; a few participants expressed concern that subdued market volatility, coupled with a low equity premium, could lead to a buildup of risks to financial stability.

In their discussion of monetary policy, participants generally saw the outlook for economic activity and the medium-term outlook for inflation as little changed and viewed a continued gradual removal of monetary policy accommodation as being appropriate. Based on this assessment, almost all participants expressed the view that it would be appropriate for the Committee to raise the target range for the fed-

eral funds rate 25 basis points at this meeting. These participants agreed that, even after an increase in the target range for the federal funds rate at this meeting, the stance of monetary policy would remain accommodative, supporting additional strengthening in labor market conditions and a sustained return to 2 percent inflation. A few participants also judged that the case for a policy rate increase at this meeting was strengthened by the easing, by some measures, in overall financial conditions over the previous six months. One participant did not believe it was appropriate to raise the federal funds rate target range at this meeting; this participant suggested that the Committee should maintain the target range for the federal funds rate at ¾ to 1 percent until the inflation rate was actually moving toward the Committee's 2 percent longer-run objective.

Participants noted that, with the process of normalization of the level of the federal funds rate continuing, it would likely become appropriate this year for the Committee to announce and implement a specific timetable for its program of reducing reinvestment of the Federal Reserve's securities holdings. It was observed that the ensuing reduction in securities holdings would be gradual and would follow an extended period of Committee communications on balance sheet normalization policy, including the information that would be released at the conclusion of this meeting. Consequently, the effect on financial market conditions of the eventual announcement of the beginning of the Federal Reserve's balance sheet normalization was expected to be limited.

Participants expressed a range of views about the appropriate timing of a change in reinvestment policy. Several preferred to announce a start to the process within a couple of months; in support of this approach, it was noted that the Committee's communications had helped prepare the public for such a step. However, some others emphasized that deferring the decision until later in the year would permit additional time to assess the outlook for economic activity and inflation. A few of these participants also suggested that a near-term change to reinvestment policy could be misinterpreted as signifying that the Committee had shifted toward a less gradual approach to overall policy normalization.

Several participants indicated that the reduction in policy accommodation arising from the commencement of balance sheet normalization was one basis for believing that, if economic conditions evolved broadly as anticipated, the target range for the federal funds rate would follow a less steep path than it otherwise would. However, some other participants suggested that they did not see the balance sheet normalization program as a factor likely to figure heavily in decisions about the target range for the federal funds rate. A few of these participants judged that the degree of additional policy firming that would result from the balance sheet normalization program was modest.

Participants generally reiterated their support for continuing a gradual approach to raising the federal funds rate. Several participants expressed confidence that a series of further increases in the federal funds rate in coming years, along the lines implied by the medians of the projections for the federal funds rate in the June SEP, would contribute to a stabilization, over the medium term, of the inflation rate around the Committee's 2 percent objective, especially as this tightening of monetary policy would affect the economy only with a lag and would start from a point at which policy was still accommodative. However, a few participants who supported an increase in the target range at the present meeting indicated that they were less comfortable with the degree of additional policy tightening through the end of 2018 implied by the June SEP median federal funds rate projections. These participants expressed concern that such a path of increases in the policy rate, while gradual, might prove inconsistent with a sustained return of inflation to 2 percent.

Several participants endorsed a policy approach, such as that embedded in many participants' projections, in which the unemployment rate would undershoot their current estimates of the longer-term normal rate for a sustained period. They noted that the longer-run normal rate of unemployment is difficult to measure and that recent evidence suggested resource pressures generated only modest responses of nominal wage growth and inflation. Against this backdrop, possible benefits cited by policymakers of a period of tight labor markets included a further rise in nominal wage growth that would bolster inflation expectations and help push the inflation rate closer to the Committee's 2 percent longer-run goal, as well as a stimulus to labor market participation and business fixed investment. It was also suggested that the symmetry of the Committee's inflation goal might be underscored if inflation modestly exceeded 2 percent for a time, as such an outcome would follow a long period in which inflation had undershot the 2 percent longer-term objective. Several participants expressed concern that a substantial and sustained unemploy-

ment undershooting might make the economy more likely to experience financial instability or could lead to a sharp rise in inflation that would require a rapid policy tightening that, in turn, could raise the risk of an economic downturn. However, other participants noted that if a sharp rise in inflation or inflation expectations did occur, the Committee could readily respond using conventional monetary policy tools. With regard to financial stability, one participant emphasized the importance of remaining vigilant about financial developments but observed that previous episodes of elevated financial imbalances and low unemployment had limited relevance for the present situation, as the current system of financial regulation was likely more robust than that prevailing before the financial crisis.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members judged that information received since the Federal Open Market Committee met in May indicated that the labor market had continued to strengthen and that economic activity had been rising moderately so far this year. Job gains had moderated but had been solid, on average, since the beginning of the year, and the unemployment rate had declined. Household spending had picked up in recent months, and business fixed investment had continued to expand.

Inflation on a 12-month basis had declined recently and was running somewhat below 2 percent. The measure of inflation excluding food and energy prices was likewise running somewhat below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations had changed little on balance.

With respect to the economic outlook and its implications for monetary policy, members continued to expect that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace, and labor market conditions would strengthen somewhat further. Inflation on a 12-month basis was expected to remain somewhat below 2 percent in the near term, but almost all members expected it to stabilize around 2 percent over the medium term, although they were monitoring inflation developments closely. Members continued to judge that there was significant uncertainty about the effects of possible changes in fiscal and other government policies but that near-term risks to the economic outlook appeared roughly balanced, especially as risks related to foreign economic and financial developments had diminished.

After assessing current conditions and the outlook for economic activity, the labor market, and inflation, all but one member agreed to raise the target range for the federal funds rate to 1 to 1¼ percent. They noted that the stance of monetary policy remained accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.

Members agreed that, in determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee would assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. Members also agreed that they would carefully monitor actual and expected developments in inflation in relation to the Committee's symmetric inflation goal. They expected that economic conditions would evolve in a manner that would warrant gradual increases in the federal funds rate, and they agreed that the federal funds rate was likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate would depend on the economic outlook as informed by incoming data.

The Committee also decided to maintain its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction. The Committee expected to begin implementing a balance sheet normalization program in 2017, provided that the economy evolves broadly as anticipated. This program, which would gradually reduce the Federal Reserve's securities holdings by decreasing reinvestment of principal payments from those securities, was described in an addendum to the Committee's Policy Normalization Principles and Plans to be released after this meeting.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until it was instructed otherwise, to execute transactions in the SOMA in accordance

with the following domestic policy directive, to be released at 2:00 p.m.:

"Effective June 15, 2017, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 1 to 1¼ percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 1.00 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.

The Committee directs the Desk to continue rolling over maturing Treasury securities at auction and to continue reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

"Information received since the Federal Open Market Committee met in May indicates that the labor market has continued to strengthen and that economic activity has been rising moderately so far this year. Job gains have moderated but have been solid, on average, since the beginning of the year, and the unemployment rate has declined. Household spending has picked up in recent months, and business fixed investment has continued to expand. On a 12-month basis, inflation has declined recently and, like the measure excluding food and energy prices, is running somewhat below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.

Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee continues to expect that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, and labor market conditions will strengthen somewhat further. Inflation on a 12-month basis is expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee's 2 percent objective over the medium term. Near-term risks to the economic outlook appear roughly balanced, but the Committee is monitoring inflation developments closely.

In view of realized and expected labor market conditions and inflation, the Committee decided to raise the target range for the federal funds rate to 1 to 1¼ percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.

In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.

The Committee is maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction. The Committee currently expects to begin implementing a balance sheet normalization program this year, provided that the economy evolves broadly as anticipated. This program, which would gradually reduce the Federal Reserve's securities holdings by decreasing reinvestment of principal payments from

those securities, is described in the accompanying addendum to the Committee's Policy Normalization Principles and Plans."

Voting for this action: Janet L. Yellen, William C. Dudley, Lael Brainard, Charles L. Evans, Stanley Fischer, Patrick Harker, Robert S. Kaplan, and Jerome H. Powell.

Voting against this action: Neel Kashkari.

Mr. Kashkari dissented because he preferred to maintain the existing target range for the federal funds rate at this meeting. In his view, recent data, while suggesting that the labor market had improved further, had increased doubts about achievement of the Committee's 2 percent longer-run inflation objective and thus had not provided a compelling basis on which to firm monetary policy at this meeting. He preferred to await additional evidence that the recent decline in inflation was temporary and that inflation was moving toward the Committee's symmetric 2 percent inflation objective. He was concerned that raising the federal funds rate target range too soon increased the likelihood that inflation expectations would decline and that inflation would continue to run below 2 percent.

To support the Committee's decision to raise the target range for the federal funds rate, the Board of Governors voted unanimously to raise the interest rates on required and excess reserve balances ¼ percentage point, to 1¼ percent, effective June 15, 2017. The Board of Governors also voted unanimously to approve a ¼ percentage point increase in the primary credit rate (discount rate) to 1¾ percent, effective June 15, 2017.[7]

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, July 25–26, 2017. The meeting adjourned at 10:35 a.m. on June 14, 2017.

Notation Vote

By notation vote completed on May 23, 2017, the Committee unanimously approved the minutes of the Committee meeting held on May 2–3, 2017.

Brian F. Madigan
Secretary

[7] In taking this action, the Board approved requests submitted by the boards of directors of the Federal Reserve Banks of Boston, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, Kansas City, Dallas, and San Francisco. This vote also encompassed approval by the Board of Governors of the establishment of a 1¾ percent primary credit rate by the remaining Federal Reserve Banks, effective on the later of June 15, 2017, and the date such Reserve Banks informed the Secretary of the Board of such a request. (Secretary's note: Subsequently, the Federal Reserve Banks of New York, St. Louis, and Minneapolis were informed by the Secretary of the Board of the Board's approval of their establishment of a primary credit rate of 1¾ percent, effective June 15, 2017.) The second vote of the Board also encompassed approval of the establishment of the interest rates for secondary and seasonal credit under the existing formulas for computing such rates.

Addendum: Summary of Economic Projections

In conjunction with the Federal Open Market Committee (FOMC) meeting held on June 13–14, 2017, meeting participants submitted their projections of the most likely outcomes for real output growth, the unemployment rate, and inflation for each year from 2017 to 2019 and over the longer run.[8] Each participant's projection was based on information available at the time of the meeting, together with his or her assessment of appropriate monetary policy, including a path for the federal funds rate and its longer-run value, and assumptions about other factors likely to affect economic outcomes.[9] The longer-run projections represent each participant's assessment of the value to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy.[10] "Appropriate monetary policy" is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her individual interpretation of the Federal Reserve's objectives of maximum employment and stable prices.

All participants who submitted longer-run projections expected that, under appropriate monetary policy, growth in real gross domestic product (GDP) this year would run somewhat above their individual estimates of its longer-run rate. Over half of these participants expected that economic growth would slow a bit in 2018, and almost all of them expected that in 2019 economic growth would run at or near its longer-run level. All participants who submitted longer-run projections expected that the unemployment rate would run below their estimates of its longer-run normal level in 2017 and remain below that level through 2019. The majority of participants also lowered their estimates of the longer-run normal rate of unemployment by 0.1 to 0.2 percentage point. All participants projected that inflation, as measured by the four-quarter percentage change in the price index for personal consumption expenditures (PCE), would run below 2 percent in 2017 and then step up in the next two years; over half of them projected that inflation would be at the Committee's 2 percent objective in 2019, and all judged that inflation would be within a couple of tenths of a percentage point of the objective in that year. Table 1 and figure 1 provide summary statistics for the projections.

As shown in figure 2, participants generally expected that evolving economic conditions would likely warrant further gradual increases in the federal funds rate to achieve and sustain maximum employment and 2 percent inflation. Although some participants raised or lowered their federal funds rate projections since March, the median projections for the federal funds rate in 2017 and 2018 were essentially unchanged, and the median projection in 2019 was slightly lower; the median projection for the longer-run federal funds rate was unchanged. However, the economic outlook is uncertain, and participants noted that their economic projections and assessments of appropriate monetary policy could change in response to incoming information.

In general, participants viewed the uncertainty attached to their projections as broadly similar to the average of the past 20 years, although a couple of participants saw the uncertainty associated with their real GDP growth forecasts as higher than average. Most participants judged the risks around their projections for economic growth, the unemployment rate, and inflation as broadly balanced.

Figures 4.A through 4.C for real GDP growth, the unemployment rate, and inflation, respectively, present "fan charts" as well as charts of participants' current assessments of the uncertainty and risks surrounding the economic projections. The fan charts (the panels at the top of these three figures) show the median projections surrounded by confidence intervals that are computed from the forecast errors of various private and government projections made over the past 20 years. The width of the confidence interval for each variable at a given point is a measure of forecast uncertainty at that horizon. For all three macroeconomic variables, these charts illustrate that forecast uncertainty is substantial and generally increases as the forecast horizon lengthens. Reflecting, in part, the uncertainty about the future evolution of GDP growth, the unemployment rate, and inflation, participants' assessments of appropriate monetary policy are also subject to considerable

[8] Four members of the Board of Governors, one fewer than in March 2017, were in office at the time of the June 2017 meeting and submitted economic projections. The office of the president of the Federal Reserve Bank of Richmond was vacant at the time of this FOMC meeting; First Vice President Mark L. Mullinix submitted economic projections.

[9] All participants submitted their projections in advance of the FOMC meeting; no projections were revised following the release of economic data on the morning of June 14.

[10] One participant did not submit longer-run projections for real output growth, the unemployment rate, or the federal funds rate.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assessments of projected appropriate monetary policy, June 2017

Percent

Variable	Median[1]				Central tendency[2]				Range[3]			
	2017	2018	2019	Longer run	2017	2018	2019	Longer run	2017	2018	2019	Longer run
Change in real GDP	2.2	2.1	1.9	1.8	2.1–2.2	1.8–2.2	1.8–2.0	1.8–2.0	2.0–2.5	1.7–2.3	1.4–2.3	1.5–2.2
March projection	2.1	2.1	1.9	1.8	2.0–2.2	1.8–2.3	1.8–2.0	1.8–2.0	1.7–2.3	1.7–2.4	1.5–2.2	1.6–2.2
Unemployment rate	4.3	4.2	4.2	4.6	4.2–4.3	4.0–4.3	4.1–4.4	4.5–4.8	4.1–4.5	3.9–4.5	3.8–4.5	4.5–5.0
March projection	4.5	4.5	4.5	4.7	4.5–4.6	4.3–4.6	4.3–4.7	4.7–5.0	4.4–4.7	4.2–4.7	4.1–4.8	4.5–5.0
PCE inflation	1.6	2.0	2.0	2.0	1.6–1.7	1.8–2.0	2.0–2.1	2.0	1.5–1.8	1.7–2.1	1.8–2.2	2.0
March projection	1.9	2.0	2.0	2.0	1.8–2.0	1.9–2.0	2.0–2.1	2.0	1.7–2.1	1.8–2.1	1.8–2.2	2.0
Core PCE inflation[4]	1.7	2.0	2.0		1.6–1.7	1.8–2.0	2.0–2.1		1.6–1.8	1.7–2.1	1.8–2.2	
March projection	1.9	2.0	2.0		1.8–1.9	1.9–2.0	2.0–2.1		1.7–2.0	1.8–2.1	1.8–2.2	
Memo: Projected appropriate policy path												
Federal funds rate	1.4	2.1	2.9	3.0	1.1–1.6	1.9–2.6	2.6–3.1	2.8–3.0	1.1–1.6	1.1–3.1	1.1–4.1	2.5–3.5
March projection	1.4	2.1	3.0	3.0	1.4–1.6	2.1–2.9	2.6–3.3	2.8–3.0	0.9–2.1	0.9–3.4	0.9–3.9	2.5–3.8

Note: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The March projections were made in conjunction with the meeting of the Federal Open Market Committee on March 14–15, 2017. One participant did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate in conjunction with the March 14–15, 2017, meeting, and one participant did not submit such projections in conjunction with the June 13–14, 2017, meeting.

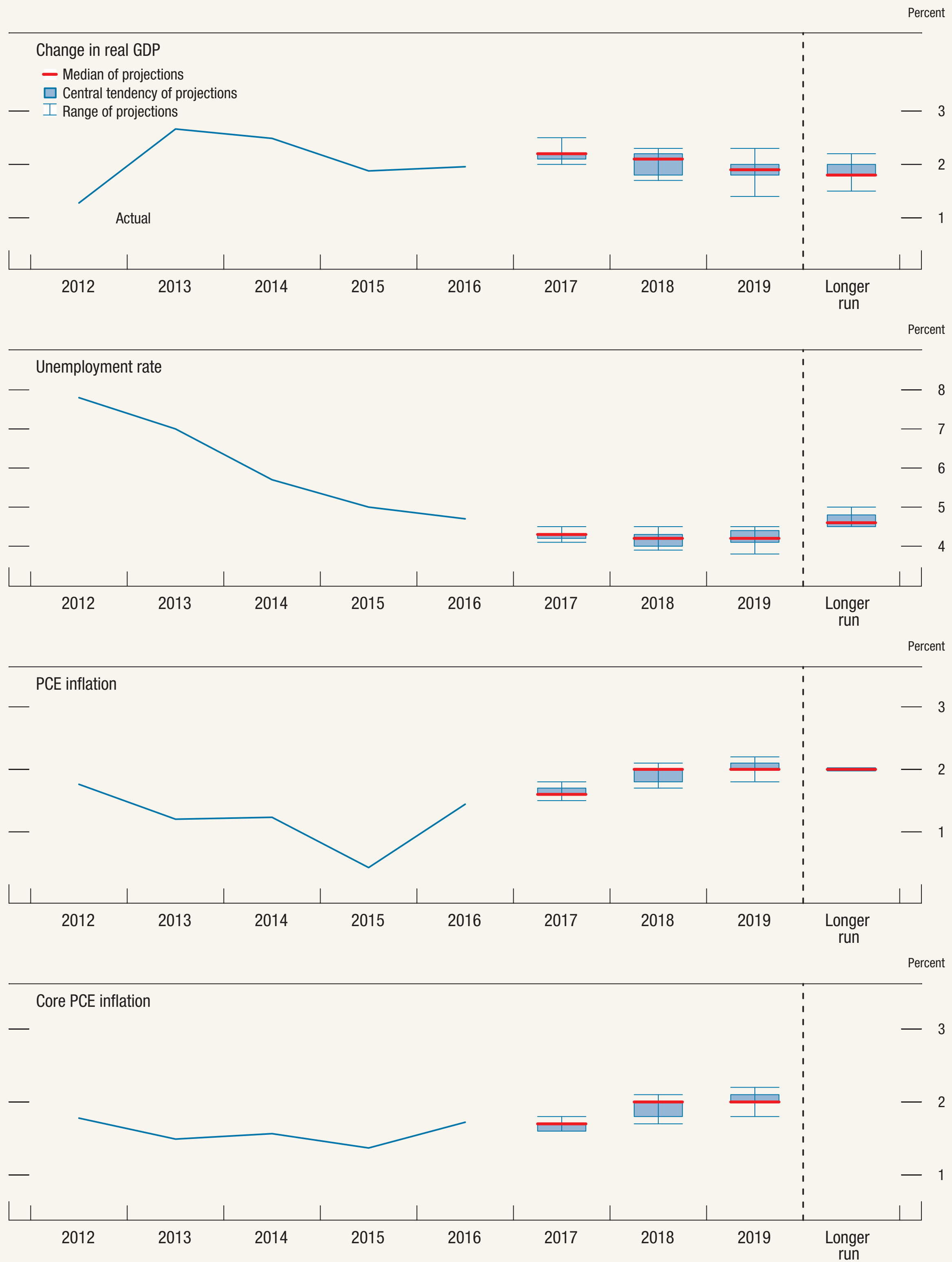
1 For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.

2 The central tendency excludes the three highest and three lowest projections for each variable in each year.

3 The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.

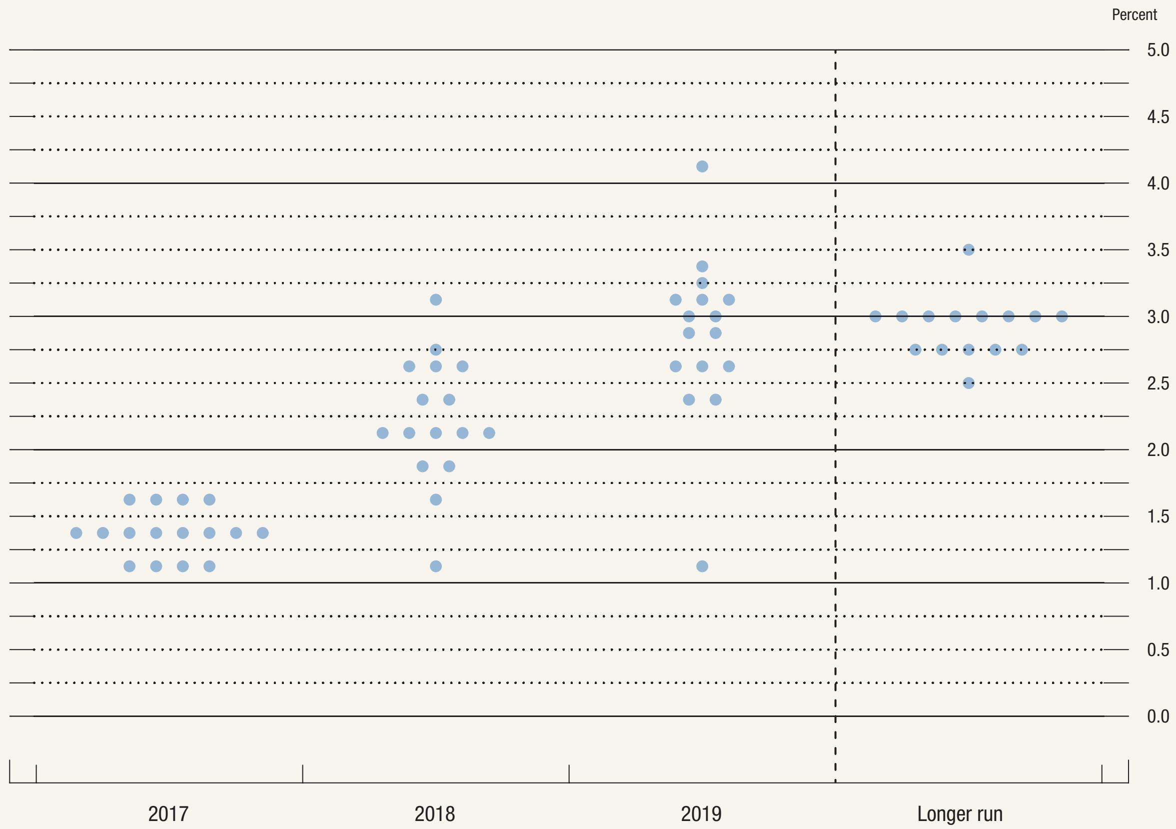
4 Longer-run projections for core PCE inflation are not collected.

Figure 1. Medians, central tendencies, and ranges of economic projections, 2017–19 and over the longer run



Note: Definitions of variables and other explanations are in the notes to table 1. The data for the actual values of the variables are annual.

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate



Note: Each shaded circle indicates the value (rounded to the nearest ⅛ percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. One participant did not submit longer-run projections for the federal funds rate.

uncertainty. To illustrate the uncertainty regarding the appropriate path for monetary policy, figure 5 shows a comparable fan chart around the median projections for the federal funds rate.[11] As with the macroeconomic variables, forecast uncertainty for the federal funds rate is substantial and increases at longer horizons.

The Outlook for Economic Activity

The median of participants' projections for the growth rate of real GDP, conditional on their individual assumptions about appropriate monetary policy, was 2.2 percent in 2017, 2.1 percent in 2018, and 1.9 percent in 2019; the median of projections for the longer-run normal rate of real GDP growth was 1.8 percent. Compared with the March Summary of Economic Projections (SEP), the medians of the forecasts for real GDP growth over the period from 2017 to 2019, as well as the median assessment of the longer-run growth rate, were mostly unchanged. Fewer than half of the participants incorporated expectations of fiscal stimulus into their projections, and a couple indicated that they had marked down the magnitude of expected fiscal stimulus relative to March.

All participants revised down their projections for the unemployment rate in the fourth quarter of 2017 and of 2018, and almost all also revised down their projections for the unemployment rate in the fourth quarter of 2019. Many who did so cited recent lower-than-expected readings on unemployment. The median of the projections for the unemployment rate was 4.3 percent in 2017 and 4.2 percent in each of 2018 and 2019, 0.2 percentage point and 0.3 percentage point lower than in the March projections, respectively. The majority of participants also revised down their estimates of the longer-run normal rate of unemployment by 0.1 or 0.2 percentage point, and the median longer-run level was 4.6 percent, down 0.1 percentage point from March.

Figures 3.A and 3.B show the distributions of participants' projections for real GDP growth and the unemployment rate from 2017 to 2019 and in the longer run. The distribution of individual projections for real GDP growth for this year shifted up, with some participants now expecting real GDP growth between 2.4 and 2.5 percent and none seeing it below 2 percent. The distributions of projected real GDP growth in 2018, 2019, and in the longer run were broadly similar to the distributions of the March projections. The distributions of individual projections for the unemployment rate shifted down noticeably for 2017 and 2018. Most participants projected an unemployment rate of 4.2 or 4.3 percent at the end of this year, and the majority anticipated an unemployment rate between 4.0 and 4.3 percent at the end of 2018. Participants' projections also shifted down in 2019 but were more dispersed than the distributions of their projected unemployment rates in the two earlier years. The distribution of projections for the longer-run normal unemployment rate shifted down modestly.

The Outlook for Inflation

The median of projections for headline PCE price inflation this year was 1.6 percent, down 0.3 percentage point from March. As in March, median projected inflation was 2.0 percent in 2018 and 2019. About half of the participants anticipated that inflation would continue to run a bit below 2 percent in 2018, while only one participant expected inflation above 2 percent in that year—and, in that case, just modestly so. More than half projected that inflation would be equal to the Committee's objective in 2019. A few participants projected that inflation would run slightly below 2 percent in that year, while several projected that it would run a little above 2 percent. The median of projections for core PCE price inflation was 1.7 percent in 2017, a decline of 0.2 percentage point from March; the median projection for 2018 and 2019 was 2.0 percent, as in the March projections.

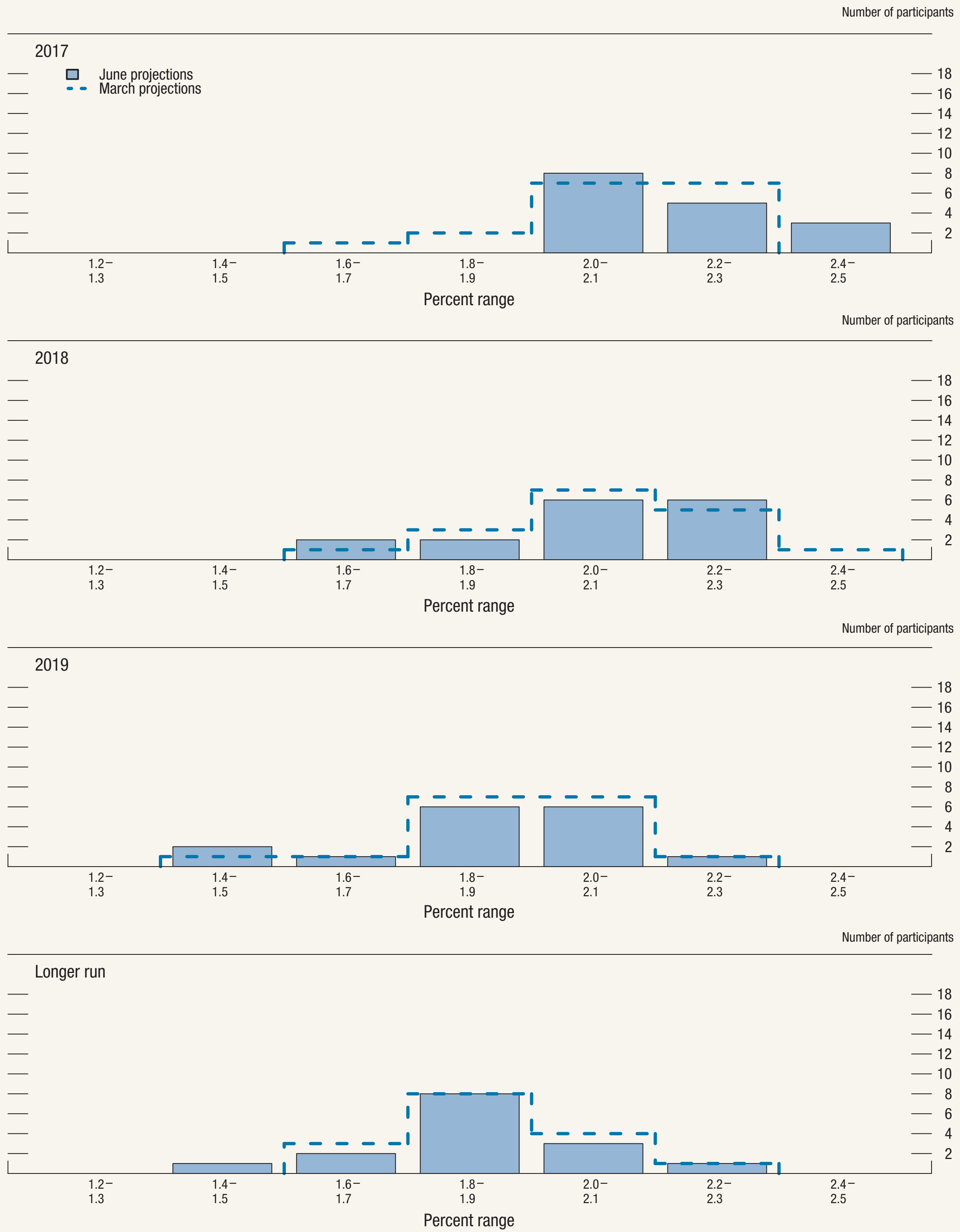
Figures 3.C and 3.D provide information on the distributions of participants' views about the outlook for inflation. The distributions of projections for headline PCE price inflation and for core PCE price inflation in 2017 shifted down noticeably from March, while the distributions for both measures of inflation in 2018 shifted down slightly. Many participants cited recent surprisingly low readings on inflation as a factor contributing to the revisions in their inflation forecasts.

Appropriate Monetary Policy

Figure 3.E provides the distribution of participants' judgments regarding the appropriate target or mid-

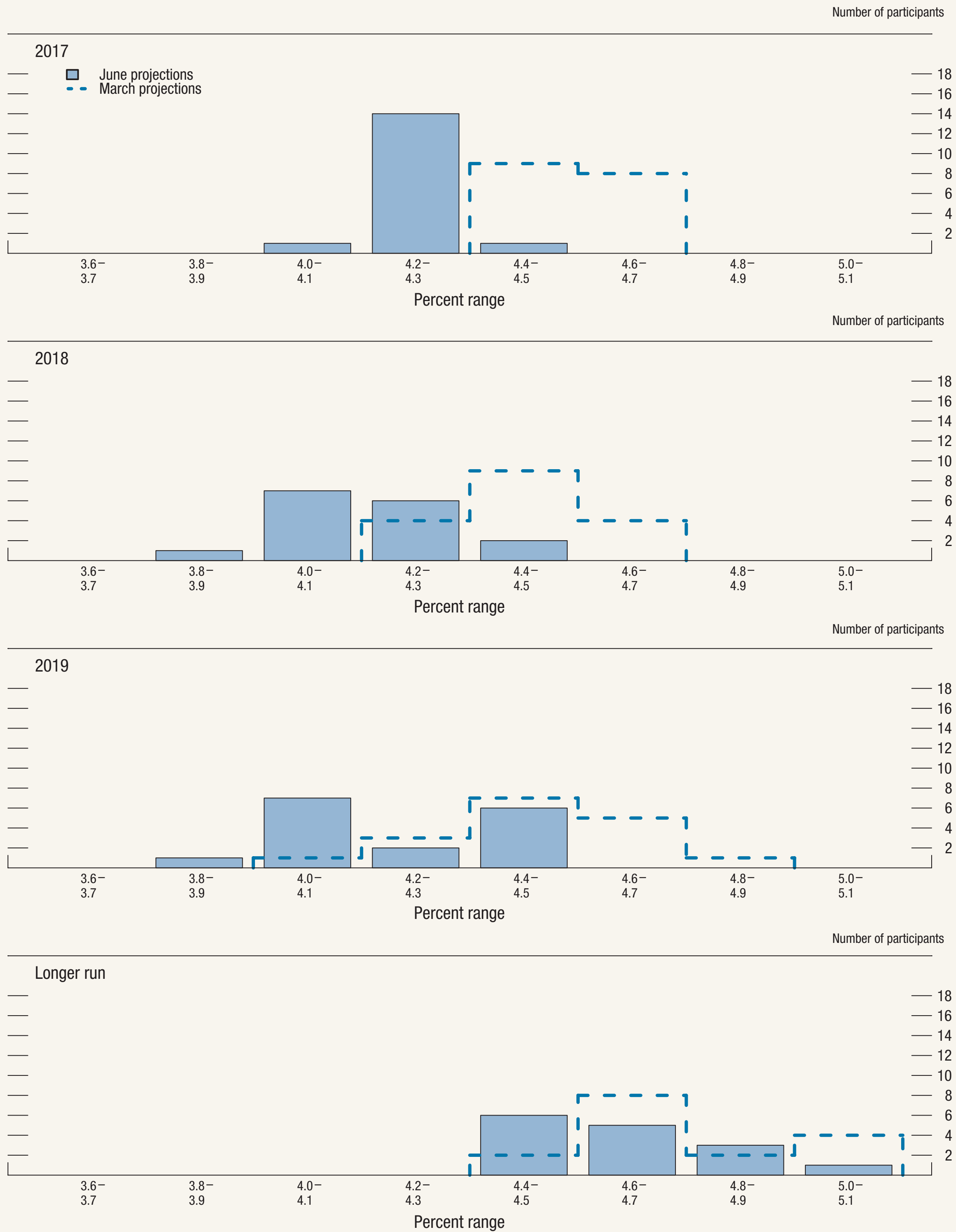
[11] The fan chart for the federal funds rate depicts the uncertainty about the future path of appropriate monetary policy and is closely connected with the uncertainty about the future value of economic variables. In contrast, the dot plot shown in figure 2 displays the dispersion of views across individual participants about the appropriate level of the federal funds rate.

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2017–19 and over the longer run



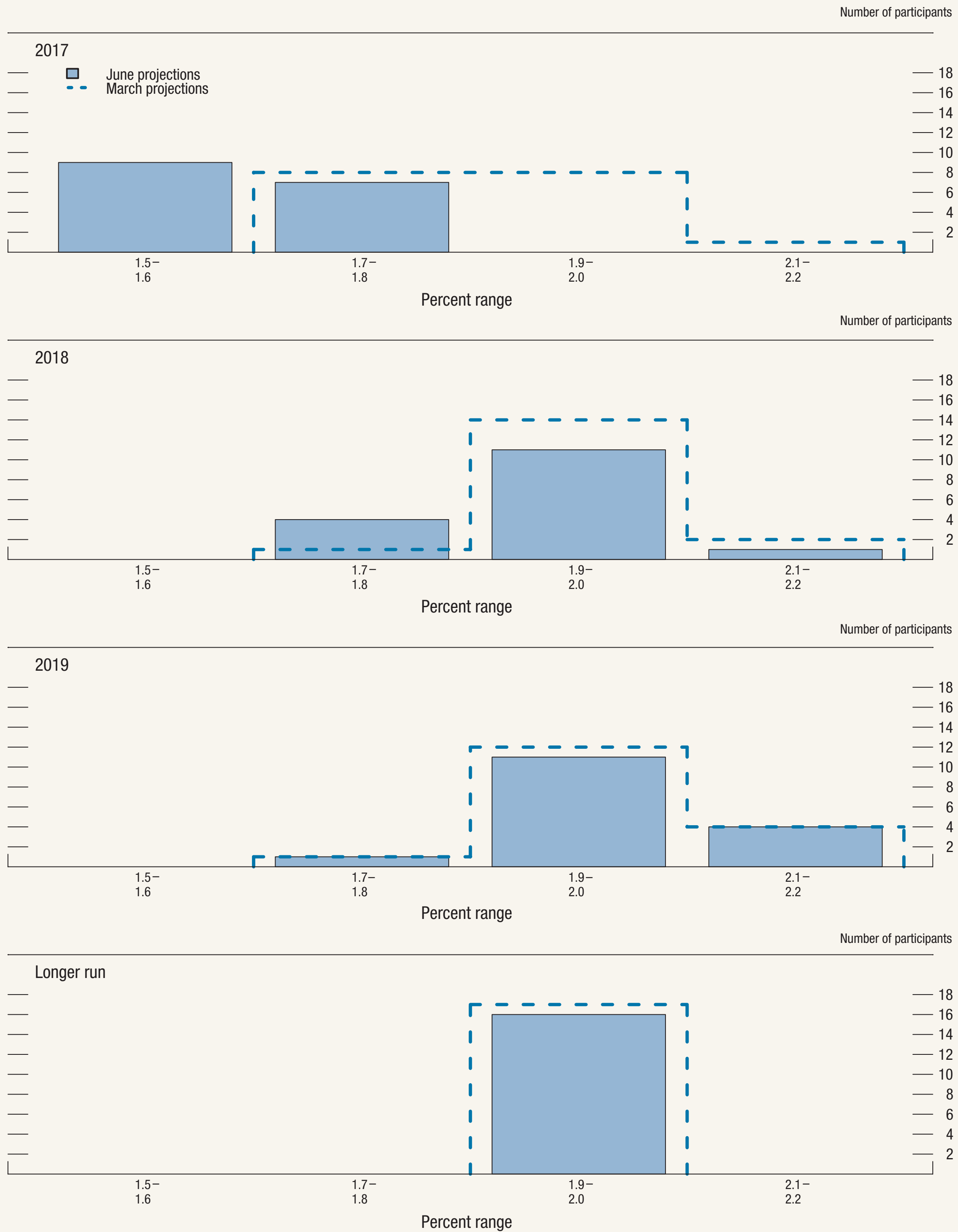
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2017–19 and over the longer run



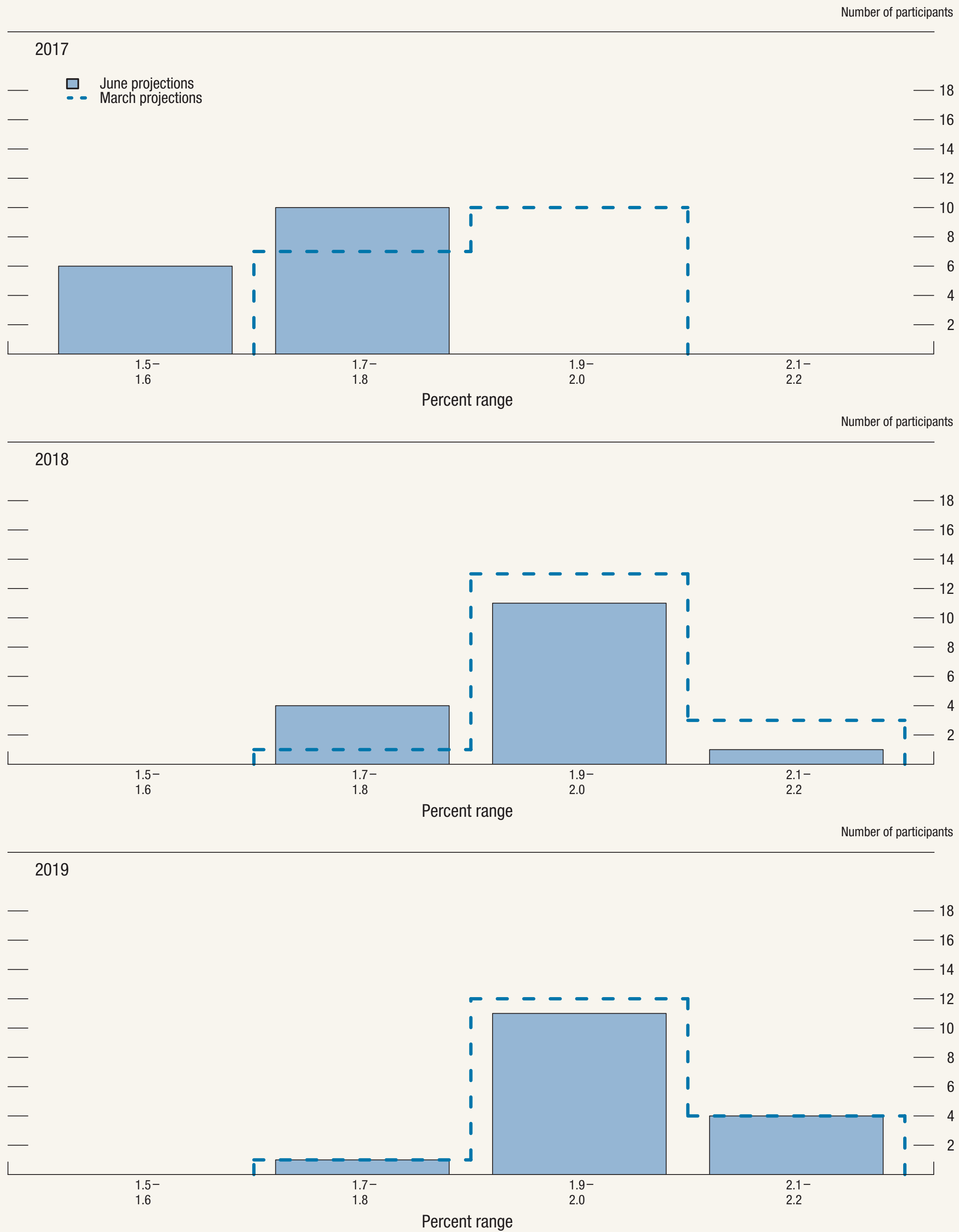
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2017–19 and over the longer run



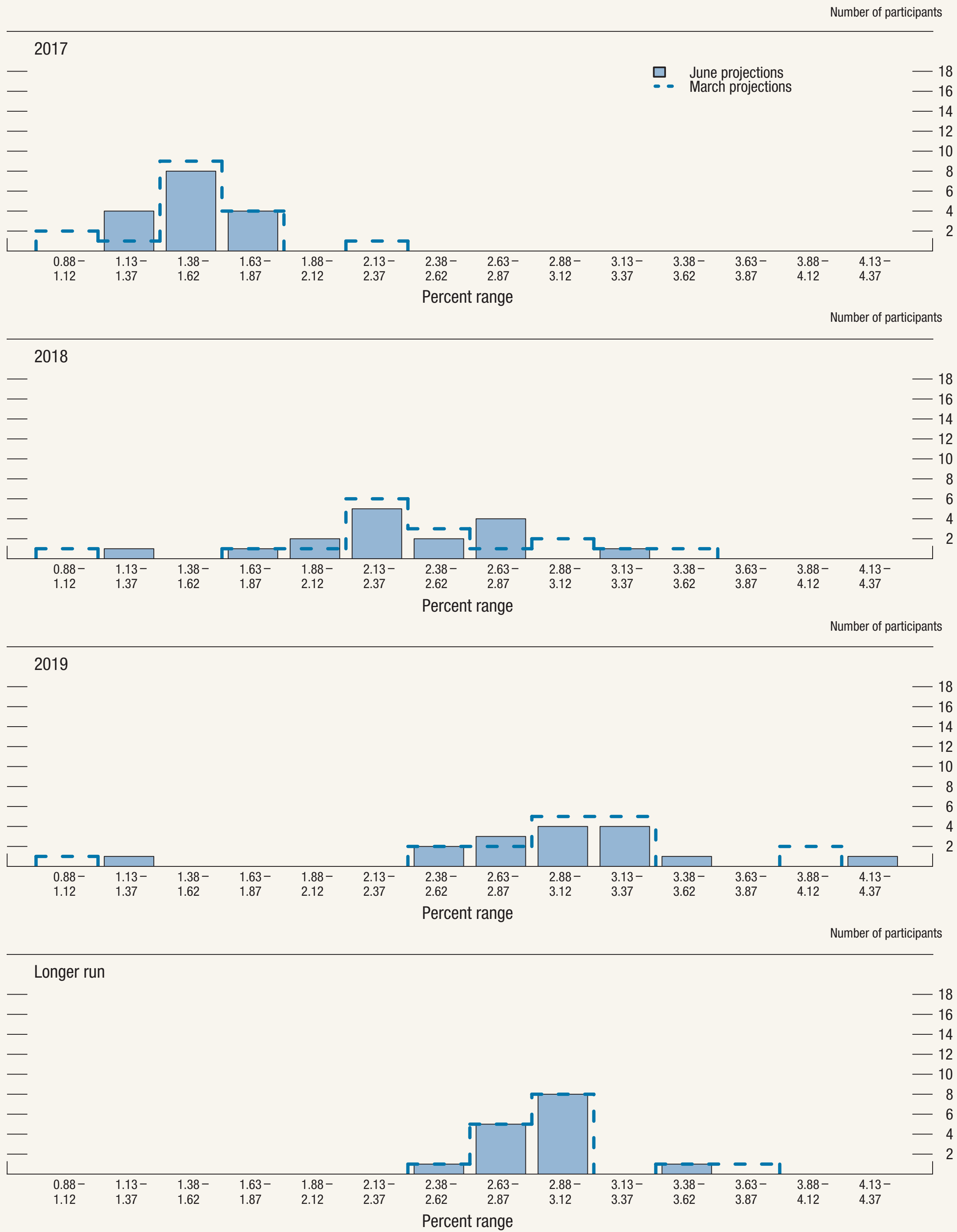
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2017–19



Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.E. Distribution of participants' judgments of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate, 2017–19 and over the longer run



Note: Definitions of variables and other explanations are in the notes to table 1.

point of the target range for the federal funds rate at the end of each year from 2017 to 2019 and over the longer run.[12] The distribution for 2017 was less dispersed than that in March, while the distribution for 2018 was slightly less dispersed. The distributions in 2019 and in the longer run were broadly similar to those in March. The median projections of the federal funds rate continued to show gradual increases, with the median assessment for 2017 standing at 1.38 percent, consistent with three 25 basis point increases this year. Thereafter, the medians of the projections were 2.13 percent at the end of 2018 and 2.94 percent at the end of 2019; the median of the longer-run projections of the federal funds rate was 3.00 percent.

In discussing their June projections, many participants continued to express the view that the appropriate upward trajectory of the federal funds rate over the next few years would likely be gradual. That anticipated pace reflected a few factors, such as a neutral real interest rate that was currently low and was expected to move up only slowly as well as a gradual return of inflation to the Committee's 2 percent objective. Several participants judged that a slightly more accommodative path of monetary policy than in their previous projections would likely be appropriate, citing an apparently slower rate of progress toward the Committee's 2 percent inflation objective. In their discussions of appropriate monetary policy, half of the participants commented on the Committee's reinvestment policy; all of those who did so expected a change in reinvestment policy before the end of this year.

Uncertainty and Risks

Projections of economic variables are subject to considerable uncertainty. In assessing the path of monetary policy that, in their view, is likely to be most appropriate, FOMC participants take account of the range of possible outcomes, the likelihood of those outcomes, and the potential benefits and costs to the economy should they occur. Table 2 provides one measure of forecast uncertainty for the change in real GDP, the unemployment rate, and total consumer price inflation—the root mean squared error (RMSE) for forecasts made over the past 20 years. This measure of forecast uncertainty is incorporated graphically in the top panels of figures 4.A, 4.B, and 4.C, which display fan charts plotting the median SEP projections for the three variables surrounded by symmetric confidence intervals derived from the RMSEs presented in table 2. If the degree of uncertainty attending these projections is similar to the typical magnitude of past forecast errors and if the risks around the projections are broadly balanced, future outcomes of these variables would have about a 70 percent probability of occurring within these confidence intervals. For all three variables, this measure of forecast uncertainty is substantial and generally increases as the forecast horizon lengthens.

FOMC participants may judge that the width of the historical fan charts shown in figures 4.A through 4.C does not adequately capture their current assessments of the degree of uncertainty that surrounds their economic projections. Participants' assessments of the current level of uncertainty surrounding their economic projections are shown in the bottom-left panels of figures 4.A, 4.B, and 4.C. All or nearly all participants viewed the uncertainty attached to their economic projections as broadly similar to the average of the past 20 years, with three fewer participants

Table 2. Average historical projection error ranges
Percentage points

Variable	2017	2018	2019
Change in real GDP[1]	±1.4	±2.0	±2.2
Unemployment rate[1]	±0.4	±1.2	±1.8
Total consumer prices[2]	±0.8	±1.0	±1.0
Short-term interest rates[3]	±0.7	±2.0	±2.2

Note: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1997 through 2016 that were released in the summer by various private and government forecasters. As described in the box "Forecast Uncertainty," under certain assumptions, there is about a 70 percent probability that actual outcomes for real GDP, unemployment, consumer prices, and the federal funds rate will be in ranges implied by the average size of projection errors made in the past. For more information, see David Reifschneider and Peter Tulip (2017), "Gauging the Uncertainty of the Economic Outlook Using Historical Forecasting Errors: The Federal Reserve's Approach," Finance and Economics Discussion Series 2017-020 (Washington: Board of Governors of the Federal Reserve System, February), available at www.federalreserve.gov/econresdata/feds/2017/files/2017020pap.pdf.

1 Definitions of variables are in the general note to table 1.

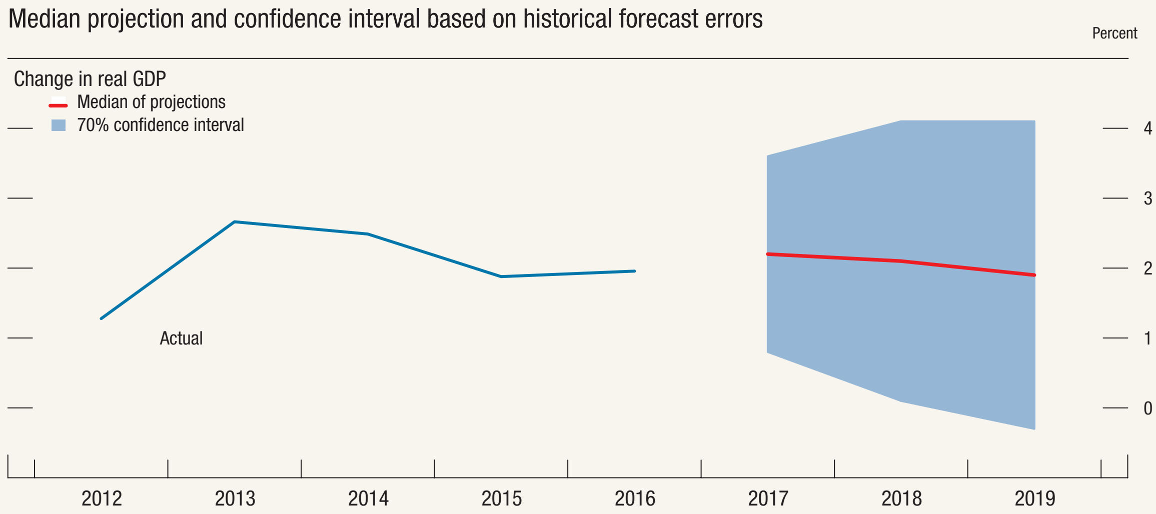
2 Measure is the overall consumer price index, the price measure that has been most widely used in government and private economic forecasts. Projection is percent change, fourth quarter of the previous year to the fourth quarter of the year indicated.

3 For Federal Reserve staff forecasts, measure is the federal funds rate. For other forecasts, measure is the rate on 3-month Treasury bills. Historical projections are the average level, in percent, in the fourth quarter of the year indicated.

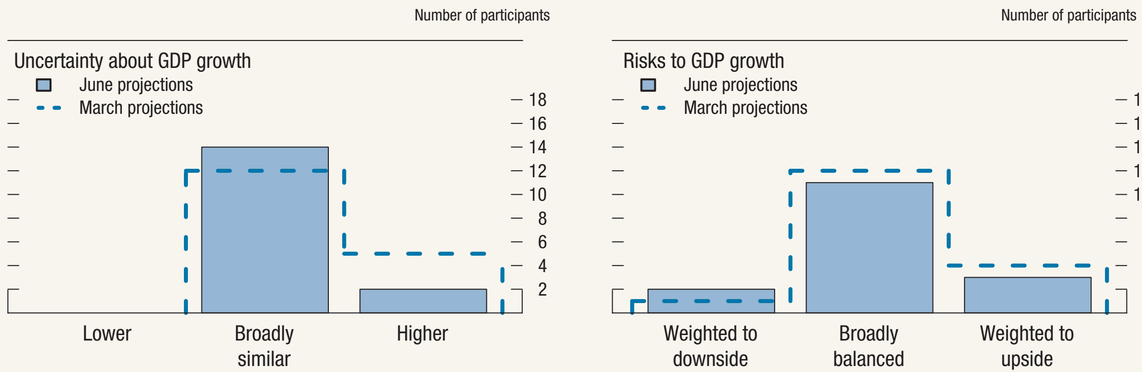
12 One participant's projections for the federal funds rate, real GDP growth, the unemployment rate, and inflation were informed by the view that there are multiple possible medium-term regimes for the U.S. economy, that these regimes are persistent, and that the economy shifts between regimes in a way that cannot be forecast. Under this view, the economy currently is in a regime characterized by expansion of economic activity with low productivity growth and a low short-term real interest rate, but longer-term outcomes for variables other than inflation cannot be usefully projected.

Figure 4.A. Uncertainty and risks in projections of GDP growth

Median projection and confidence interval based on historical forecast errors

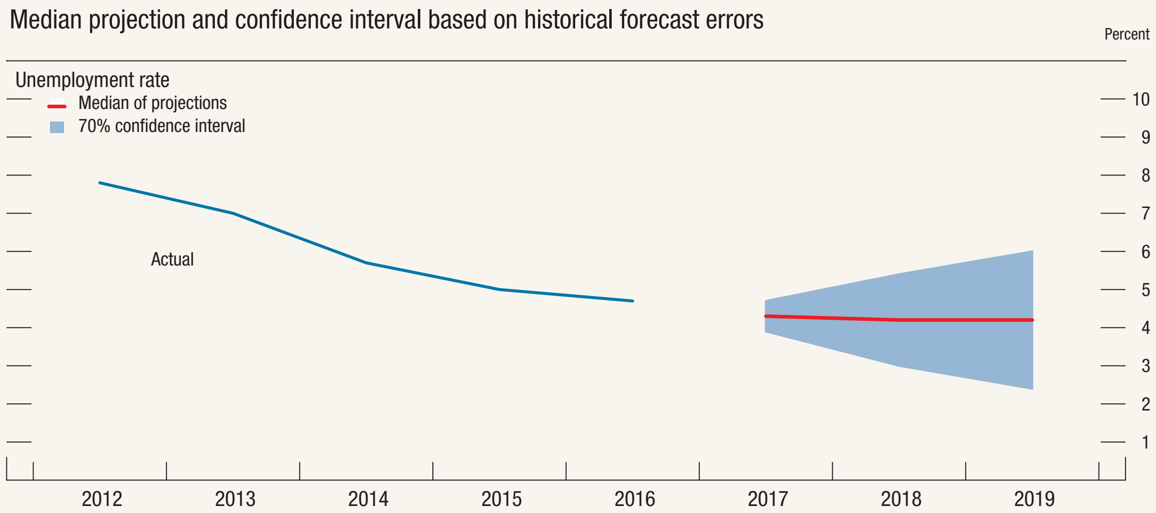


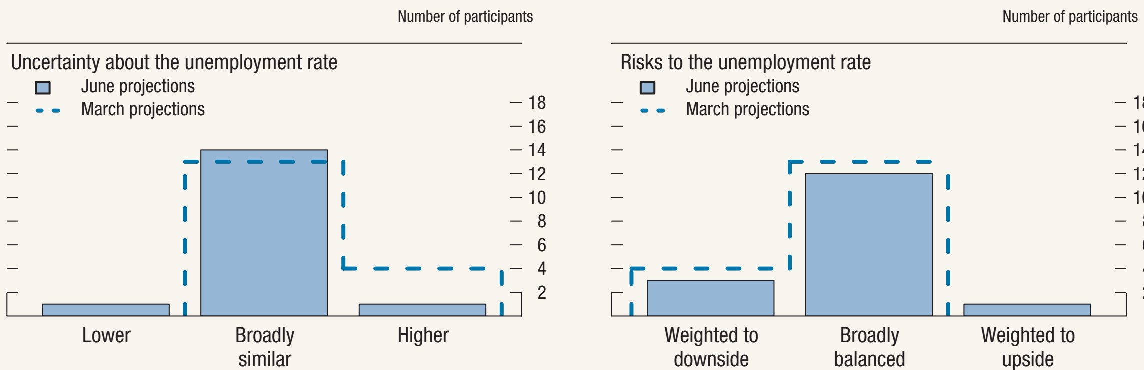
FOMC participants' assessments of uncertainty and risks around their economic projections



Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

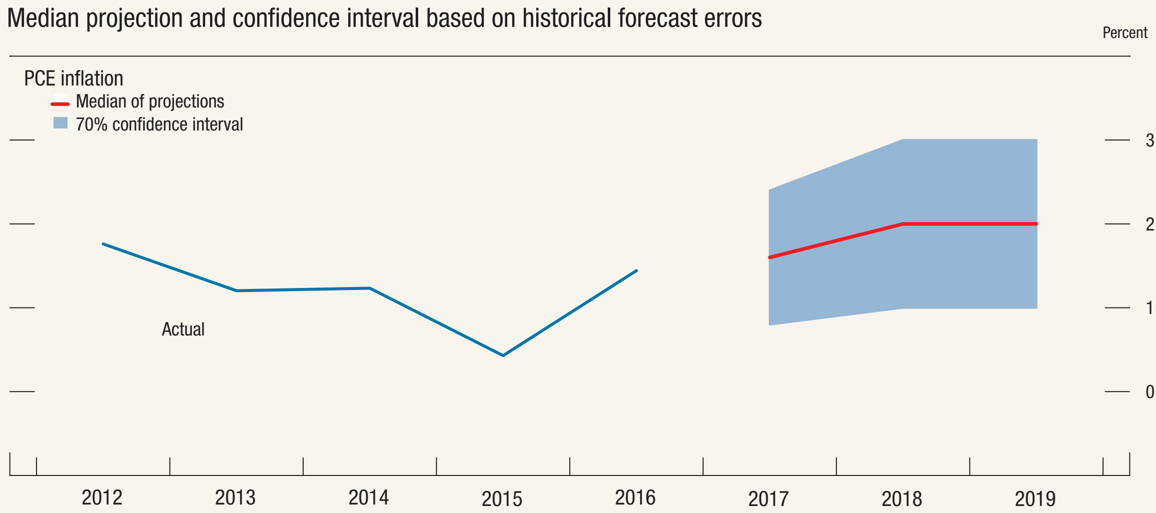
Figure 4.B. Uncertainty and risks in projections of the unemployment rate

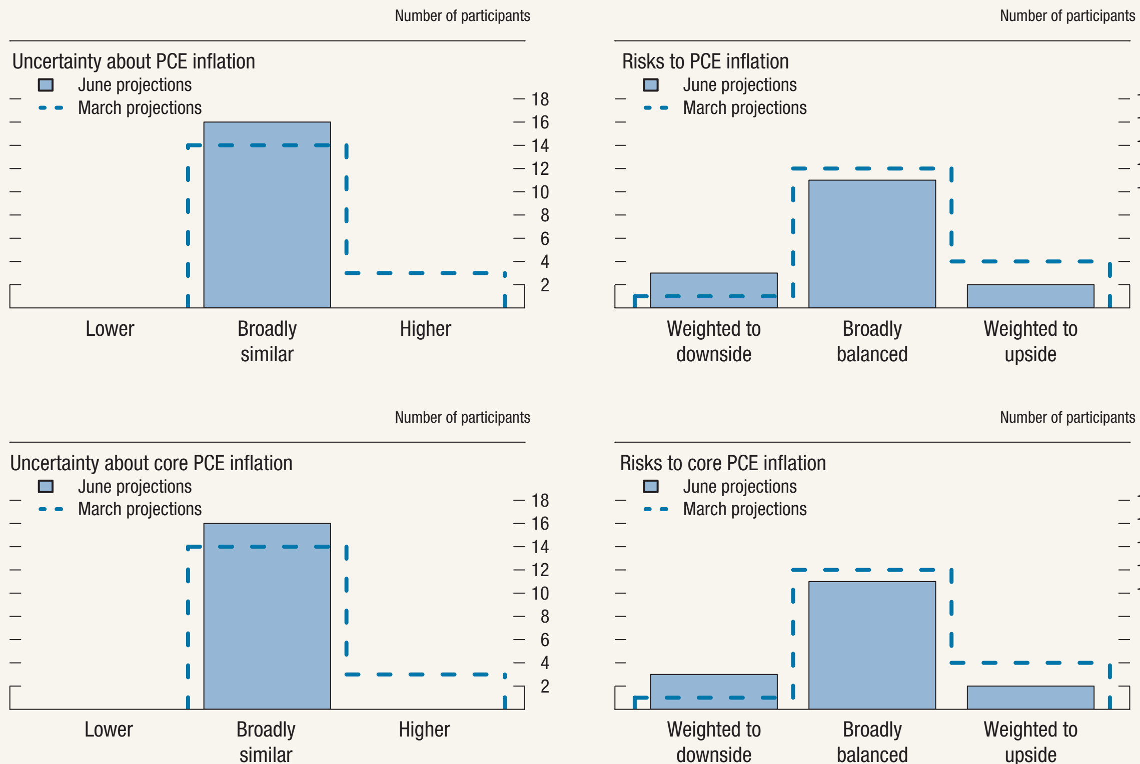




Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Figure 4.C. Uncertainty and risks in projections of PCE inflation





Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

than in March seeing uncertainty about GDP growth, the unemployment rate, and inflation as higher than its historical average.[13] In their discussion of the uncertainty attached to their current projections, most participants again expressed the view that, at this point, uncertainty surrounding prospective changes in fiscal and other government policies is very large or that there is not yet enough information to make reasonable assumptions about the timing, nature, and magnitude of the changes.

The fan charts—which are constructed so as to be symmetric around the median projections—also may not fully reflect participants' current assessments of the balance of risks to their economic projections. Participants' assessments of the balance of risks to their economic projections are shown in the bottom-right panels of figures 4.A, 4.B, and 4.C. As in March, most participants judged the risks to their projections of real GDP growth, the unemployment rate, headline inflation, and core inflation as broadly balanced—in other words, as broadly consistent with a symmetric fan chart. Three participants judged the risks to the unemployment rate as weighted to the downside, and one participant judged the risks as weighted to the upside (as shown in the lower-right panel of figure 4.B). In addition, the balance of risks to participants' inflation projections shifted down slightly from March (shown in the lower-right panels of figure 4.C), as two fewer participants judged the risks to inflation to be weighted to the upside and two more viewed the risks as weighted to the downside.

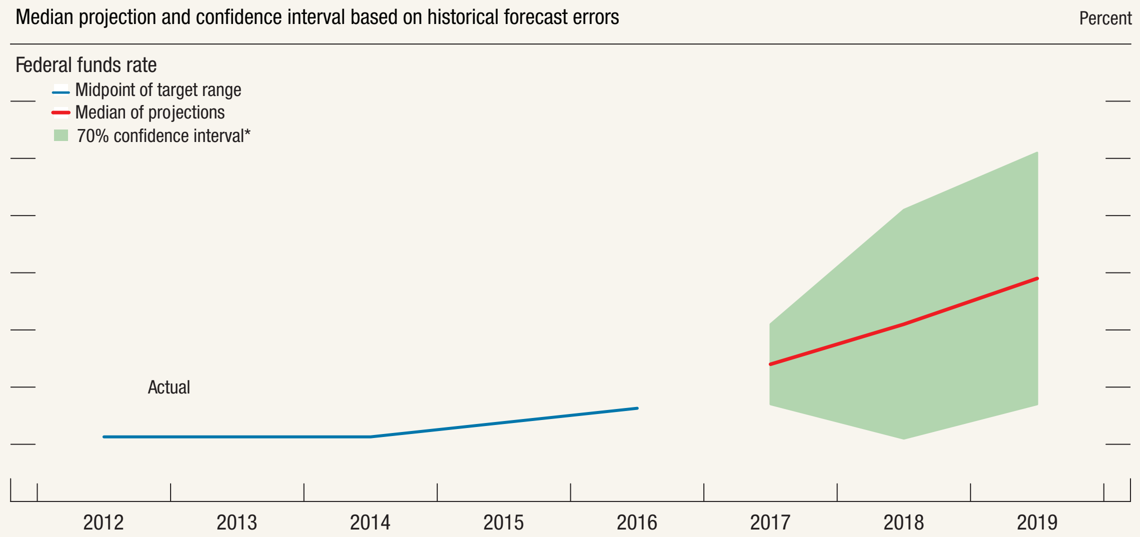
Participants' assessments of the future path of the federal funds rate consistent with appropriate policy are also subject to considerable uncertainty, reflecting in part uncertainty about the evolution of GDP growth, the unemployment rate, and inflation over time. The final line in table 2 shows the RMSEs for forecasts of short-term interest rates. These RMSEs are not strictly consistent with the SEP projections for the federal funds rate, in part because the SEP projections are not forecasts of the likeliest outcomes but rather reflect each participant's individual assessment of appropriate monetary policy. However, the associated confidence intervals provide a sense of the likely uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables and additional adjustments to monetary policy that may be appropriate to offset the effects of shocks to the economy.

Figure 5 shows a fan chart plotting the median SEP projections for the appropriate path of the federal funds rate surrounded by confidence intervals derived from the results presented in table 2. As with the macroeconomic variables, forecast uncertainty is substantial and increases at longer horizons.[14]

[13] At the end of this summary, the box "Forecast Uncertainty" discusses the sources and interpretation of uncertainty in the economic forecasts and explains the approach used to assess the uncertainty and risks attending the participants' projections.

[14] If at some point in the future the confidence interval around the federal funds rate were to extend below zero, it would be truncated at zero for purposes of the chart shown in figure 5; zero is the bottom of the lowest target range for the federal funds rate that has been adopted by the Committee in the past. This approach to the construction of the federal funds rate fan chart would be merely a convention and would not have any implication for possible future policy decisions regarding the use of negative interest rates to provide additional monetary policy accommodation if doing so were appropriate.

Figure 5. Uncertainty in projections of the federal funds rate



Note: The blue and red lines are based on actual values and median projected values, respectively, of the Committee's target for the federal funds rate at the end of the year indicated. The actual values are the midpoint of the target range; the median projected values are based on either the midpoint of the target range or the target level. The confidence interval around the median projected values is based on root mean squared errors of various private and government forecasts made over the previous 20 years. The confidence interval is not strictly consistent with the projections for the federal funds rate, primarily because these projections are not forecasts of the likeliest outcomes for the federal funds rate, but rather projections of participants' individual assessments of appropriate monetary policy. Still, historical forecast errors provide a broad sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that may be appropriate to offset the effects of shocks to the economy.

The confidence interval is assumed to be symmetric except when it is truncated at zero—the bottom of the lowest target range for the federal funds rate that has been adopted in the past by the Committee. This truncation would not be intended to indicate the likelihood of the use of negative interest rates to provide additional monetary policy accommodation if doing so was judged appropriate. In such situations, the Committee could also employ other tools, including forward guidance and large-scale asset purchases, to provide additional accommodation. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections.

* The confidence interval is derived from forecasts of the average level of short-term interest rates in the fourth quarter of the year indicated; more information about these data is available in table 2. The shaded area encompasses less than a 70 percent confidence interval if the confidence interval has been truncated at zero.

Forecast Uncertainty

The economic projections provided by the members of the Board of Governors and the presidents of the Federal Reserve Banks inform discussions of monetary policy among policymakers and can aid public understanding of the basis for policy actions. Considerable uncertainty attends these projections, however. The economic and statistical models and relationships used to help produce economic forecasts are necessarily imperfect descriptions of the real world, and the future path of the economy can be affected by myriad unforeseen developments and events. Thus, in setting the stance of monetary policy, participants consider not only what appears to be the most likely economic outcome as embodied in their projections, but also the range of alternative possibilities, the likelihood of their occurring, and the potential costs to the economy should they occur.

Table 2 summarizes the average historical accuracy of a range of forecasts, including those reported in past *Monetary Policy Reports* and those prepared by the Federal Reserve Board's staff in advance of meetings of the Federal Open Market Committee (FOMC). The projection error ranges shown in the table illustrate the considerable uncertainty associated with economic forecasts. For example, suppose a participant projects that real gross domestic product (GDP) and total consumer prices will rise steadily at annual rates of, respectively, 3 percent and 2 percent. If the uncertainty attending those projections is similar to that experienced in the past and the risks around the projections are broadly balanced, the numbers reported in table 2 would imply a probability of about 70 percent that actual GDP would expand within a range of 1.6 to 4.4 percent in the current year, 1.0 to 5.0 percent in the second year, and 0.8 to 5.2 percent in the third year. The corresponding 70 percent confidence intervals for overall inflation would be 1.2 to 2.8 percent in the current year, and 1.0 to 3.0 percent in the second and third years. Figures 4.A through 4.C illustrate these confidence bounds in "fan charts" that are symmetric and centered on the medians of FOMC participants' projections for GDP growth, the unemployment rate, and inflation. However, in some instances, the risks around the projections may not be symmetric. In particular, the unemployment rate cannot be negative; furthermore, the risks around a particular projection might be tilted to either the upside or the downside, in which case the corresponding fan chart would be asymmetrically positioned around the median projection.

Because current conditions may differ from those that prevailed, on average, over history, participants provide judgments as to whether the uncertainty attached to their projections of each economic variable is greater than, smaller than, or broadly similar to typical levels of forecast uncertainty seen in the past 20 years, as presented in table 2 and reflected in the widths of the confidence intervals shown in the top panels of figures 4.A through 4.C. Participants' current assessments of the uncertainty surrounding their projections are summarized in the bottom-left panels of those figures. Participants also provide judgments as to whether the risks to their projections are weighted to the upside, are weighted to the downside, or are broadly balanced. That is, while the symmetric historical fan charts shown in the top panels of figures 4.A through 4.C imply that the risks to participants' projections are balanced, participants may judge that there is a greater risk that a given variable will be above rather than below their projections. These judgments are summarized in the lower-right panels of figures 4.A through 4.C.

As with real activity and inflation, the outlook for the future path of the federal funds rate is subject to considerable uncertainty. This uncertainty arises primarily because each participant's assessment of the appropriate stance of monetary policy depends importantly on the evolution of real activity and inflation over time. If economic conditions evolve in an unexpected manner, then assessments of the appropriate setting of the federal funds rate would change from that point forward. The final line in table 2 shows the error ranges for forecasts of short-term interest rates. They suggest that the historical confidence intervals associated with projections of the federal funds rate are quite wide. It should be noted, however, that these confidence intervals are not strictly consistent with the projections for the federal funds rate, as these projections are not forecasts of the most likely quarterly outcomes but rather are projections of participants' individual assessments of appropriate monetary policy and are on an end-of-year basis. However, the forecast errors should provide a sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that would be appropriate to offset the effects of shocks to the economy.

If at some point in the future the confidence interval around the federal funds rate were to extend below zero, it would be truncated at zero for purposes of the fan chart shown in figure 5; zero is the bottom of the lowest target range for the federal funds rate that has been adopted by the Committee in the past. This approach to the construction of the federal funds rate fan chart would be merely a convention; it would not have any implications for possible future policy decisions regarding the use of negative interest rates to provide additional monetary policy accommodation if doing so were appropriate. In such situations, the Committee could also employ other tools, including forward guidance and asset purchases, to provide additional accommodation.

While figures 4.A through 4.C provide information on the uncertainty around the economic projections, figure 1 provides information on the range of views across FOMC participants. A comparison of figure 1 with figures 4.A through 4.C shows that the dispersion of the projections across participants is much smaller than the average forecast errors over the past 20 years.

Meeting Held on July 25–26, 2017

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, July 25, 2017, at 1:00 p.m. and continued on Wednesday, July 26, 2017, at 9:00 a.m.[1]

Present

Janet L. Yellen
Chair

William C. Dudley
Vice Chairman

Lael Brainard

Charles L. Evans

Stanley Fischer

Patrick Harker

Robert S. Kaplan

Neel Kashkari

Jerome H. Powell

Raphael W. Bostic, Loretta J. Mester, Mark L. Mullinix, Michael Strine, and John C. Williams
Alternate Members of the Federal Open Market Committee

James Bullard, Esther L. George, and Eric Rosengren
Presidents of the Federal Reserve Banks of St. Louis, Kansas City, and Boston, respectively

Brian F. Madigan
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Scott G. Alvarez
General Counsel

Michael Held
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

David W. Wilcox
Economist

James A. Clouse, Thomas A. Connors, Michael Dotsey, Eric M. Engen, Evan F. Koenig, Beth Anne Wilson, and Mark L. J. Wright
Associate Economists

Simon Potter
Manager, System Open Market Account

Lorie K. Logan
Deputy Manager, System Open Market Account

Ann E. Misback[2]
Secretary, Office of the Secretary, Board of Governors

Michael S. Gibson
Director, Division of Supervision and Regulation, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Margie Shanks[3]
Deputy Secretary, Office of the Secretary, Board of Governors

Stephen A. Meyer
Deputy Director, Division of Monetary Affairs, Board of Governors

Mark E. Van Der Weide
Deputy Director, Division of Supervision and Regulation, Board of Governors

Trevor A. Reeve
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

Joseph W. Gruber, David Reifschneider, and John M. Roberts
Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson[2]
Assistant to the Board, Office of Board Members, Board of Governors

Joshua Gallin and David E. Lebow
Senior Associate Directors, Division of Research and Statistics, Board of Governors

[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

[2] Attended Tuesday session only.

[3] Attended Wednesday session only.

Fabio M. Natalucci
Senior Associate Director, Division of Monetary Affairs, Board of Governors

Antulio N. Bomfim, Ellen E. Meade, Edward Nelson, Robert J. Tetlow, and Joyce K. Zickler
Senior Advisers, Division of Monetary Affairs, Board of Governors

Jeremy B. Rudd
Senior Adviser, Division of Research and Statistics, Board of Governors

Stephanie R. Aaronson and Glenn Follette
Assistant Directors, Division of Research and Statistics, Board of Governors

Elizabeth Klee
Assistant Director, Division of Monetary Affairs, Board of Governors

Penelope A. Beattie[2]
Assistant to the Secretary, Office of the Secretary, Board of Governors

Dana L. Burnett
Section Chief, Division of Monetary Affairs, Board of Governors

John Kandrac
Senior Economist, Division of Monetary Affairs, Board of Governors

Mark Libell[3]
Assistant Congressional Liaison, Office of Board Members, Board of Governors

Gregory L. Stefani
First Vice President, Federal Reserve Bank of Cleveland

David Altig, Kartik B. Athreya, Beverly Hirtle, Glenn D. Rudebusch, Ellis W. Tallman, and Christopher J. Waller
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, New York, San Francisco, Cleveland, and St. Louis, respectively

Daniel Aaronson, Joe Peek, and Jonathan L. Willis
Vice Presidents, Federal Reserve Banks of Chicago, Boston, and Kansas City, respectively

Selection of Committee Officer

By unanimous vote, the Committee selected Mark E. Van Der Weide to serve as general counsel, effective at the time he becomes the Board of Governors' general counsel, until the selection of his successor at the first regularly scheduled meeting of the Committee in 2018.

Developments in Financial Markets and Open Market Operations

The manager of the System Open Market Account (SOMA) reported on developments in domestic and foreign financial markets over the period since the June FOMC meeting. The intermeeting period was relatively uneventful. Bond yields in advanced economies increased moderately, in part reflecting evolving market perceptions of prospects for foreign monetary policies. U.S. bond yields rose to a smaller degree, and the value of the dollar on foreign exchange markets decreased. Implied volatility in fixed-income markets remained low. Equity prices rose further, with notable advances in indexes for emerging markets.

The increase in the FOMC's target range for the federal funds rate at the June meeting was reflected in other money market interest rates, and the effective federal funds rate was near the middle of the new target range over the intermeeting period except on quarter-end. Take-up at the System's overnight reverse repurchase agreement facility averaged about $200 billion. Conditions in foreign exchange swap markets were fairly stable, and demand at central bank dollar auctions was relatively low. The manager also reported on small-value tests of open market operations, which are conducted routinely to promote operational readiness.

Market expectations for the path of the federal funds rate were little changed. Survey evidence suggested that most market participants now anticipated that the FOMC would announce at its September meeting a date for implementation of a change in reinvestment policy, although a couple of survey respondents expressed the view that the timing could be affected by developments regarding the federal debt ceiling. The survey results also suggested that, while views were somewhat dispersed, respondents typically expected effects on bond yields and spreads on mortgage-backed securities from the change in reinvestment policy to be modest.

By unanimous vote, the Committee ratified the Open Market Desk's domestic transactions over the intermeeting period. There were no intervention opera-

tions in foreign currencies for the System's account during the intermeeting period.

Staff Review of the Economic Situation

The information reviewed for the July 25–26 meeting showed that labor market conditions continued to strengthen in June and that real gross domestic product (GDP) likely expanded at a faster pace in the second quarter than in the first quarter. The 12-month change in overall consumer prices, as measured by the price index for personal consumption expenditures (PCE), slowed again in May; both total consumer price inflation and core inflation, which excludes consumer food and energy prices, were running below 2 percent. Data from the consumer and producer price indexes for June suggested that both total and core PCE price inflation (on a 12-month change basis) remained at a pace similar to that seen in the previous month. Survey-based measures of longer-run inflation expectations were little changed on balance.

Total nonfarm payroll employment expanded solidly in June, and the average monthly pace of private-sector job gains over the first half of the year was essentially the same as last year. The unemployment rate edged up to 4.4 percent in June; the unemployment rates for African Americans and for Hispanics declined slightly but remained above the unemployment rates for Asians and for whites. In addition, the median length of time that unemployed African Americans had been out of work exceeded the comparable figures for whites and for Hispanics, a pattern that has prevailed for at least the past two decades. The overall labor force participation rate edged up in June, and the share of workers employed part time for economic reasons rose a bit. The rate of private-sector job openings decreased in May after having risen for a couple of months, while the quits rate and the hiring rate both increased. The four-week moving average of initial claims for unemployment insurance benefits remained at a very low level through mid-July. Average hourly earnings for all employees increased 2½ percent over the 12 months ending in June, about the same as over the comparable period a year earlier but a little slower than the rate of increase in late 2016.

Total industrial production rose moderately, on balance, in May and June, as an increase in the output of mines and utilities more than offset a net decline in manufacturing production. Automakers' assembly schedules indicated that motor vehicle production would edge down again in the third quarter, likely reflecting a somewhat elevated level of dealers' inventories and a slowing in the pace of vehicle sales last quarter. However, broader indicators of manufacturing production, such as the new orders indexes from national and regional manufacturing surveys, pointed to moderate gains in factory output over the near term.

Real PCE appeared to have rebounded in the second quarter after increasing only modestly in the first quarter. Much of the rebound looked to have been concentrated in spending on energy services and energy goods, which was held down by unseasonably warm weather earlier in the year. The components of the nominal retail sales data used by the Bureau of Economic Analysis to construct its estimate of PCE declined in June but rose, on net, in the second quarter. Light motor vehicle sales edged down further in June. However, recent readings on key factors that influence consumer spending—including continued gains in employment, real disposable personal income, and households' net worth—pointed to solid growth in total real PCE in the near term. Consumer sentiment, as measured by the University of Michigan Surveys of Consumers, remained upbeat despite having moved down in early July.

Residential investment seemed to have declined in the second quarter. Starts of both new single-family homes and multifamily units rose in June but still decreased for the second quarter as a whole. The issuance of building permits for both types of housing was lower in the second quarter than in the first quarter. Sales of existing homes decreased, on net, in May and June, and new home sales in May partly reversed the previous month's decline.

Real private expenditures for business equipment and intellectual property appeared to have increased moderately in the second quarter after a solid gain in the first quarter. Nominal shipments of nondefense capital goods excluding aircraft rose again in May, and new orders of these goods continued to exceed shipments, pointing to further gains in shipments in the near term. In addition, indicators of business sentiment remained upbeat. Investment in nonresidential structures appeared to have risen at a markedly slower pace in the second quarter than in the first. Firms' nominal spending for nonresidential structures excluding drilling and mining declined further in May, and the number of oil and gas rigs in opera-

tion, an indicator of spending for structures in the drilling and mining sector, leveled out in recent weeks after increasing steadily for the past year.

Nominal outlays for defense through June pointed to an increase in real federal government purchases in the second quarter. However, real purchases by state and local governments appeared to have declined. Payrolls for state and local governments expanded during the second quarter, but nominal construction spending by these governments decreased, on net, in April and May.

The nominal U.S. international trade deficit narrowed in May, with an increase in exports and a small decline in imports. Export growth was led by consumer goods, automotive products, and services. The import decline was driven by consumer goods and automotive products. The available data suggested that net exports were a slight drag on real GDP growth in the second quarter.

Total U.S. consumer prices, as measured by the PCE price index, increased 1½ percent over the 12 months ending in May. Core PCE price inflation was also 1½ percent over that same period. Over the 12 months ending in June, the consumer price index (CPI) rose 1½ percent, while core CPI inflation was 1¾ percent. The median of inflation expectations over the next 5 to 10 years from the Michigan survey edged up both in June and in the preliminary reading for July. Other measures of longer-run inflation expectations were generally little changed, on balance, in recent months, although those from the Desk's Survey of Primary Dealers and Survey of Market Participants had ticked down recently.

Incoming data suggested that economic growth continued to firm abroad, especially among advanced foreign economies (AFEs). The pickup in advanced-economy demand also contributed to relatively strong growth in China and emerging Asia, but growth in Latin America remained relatively weak, partly reflecting tight monetary and fiscal policies. Despite the stronger momentum of economic activity in the AFEs, headline inflation declined sharply in the second quarter, largely reflecting lower retail energy prices, and core inflation stayed subdued in many AFEs. Although inflation was also low in most emerging market economies (EMEs), it remained elevated in Mexico because of rising food inflation and earlier peso depreciation.

Staff Review of the Financial Situation

Domestic financial market conditions remained generally accommodative over the intermeeting period. U.S. equity prices rose, longer-term Treasury yields increased slightly, and the dollar depreciated. The Committee's decision to raise the target range for the federal funds rate to 1 to 1¼ percent at the June meeting was widely anticipated in financial markets, and market participants reportedly viewed FOMC communications as largely in line with expectations. Financing conditions for nonfinancial businesses and households generally remained supportive of growth in spending.

FOMC communications over the intermeeting period were viewed as broadly in line with investors' expectations that the Committee would continue to remove policy accommodation at a gradual pace. Market participants generally interpreted the information on reinvestment policy provided in June in the Committee's postmeeting statement and its Addendum to the Policy Normalization Principles and Plans as consistent with their expectation that a change to reinvestment policy was likely to occur this year. Market participants also took note of the summary in the June minutes of the Committee's discussion of the progress toward the Committee's 2 percent longer-run inflation objective and the extent to which recent softness in price data reflected idiosyncratic factors. Overnight index swap rates pointed to little change in the expected path of the federal funds rate on net.

Yields on intermediate- and longer-term nominal Treasury securities increased slightly over the intermeeting period. Although yields fell following the publication of lower-than-expected CPI data, yields were boosted by comments from foreign central bank officials that investors read as pointing to less accommodative monetary policies abroad than previously expected. Measures of inflation compensation based on Treasury Inflation-Protected Securities ticked up since the June FOMC meeting. Despite their intermeeting period gains, longer-term real and nominal Treasury yields remained very low by historical standards, apparently weighed down by accommodative monetary policies abroad and possibly by declines in the long-term neutral real interest rate over recent years.

Broad U.S. equity price indexes rose. One-month-ahead option-implied volatility of the S&P 500

index—the VIX—remained at historically low levels. Spreads of yields on investment- and speculative-grade nonfinancial corporate bonds over comparable-maturity Treasury securities narrowed a bit on net.

Conditions in short-term funding markets were stable over the intermeeting period. Reflecting the FOMC's policy action in June, yields on a broad set of money market instruments moved about 25 basis points higher. However, over much of the period, the net increase in rates on shorter-dated Treasury bills was smaller, reportedly reflecting a reduction in Treasury bill supply.

Financing for large nonfinancial firms remained readily available, although debt issuance moderated. Gross issuance of corporate bonds stepped down in June from a strong pace in May, while issuance of institutional leveraged loans continued to be robust. Commercial and industrial lending by banks remained quite weak in the second quarter. Responses from the July Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) indicated that depressed demand was largely responsible, and that banks' lending standards were little changed in recent months. The most cited reason for the lackluster loan demand was subdued investment spending by nonfinancial businesses, but banks also reported that some borrowers had shifted to other sources of external financing or to internally generated funds.

Financing conditions for commercial real estate (CRE) remained accommodative, although the growth of CRE loans on banks' books slowed somewhat. Respondents to the July SLOOS reported tightening credit standards for these loans. SLOOS respondents also reported that standards on CRE loans were tight relative to their historical range, and that, on net, demand for CRE loans weakened in recent months. The pace of issuance of commercial mortgage-backed securities (CMBS) through the first half of the year was similar to that seen last year. Delinquency rates on loans in CMBS pools originated before the financial crisis continued to increase.

Financing conditions in the residential mortgage market were little changed, and flows of new credit continued at a moderate pace. However, growth of mortgage loans on banks' books slowed somewhat in the first half of this year. SLOOS respondents, on net, reported that standards on most residential mortgage loan categories eased slightly.

Consumer credit continued to grow on a year-over-year basis, but the expansion of credit card and auto loan balances appeared to slow from the rapid pace that was evident through the end of last year. In the July SLOOS, banks reported having tightened standards and widened spreads for credit card and auto loans on net. Standards for the subprime segments of these loan types were particularly tight compared with their historical ranges. Reflecting in part continued tightening of lending standards, consumer loan growth at banks moderated further in the second quarter; however, that weakness was partially offset by more robust lending by credit unions.

Since the June FOMC meeting, the broad dollar depreciated 2 percent, weakening more against AFE currencies than against EME currencies. The dollar's depreciation was driven in part by policy communications from the central banks of several AFEs that market participants viewed as less accommodative than expected as well as by weaker-than-expected CPI data in the United States. The Bank of Canada raised its policy rate in July. Sovereign yields increased notably in Canada, Germany, and the United Kingdom. Changes in foreign equity indexes were mixed over the intermeeting period: European equities edged lower, Japanese equities were little changed, and EME equities increased. European peripheral sovereign bond spreads narrowed over the period, reflecting in part positive sentiment related to the outcomes of the French parliamentary election, Greek debt negotiations, and bank resolutions in Italy. EME sovereign spreads were little changed on net.

The staff provided its latest report on potential risks to financial stability, indicating that it continued to judge the vulnerabilities of the U.S financial system as moderate on balance. This overall assessment incorporated the staff's judgment that, since the April assessment, vulnerabilities associated with asset valuation pressures had edged up from notable to elevated, as asset prices remained high or climbed further, risk spreads narrowed, and expected and actual volatility remained muted in a range of financial markets. However, the staff continued to view vulnerabilities stemming from financial leverage as well as maturity and liquidity transformation as low,

and vulnerabilities from leverage in the nonfinancial sector appeared to remain moderate.

Staff Economic Outlook

The U.S. economic projection prepared by the staff for the July FOMC meeting was broadly similar to the previous forecast. In particular, real GDP growth, which was modest in the first quarter, was still expected to have stepped up to a solid pace in the second quarter and to maintain roughly the same rate of increase in the second half of the year. In this projection, the staff scaled back its assumptions regarding the magnitude and duration of fiscal policy expansion in the coming years. However, the effect of this change on the projection for real GDP over the next couple of years was largely offset by lower assumed paths for the exchange value of the dollar and for longer-term interest rates. Thus, as in the June projection, the staff projected that real GDP would expand at a modestly faster pace than potential output in 2017 through 2019. The unemployment rate was projected to decline gradually over the next couple of years and to continue running below the staff's estimate of its longer-run natural rate over this period.

The staff's forecast for consumer price inflation, as measured by the change in the PCE price index, was revised down slightly for 2017 in response to weaker-than-expected incoming data for inflation. As a result, inflation this year was expected to be similar in magnitude to last year, with an upturn in the prices for food and non-energy imports offset by a slower increase in core PCE prices and weaker energy prices. Beyond 2017, the forecast was little revised from the previous projection, as the recent weakness in inflation was viewed as transitory. The staff continued to project that inflation would increase in the next couple of years and that it would be close to the Committee's longer-run objective in 2018 and at 2 percent in 2019.

The staff viewed the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as similar to the average of the past 20 years. On the one hand, many financial market indicators of uncertainty remained subdued, and the uncertainty associated with the foreign outlook still appeared to be less than late last year; on the other hand, uncertainty about the direction of some economic policies was judged to have remained elevated. The staff saw the risks to the forecasts for real GDP growth and the unemployment rate as balanced. The risks to the projection for inflation also were seen as balanced. Downside risks included the possibilities that longer-term inflation expectations may have edged down, that the dollar could appreciate substantially, or that the recent run of soft inflation readings could prove to be more persistent than the staff expected. These downside risks were seen as essentially counterbalanced by the upside risk that inflation could increase more than expected in an economy that was projected to continue operating above its longer-run potential.

Participants' Views on Current Conditions and the Economic Outlook

In their discussion of the economic situation and the outlook, meeting participants agreed that information received over the intermeeting period indicated that the labor market had continued to strengthen and that economic activity had been rising moderately so far this year. Job gains had been solid, on average, since the beginning of the year, and the unemployment rate had declined, on net, over the same period. Household spending and business fixed investment had continued to expand. On a 12-month basis, both overall inflation and the measure excluding food and energy prices had declined and were running below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed on balance.

Participants generally saw the incoming information on spending and labor market indicators as consistent, overall, with their expectations and indicated that their views of the outlook for economic growth and the labor market were little changed, on balance, since the June FOMC meeting. Participants continued to expect that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace and labor market conditions would strengthen somewhat further. In light of continued low recent readings on inflation, participants expected that inflation on a 12-month basis would remain somewhat below 2 percent in the near term. However, most participants judged that inflation would stabilize around the Committee's 2 percent objective over the medium term.

Data received over the intermeeting period reinforced earlier indications that real GDP growth had turned up after having been slow in the first quarter of this year. As anticipated, growth in household spending appeared to have been stronger in the second quarter after its first-quarter weakness. Reports from District

contacts on consumer spending were generally positive. However, sales of motor vehicles had softened, and automakers were reportedly adjusting production and assessing whether the underlying demand for automobiles had declined. Participants noted that the fundamentals underpinning consumption growth, including increases in payrolls, remained solid. However, the weakness in retail sales in June offered a note of caution.

Reports from District contacts on both manufacturing and services were also generally consistent with moderate growth in economic activity overall. Construction-sector contacts were generally upbeat. Reports on the energy sector indicated that activity was continuing to expand, albeit more slowly than previously; survey evidence suggested that oil drilling remained profitable in some locations at current oil prices. The agricultural sector remained weak, and some regions were experiencing drought conditions. A couple of participants had received indications from contacts that business investment spending in their Districts might strengthen.

Nevertheless, several participants noted that uncertainty about the course of federal government policy, including in the areas of fiscal policy, trade, and health care, was tending to weigh down firms' spending and hiring plans. In addition, a few participants suggested that the likelihood of near-term enactment of a fiscal stimulus program had declined further or that the fiscal stimulus likely would be smaller than they previously expected. It was also observed that the budgets of some state and local governments were under strain, limiting growth in their expenditures. In contrast, the prospects for U.S. exports had been boosted by a brighter international economic outlook.

Participants noted that labor market conditions had strengthened further over the intermeeting period. The unemployment rate rose slightly to 4.4 percent in June but remained low by historical standards. Payroll gains picked up substantially in June. In addition, the employment-to-population ratio increased. Participants observed that the unemployment rate was likely close to or below its longer-run normal rate and could decline further if, as expected, growth in output remained somewhat in excess of the potential growth rate. A few participants expressed concerns about the possibility of substantially overshooting full employment, with one citing past difficulties in achieving a soft landing. District contacts confirmed tightness in the labor market but relayed little evidence of wage pressures, although some firms were reportedly attempting to attract workers with a variety of nonwage benefits. The absence of sizable wage pressures also seemed to be confirmed by most aggregate wage measures. However, a few participants suggested that, in a tight labor market, measured aggregate wage growth was being held down by compositional changes in employment associated with the hiring of less experienced workers at lower wages than those of established workers. In addition, a number of participants suggested that the rate of increase in nominal wages was not low in relation to the rate of productivity growth and the modest rate of inflation.

Participants discussed the softness in inflation in recent months. Many participants noted that much of the recent decline in inflation had probably reflected idiosyncratic factors. Nonetheless, PCE price inflation on a 12-month basis would likely continue to be held down over the second half of the year by the effects of those factors, and the monthly readings might be depressed by possible residual seasonality in measured PCE inflation. Still, most participants indicated that they expected inflation to pick up over the next couple of years from its current low level and to stabilize around the Committee's 2 percent objective over the medium term. Many participants, however, saw some likelihood that inflation might remain below 2 percent for longer than they currently expected, and several indicated that the risks to the inflation outlook could be tilted to the downside. Participants agreed that a fall in longer-term inflation expectations would be undesirable, but they differed in their assessments of whether inflation expectations were well anchored. One participant pointed to the stability of a number of measures of inflation expectations in recent months, but a few others suggested that continuing low inflation expectations may have been a factor putting downward pressure on inflation or that inflation expectations might need to be bolstered in order to ensure their consistency with the Committee's longer-term inflation objective.

A number of participants noted that much of the analysis of inflation used in policymaking rested on a framework in which, for a given rate of expected inflation, the degree of upward pressures on prices and wages rose as aggregate demand for goods and services and employment of resources increased above long-run sustainable levels. A few participants cited evidence suggesting that this framework was not particularly useful in forecasting inflation. However, most participants thought that the framework

remained valid, notwithstanding the recent absence of a pickup in inflation in the face of a tightening labor market and real GDP growth in excess of their estimates of its potential rate. Participants discussed possible reasons for the coexistence of low inflation and low unemployment. These included a diminished responsiveness of prices to resource pressures, a lower natural rate of unemployment, the possibility that slack may be better measured by labor market indicators other than unemployment, lags in the reaction of nominal wage growth and inflation to labor market tightening, and restraints on pricing power from global developments and from innovations to business models spurred by advances in technology. A couple of participants argued that the response of inflation to resource utilization could become stronger if output and employment appreciably overshot their full employment levels, although other participants pointed out that this hypothesized nonlinear response had little empirical support.

In assessing recent developments in financial market conditions, participants referred to the continued low level of longer-term interest rates, in particular those on U.S. Treasury securities. The level of such yields appeared to reflect both low expected future short-term interest rates and depressed term premiums. Asset purchases by foreign central banks and the Federal Reserve's securities holdings were also likely contributing to currently low term premiums, although the exact size of these contributions was uncertain. A number of participants pointed to potential concerns about low longer-term interest rates, including the possibility that inflation expectations were too low, that yields could rise abruptly, or that low yields were inducing investors to take on excessive risk in a search for higher returns.

Several participants noted that the further increases in equity prices, together with continued low longer-term interest rates, had led to an easing of financial conditions. However, different assessments were expressed about the implications of this development for the outlook for aggregate demand and, consequently, appropriate monetary policy. According to one view, the easing of financial conditions meant that the economic effects of the Committee's actions in gradually removing policy accommodation had been largely offset by other factors influencing financial markets, and that a tighter monetary policy than otherwise was warranted. According to another view, recent rises in equity prices might be part of a broad-based adjustment of asset prices to changes in longer-term financial conditions, importantly including a lower neutral real interest rate, and, therefore, the recent equity price increases might not provide much additional impetus to aggregate spending on goods and services.

Participants also considered equity valuations in their discussion of financial stability. A couple of participants noted that favorable macroeconomic factors provided backing for current equity valuations; in addition, as recent equity price increases did not seem to stem importantly from greater use of leverage by investors, these increases might not pose appreciable risks to financial stability. Several participants observed that the banking system was well capitalized and had ample liquidity, reducing the risk of financial instability. It was noted that financial stability assessments were based on current capital levels within the banking sector, and that such assessments would likely be adjusted should these measures of loss-absorbing capacity change. Participants underscored the need to monitor financial institutions for shifts in behavior—such as an erosion of lending standards or increased reliance on unstable sources of funding—that could lead to subsequent problems. In addition, participants judged that it was important to look for signs that either declining market volatility or heavy concentration by investors in particular assets might create financial imbalances. A couple of participants expressed concern that smaller banks could be assuming significant risks in efforts to expand their CRE lending. Furthermore, a couple of participants saw, as possible sources of financial instability, the pace of increase in real estate prices in the multifamily segment and the pattern of the lending and borrowing activities of certain government-sponsored enterprises.

Participants agreed that the regulatory and supervisory tools developed since the financial crisis had played an important role in fostering financial stability. Changes in regulation had likely helped in making the banking system more resilient to major shocks, in promoting more prudent balance sheet management strategies on the part of nonbank financial institutions, and in reducing the degree to which variations in lending to the private sector intensify cycles in output and in asset prices. Participants agreed that it would not be desirable for the current regulatory framework to be changed in ways that allowed a reemergence of the types of risky practices that contributed to the crisis.

In their discussion of monetary policy, participants reaffirmed their view that a gradual approach to

removing policy accommodation was likely to remain appropriate to promote the Committee's objectives of maximum employment and 2 percent inflation. Participants commented on a number of factors that would influence their ongoing assessments of the appropriate path for the federal funds rate. Most saw the outlook for economic activity and the labor market as little changed from their earlier projections and continued to anticipate that inflation would stabilize around the Committee's 2 percent objective over the medium term. However, some participants expressed concern about the recent decline in inflation, which had occurred even as resource utilization had tightened, and noted their increased uncertainty about the outlook for inflation. They observed that the Committee could afford to be patient under current circumstances in deciding when to increase the federal funds rate further and argued against additional adjustments until incoming information confirmed that the recent low readings on inflation were not likely to persist and that inflation was more clearly on a path toward the Committee's symmetric 2 percent objective over the medium term. In contrast, some other participants were more worried about risks arising from a labor market that had already reached full employment and was projected to tighten further or from the easing in financial conditions that had developed since the Committee's policy normalization process was initiated in December 2015. They cautioned that a delay in gradually removing policy accommodation could result in an overshooting of the Committee's inflation objective that would likely be costly to reverse, or that a delay could lead to an intensification of financial stability risks or to other imbalances that might prove difficult to unwind. One participant stressed that the risks both to the Committee's inflation objective and to financial stability would require careful monitoring. This participant expressed the view that a gradual approach to removing policy accommodation would likely strike the appropriate balance between promoting the Committee's inflation and full employment objectives and mitigating financial stability concerns.

A number of participants also commented that the appropriate pace of normalization of the federal funds rate would depend on how financial conditions evolved and on the implications of those developments for the pace of economic activity. Among the considerations mentioned were the extent of current downward pressure on longer-term yields arising from the Federal Reserve's asset holdings and how this pressure would diminish over time as balance sheet normalization proceeded, the strength and degree of persistence of other domestic and global factors that had contributed to the easing of financial conditions and elevated asset prices, and whether and how much the neutral rate of interest would rise as the economy continued to expand.

Participants also discussed the appropriate time to implement the plan for reducing the Federal Reserve's securities holdings that was announced in June in the Committee's postmeeting statement and its Addendum to the Policy Normalization Principles and Plans. Participants generally agreed that, in light of their current assessment of economic conditions and the outlook, it was appropriate to signal that implementation of the program likely would begin relatively soon, absent significant adverse developments in the economy or in financial markets. Many noted that the program was expected to contribute only modestly to the reduction in policy accommodation. Several reiterated that, once the program was under way, further adjustments to the stance of monetary policy in response to economic developments would be centered on changes in the target range for the federal funds rate. Although several participants were prepared to announce a starting date for the program at the current meeting, most preferred to defer that decision until an upcoming meeting while accumulating additional information on the economic outlook and developments potentially affecting financial markets.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members judged that information received since the Committee met in June indicated that the labor market had continued to strengthen and that economic activity had been rising moderately so far this year. Job gains had been solid, on average, since the beginning of the year, and the unemployment rate had declined. Household spending and business fixed investment had continued to expand.

On a 12-month basis, overall inflation and the measure excluding food and energy prices had declined and were running below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed on balance.

With respect to the economic outlook and its implications for monetary policy, members continued to expect that, with gradual adjustments in the stance of monetary policy, economic activity would expand at

a moderate pace, and labor market conditions would strengthen somewhat further. Inflation on a 12-month basis was expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee's 2 percent objective over the medium term. Members saw the near-term risks to the economic outlook as roughly balanced, but, in light of their concern about the recent slowing in inflation, they agreed to continue to monitor inflation developments closely.

After assessing current conditions and the outlook for economic activity, the labor market, and inflation, members decided to maintain the target range for the federal funds rate at 1 to 1¼ percent. They noted that the stance of monetary policy remained accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.

Members agreed that the timing and size of future adjustments to the target range for the federal funds rate would depend on their assessment of realized and expected economic conditions relative to the Committee's objectives of maximum employment and 2 percent inflation. They expected that economic conditions would evolve in a manner that would warrant gradual increases in the federal funds rate, and that the federal funds rate was likely to remain, for some time, below levels that are expected to prevail in the longer run. They also again stated that the actual path of the federal funds rate would depend on the economic outlook as informed by incoming data. In particular, they reaffirmed that they would carefully monitor actual and expected inflation developments relative to the Committee's symmetric inflation goal. Some members stressed the importance of underscoring the Committee's commitment to its inflation objective. These members emphasized that, in considering the timing of further adjustments in the federal funds rate, they would be evaluating incoming information to assess the likelihood that recent low readings on inflation were transitory and that inflation was again on a trajectory consistent with achieving the Committee's 2 percent objective over the medium term.

Members agreed that, at this meeting, the Committee should further clarify the time at which it expected to begin its program for reducing its securities holdings in a gradual and predictable manner. They updated the postmeeting statement to indicate that while the Committee was, for the time being, maintaining its existing reinvestment policy, it intended to begin implementing the balance sheet normalization program relatively soon, provided that the economy evolved broadly as anticipated. Several members observed that, in part because of the Committee's various communications regarding the change, any reaction in financial markets to such a change would likely be limited.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until it was instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective July 27, 2017, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 1 to 1¼ percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 1.00 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over maturing Treasury securities at auction and to continue reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

> "Information received since the Federal Open Market Committee met in June indicates that the labor market has continued to strengthen and that economic activity has been rising moderately so far this year. Job gains have been solid, on average, since the beginning of the year, and the unemployment rate has declined. Household spending and business fixed investment have continued to expand. On a 12-month basis, overall inflation and the measure excluding food and

energy prices have declined and are running below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.

Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee continues to expect that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, and labor market conditions will strengthen somewhat further. Inflation on a 12-month basis is expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee's 2 percent objective over the medium term. Near-term risks to the economic outlook appear roughly balanced, but the Committee is monitoring inflation developments closely.

In view of realized and expected labor market conditions and inflation, the Committee decided to maintain the target range for the federal funds rate at 1 to 1¼ percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.

In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.

For the time being, the Committee is maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction. The Committee expects to begin implementing its balance sheet normalization program relatively soon, provided that the economy evolves broadly as anticipated; this program is described in the June 2017 Addendum to the Committee's Policy Normalization Principles and Plans."

Voting for this action: Janet L. Yellen, William C. Dudley, Lael Brainard, Charles L. Evans, Stanley Fischer, Patrick Harker, Robert S. Kaplan, Neel Kashkari, and Jerome H. Powell.

Voting against this action: None.

Consistent with the Committee's decision to leave the target range for the federal funds rate unchanged, the Board of Governors voted unanimously to leave the interest rates on required and excess reserve balances unchanged at 1¼ percent and voted unanimously to approve establishment of the primary credit rate (discount rate) at the existing level of 1¾ percent.[4]

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, September 19–20, 2017. The meeting adjourned at 10:00 a.m. on July 26, 2017.

Notation Vote

By notation vote completed on July 3, 2017, the Committee unanimously approved the minutes of the Committee meeting held on June 13–14, 2017.

Brian F. Madigan
Secretary

[4] The second vote of the Board also encompassed approval of the establishment of the interest rates for secondary and seasonal credit under the existing formulas for computing such rates.

Meeting Held on September 19–20, 2017

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, September 19, 2017, at 1:00 p.m. and continued on Wednesday, September 20, 2017, at 9:00 a.m.[1]

Present

Janet L. Yellen
Chair

William C. Dudley
Vice Chairman

Lael Brainard

Charles L. Evans

Stanley Fischer

Patrick Harker

Robert S. Kaplan

Neel Kashkari

Jerome H. Powell

Raphael W. Bostic, Loretta J. Mester, Mark L. Mullinix, and John C. Williams
Alternate Members of the Federal Open Market Committee

James Bullard, Esther L. George, and Eric Rosengren
Presidents of the Federal Reserve Banks of St. Louis, Kansas City, and Boston, respectively

Brian F. Madigan
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

Steven B. Kamin
Economist

Thomas Laubach
Economist

David W. Wilcox
Economist

James A. Clouse, Thomas A. Connors, Evan F. Koenig, William Wascher, Beth Anne Wilson, and Mark L. J. Wright
Associate Economists

Simon Potter
Manager, System Open Market Account

Lorie K. Logan
Deputy Manager, System Open Market Account

Ann E. Misback
Secretary, Office of the Secretary, Board of Governors

Matthew J. Eichner[2]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Michael S. Gibson
Director, Division of Supervision and Regulation, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Michael T. Kiley
Deputy Director, Division of Financial Stability, Board of Governors

Stephen A. Meyer
Deputy Director, Division of Monetary Affairs, Board of Governors

Trevor A. Reeve
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

David Bowman, Joseph W. Gruber, David Reifschneider, and John M. Roberts
Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

[2] Attended the discussions of the proposed changes to Rules Regarding Availability of Information and developments in financial markets and open market operations.

David E. Lebow and Michael G. Palumbo
Senior Associate Directors, Division of Research and Statistics, Board of Governors

Antulio N. Bomfim, Edward Nelson, and Joyce K. Zickler
Senior Advisers, Division of Monetary Affairs, Board of Governors

Jane E. Ihrig
Associate Director, Division of Monetary Affairs, Board of Governors

John J. Stevens and Stacey Tevlin
Associate Directors, Division of Research and Statistics, Board of Governors

Steven A. Sharpe
Deputy Associate Director, Division of Research and Statistics, Board of Governors

Min Wei
Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Penelope A. Beattie[3]
Assistant to the Secretary, Office of the Secretary, Board of Governors

Michiel De Pooter
Section Chief, Division of Monetary Affairs, Board of Governors

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Martin Bodenstein
Principal Economist, Division of Monetary Affairs, Board of Governors

Randall A. Williams
Information Manager, Division of Monetary Affairs, Board of Governors

Mark A. Gould
First Vice President, Federal Reserve Bank of San Francisco

David Altig, Kartik B. Athreya, Glenn D. Rudebusch, and Geoffrey Tootell
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, San Francisco, and Boston, respectively

Spencer Krane and Keith Sill
Senior Vice Presidents, Federal Reserve Banks of Chicago and Philadelphia, respectively

[3] Attended Tuesday session only.

David C. Wheelock and Jonathan L. Willis
Vice Presidents, Federal Reserve Banks of St. Louis and Kansas City, respectively

Stefano M. Eusepi
Assistant Vice President, Federal Reserve Bank of New York

Edward S. Prescott
Senior Professional Economist, Federal Reserve Bank of Cleveland

Proposed Changes to Rules Regarding Availability of Information

The Committee unanimously voted to further amend its Rules Regarding Availability of Information (Rules) in order to incorporate input received during the public commenting process that followed the December 2016 publication in the *Federal Register* of an earlier version of the Rules.[4] The amendment approved at this meeting indicated that if, in the course of processing a Freedom of Information Act request, "an adverse determination is upheld on appeal, in whole or in part," the requester will be informed "of the availability of dispute resolution services from the Office of Government Information Services as a nonexclusive alternative to litigation." This notice will be provided in addition to the ongoing practice of informing the requester of the right to seek judicial review.

Secretary's note: The amended Rules adopted at this meeting were published in the *Federal Register* as a final rule on October 2, 2017, and will go into effect 30 days following publication.

Developments in Financial Markets and Open Market Operations

The manager of the System Open Market Account (SOMA) reported on developments in domestic and foreign financial markets over the period since the July FOMC meeting. Yields on longer-term Treasury securities had fallen modestly, the foreign exchange value of the dollar had declined, and broad equity price indexes had increased. Survey responses suggested that the vast majority of market participants expected the FOMC to announce a change in SOMA reinvestment policy at this meeting and that nearly all market participants anticipated that the FOMC

[4] In compliance with the FOIA Improvement Act of 2016, the earlier version of the Rules was published in the *Federal Register* as an interim final rule on December 27, 2016.

would also leave the target range for the federal funds rate unchanged.

The deputy manager followed with a report on developments in money markets and open market operations over the intermeeting period. The effective federal funds rate remained near the center of the FOMC's target range except on month-ends. Take-up at the System's overnight reverse repurchase agreement facility averaged somewhat less than in the previous period. The deputy manager provided updates on developments with respect to reference interest rates and on small-value tests of open market operations, which are conducted routinely to promote operational readiness. The deputy manager also summarized the results of the staff's annual review of foreign reserves investment and its recommendations to the Foreign Currency Subcommittee for key parameters for foreign reserves investment for the forthcoming year, and the deputy manager noted that the Subcommittee would welcome any input from the Committee regarding those parameters.

> Secretary's note: On September 27, 2017, the Foreign Currency Subcommittee provided to the Federal Reserve Bank selected to conduct open market operations instructions that incorporated the staff recommendations for key parameters for foreign reserves investment.

Finally, the manager reviewed details of the operational approach that the Open Market Desk planned to follow if the Committee decided at this meeting to initiate the proposal for SOMA reinvestment policy described in the Committee's June 2017 Addendum to the Policy Normalization Principles and Plans.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Staff Review of the Economic Situation

The information reviewed for the September 19–20 meeting showed that labor market conditions continued to strengthen in July and August and that real gross domestic product (GDP) appeared to be rising at a moderate pace in the third quarter before the landfall of Hurricanes Harvey and Irma. Only limited data pertaining to the economic effects of these hurricanes were available at the time of the meeting, but it appeared likely that the negative effects would restrain national economic activity only in the near term.[5] Total consumer price inflation, as measured by the 12-month change in the price index for personal consumption expenditures (PCE), continued to run below 2 percent in July and was lower than at the start of the year. Survey-based measures of longer-run inflation expectations were little changed on balance.

Total nonfarm payroll employment rose solidly in July and August, with strong gains in private-sector jobs and declines in government employment. The unemployment rate dipped to 4.3 percent in July and edged back up to 4.4 percent in August. The unemployment rates for African Americans, for Hispanics, and for whites were lower, on average, in recent months than around the start of the year, whereas the unemployment rate for Asians was a little higher. The overall labor force participation rate edged up in July and was unchanged in August, and the share of workers employed part time for economic reasons was little changed on net. The rate of private-sector job openings increased in June and July, the hiring rate ticked up, and the quits rate edged down. Initial claims for unemployment insurance benefits jumped in early September from a very low level, and the Department of Labor noted that Hurricane Harvey had an effect on claims. Changes in measures of labor compensation were mixed. Compensation per hour rose just 1¼ percent over the four quarters ending in the second quarter of 2017 (partly reflecting a significant downward revision to compensation per hour in the second half of 2016), the employment cost index for private workers increased 2½ percent over the 12 months ending in June, and average hourly earnings for all employees rose 2½ percent over the 12 months ending in August.

Total industrial production (IP) increased for a sixth consecutive month in July but then declined sharply in August. The decrease in August largely reflected the temporary effects of Hurricane Harvey on drilling, servicing, and extraction activity for oil and natural gas and on output in several manufacturing industries that are concentrated in the Gulf Coast region, including petroleum refining, organic chemicals, and plastics materials and resins. Production disruptions from Hurricane Harvey continued into September, and the effects of Hurricane Irma were anticipated to hold down IP in that month as well.

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[5] The background materials prepared by the staff for this meeting were completed before the full effects of Hurricane Maria were evident.

Even so, anecdotal reports from the hurricane-affected regions, as well as daily data on capacity outages in selected Gulf Coast industries, indicated that production had already started to recover. Meanwhile, automakers' assembly schedules suggested that motor vehicle production would move up, on balance, over the remainder of the year despite a somewhat elevated level of dealers' inventories and a slowing in the pace of vehicle sales in recent months. Broader indicators of manufacturing production, such as the new orders indexes from national and regional manufacturing surveys, continued to point to moderate gains in factory output over the near term.

Several pieces of information suggested that real PCE was likely increasing at a slower rate in the third quarter than in the second. First, the components of the nominal retail sales data used by the Bureau of Economic Analysis to construct its estimate of PCE declined in August and were revised down in June and July. Second, the pace of light motor vehicle sales moved lower, on net, in July and August. Third, Hurricanes Harvey and Irma appeared likely to temporarily reduce consumer spending. However, recent readings on key factors that influence consumer spending—including continued gains in employment, real disposable personal income, and households' net worth—remained supportive of solid growth in real PCE. Consumer sentiment, as measured by the University of Michigan Surveys of Consumers, was upbeat through early September.

Recent information on housing activity suggested that real residential investment spending was decreasing in the third quarter after declining in the second quarter. Starts for new single-family homes edged down, on net, in July and August, and starts for multifamily units moved lower in both months. Building permit issuance for new single-family homes—which tends to be a good indicator of the underlying trend in construction—declined in July and August. Sales of both new and existing homes decreased in July.

Real private expenditures for business equipment and intellectual property appeared to be increasing at a solid rate in the third quarter. Nominal orders and shipments of nondefense capital goods excluding aircraft rose over the two months ending in July, and readings on business sentiment remained upbeat. In contrast, investment in nonresidential structures was poised to decline in the third quarter. Firms' nominal spending for nonresidential structures excluding drilling and mining fell sharply in June and July, and the number of oil and gas rigs in operation, an indicator of spending for structures in the drilling and mining sector, leveled out in the past couple of months after increasing steadily for the past year.

Total real government purchases looked to be roughly flat, on balance, in the third quarter. Nominal outlays for defense in July and August pointed to a small increase in real federal government purchases in the third quarter. However, payrolls for state and local governments declined in July and August, and nominal construction spending by these governments decreased in July.

The nominal U.S. international trade deficit narrowed substantially in June and was about unchanged in July. After increasing in June, exports retraced a bit of this gain in July, with lower exports of consumer goods, automotive products, and services. Imports decreased a little in both months. The available data suggested that net exports contributed positively to real GDP growth in the third quarter.

Total U.S. consumer prices, as measured by the PCE price index, increased nearly 1½ percent over the 12 months ending in July. Core PCE price inflation, which excludes consumer food and energy prices, also was about 1½ percent over that same period. Over the 12 months ending in August, the consumer price index (CPI) increased almost 2 percent, while core CPI inflation was 1¾ percent. Retail gasoline prices moved up sharply following the landfall of Hurricane Harvey and appeared likely to put temporary upward pressure on the 12-month change in total PCE prices. The median of inflation expectations over the next 5 to 10 years from the Michigan survey edged back up in the preliminary reading for September, and the median expectation for PCE price inflation over the next 10 years from the Survey of Professional Forecasters edged down. The medians of longer-run inflation expectations from the Desk's Survey of Primary Dealers and Survey of Market Participants were relatively little changed in September.

Foreign economic activity continued to expand at a solid pace. Economic growth picked up in the advanced foreign economies (AFEs) in the second quarter, especially in Canada, and incoming indicators suggested that growth slowed in the third quarter but remained firm. Recent indicators from the emerging market economies (EMEs) also pointed to continued strong economic growth, notwithstanding some slowing in the rate of expansion of activity in China. Headline inflation in most AFEs remained

subdued, held down in part by falling retail energy prices, but data through August suggested that the drag from energy prices was diminishing. Inflation also remained low in most EMEs, although food prices continued to put upward pressure on inflation in Mexico.

Staff Review of the Financial Situation

Domestic financial market conditions remained generally accommodative over the intermeeting period. U.S. equity prices increased, longer-term Treasury yields declined, and the dollar depreciated. Investors' interpretations of FOMC communications, market perceptions of a reduced likelihood of U.S. fiscal policy changes, and heightened geopolitical risks all reportedly placed downward pressure on longer-term yields. At the same time, financing conditions for households and nonfinancial businesses continued to provide support for growth in spending and investment.

FOMC communications over the intermeeting period reportedly were interpreted as indicating a somewhat slower pace of increases in the target range for the federal funds rate than previously expected. Market participants were attentive to the Committee's assessment of recent below-expectations inflation data and the acknowledgment in the July FOMC minutes that inflation might continue to run below the Committee's 2 percent objective for longer than anticipated. Investors also took note of the Committee's guidance in the July FOMC statement that it expected to begin implementing its balance sheet normalization program relatively soon. By the end of the intermeeting period, market participants appeared nearly certain that the Committee would announce the implementation of its balance sheet normalization plan at the September meeting. The probability of an increase in the target range for the federal funds rate occurring at either the September or the November meeting, as implied by quotes on federal funds futures contracts, fell to essentially zero, while the probability of a 25 basis point increase by the end of the year stood near 50 percent and was little changed since the July meeting. Quotes on overnight index swaps (OIS) pointed to a slight flattening of the expected path of the federal funds rate through 2020, with a staff model attributing most of the declines in OIS rates to lower expected rates.

Yields on intermediate- and longer-term nominal Treasury securities decreased modestly over the intermeeting period. Treasury yields fell following the July FOMC meeting, reflecting the response of investors to the postmeeting statement, and then dropped further amid rising geopolitical tensions related to North Korea and market perceptions of reduced prospects for enactment of a fiscal stimulus program. Economic data releases appeared to have little net effect on Treasury yields over most of the period. A staff term structure model attributed about half of the decline in the 10-year Treasury yield to a decrease in the average expected future short-term rate and the remaining half to a lower term premium. Measures of inflation compensation over the next 5 years rose modestly, on net, partly in response to the release of higher-than-expected CPI data for August, while inflation compensation 5 to 10 years ahead was little changed.

Broad U.S. equity price indexes increased over the intermeeting period. One-month-ahead option-implied volatility of the S&P 500 index—the VIX—remained at historically low levels despite brief spikes associated with increased investor concerns about geopolitical tensions and political uncertainties. Over the intermeeting period, spreads of yields on investment- and speculative-grade nonfinancial corporate bonds over those on comparable-maturity Treasury securities widened a bit.

Short-dated Treasury bill yields were elevated for a time, reflecting concerns about potential delays in raising the federal debt limit. However, following news of an agreement to extend the debt ceiling by three months, rates on Treasury bills maturing in October retraced their entire increase from early in the intermeeting period. Conditions in other domestic short-term funding markets were stable. Yields on a broad set of money market instruments remained in the ranges observed since the FOMC increased the target range for the federal funds rate in June. Daily take-up at the System's overnight reverse repurchase agreement facility ran somewhat lower than in the previous intermeeting period.

Since the July FOMC meeting, asset price movements in global financial markets were driven by geopolitical tensions in the Korean peninsula, improving economic prospects abroad, communications from AFE central banks, and changes in prospects for fiscal policy legislation in the United States. The broad index of the foreign exchange value of the dollar decreased 1½ percent; the decline was widespread, led by the strengthening of the euro and the Chinese renminbi. The Canadian dollar appreciated following a rate hike by the Bank of Canada at its September

meeting that came sooner than market participants expected. Similarly, sterling appreciated after the Bank of England signaled a potential rate hike in the coming months. Against this backdrop, longer-term yields rose slightly in Canada and the United Kingdom. In contrast, longer-term German yields declined moderately, despite better-than-expected economic data releases for the euro area, as market expectations shifted toward a more gradual withdrawal of stimulus by the European Central Bank (ECB) even though the ECB kept its policy stance unchanged.

Despite generally better-than-expected earnings releases, AFE equity prices were mixed over the period, with bank stocks underperforming broader indexes. Outside South Korea, most emerging market asset prices were little affected by the recent escalation of geopolitical concerns. Net flows to emerging market mutual funds briefly turned negative in early August, but they quickly returned to near the high levels seen since early this year. Yield spreads on EME sovereign bonds edged down.

Financing conditions for U.S. nonfinancial businesses continued to be accommodative. Issuance of corporate debt and equity was strong in July and August. Gross issuance of institutional leveraged loans continued its robust pace in June but slowed notably in July, as is typical during the summer. Meanwhile, the growth of commercial and industrial (C&I) loans on banks' books ticked up in July and August compared with its pace over the first half of the year; however, C&I loan growth from the fourth quarter of last year through August remained significantly lower than over recent years.

Gross issuance of municipal bonds was strong in August, and spreads of yields on municipal bonds over those on comparable-maturity Treasury securities increased a bit over the intermeeting period. The credit quality of state and local governments improved overall, as the number of ratings upgrades notably outpaced the number of downgrades in August.

The growth of commercial real estate (CRE) loans on banks' books continued to moderate in July and August, reflecting a slowdown in lending both for nonfarm nonresidential units and for construction and land development; nonetheless, CRE financing appeared to remain broadly available. Issuance of commercial mortgage-backed securities (CMBS) so far this year was similar to that in the same period a year earlier. Spreads on CMBS over Treasury securities narrowed a little over the intermeeting period and were near the bottom of their ranges of the past several years. Delinquency rates on loans in CMBS pools declined slightly but remained elevated for loans that were originated before the financial crisis.

Interest rates on 30-year fixed-rate residential mortgages moved lower over the intermeeting period, in line with comparable-maturity Treasury yields. Growth in mortgage lending for home purchases picked up in July and August compared with its pace over the second quarter. However, credit conditions remained tight for borrowers with low credit scores or hard-to-document incomes.

Consumer credit continued to be readily available for most borrowers, and overall loan balances rose at a moderate pace in the second quarter, reflecting further expansions in credit card, auto, and student loan balances. Issuance of asset-backed securities remained robust over the year to date and outpaced that of the previous year, providing support for consumer lending. However, standards and terms on auto and credit card loans were tighter for subprime borrowers, likely in response to rising delinquencies on such loans. Subprime auto loan balances have declined so far this year, partly reflecting the tighter lending standards, and the average credit score of all borrowers who obtained an auto loan in the second quarter remained near the upper end of its range of the past few years.

Staff Economic Outlook

The U.S. economic projection prepared by the staff for the September FOMC meeting was broadly similar to the previous forecast. Real GDP was expected to rise at a solid pace, on net, in the second half of the year, and by a little more than previously projected, reflecting data on spending that were stronger than expected on balance. The short-term disruptions to spending and production associated with Hurricanes Harvey and Irma were expected to reduce real GDP growth in the third quarter and to boost it in the fourth quarter as production returned to its pre-hurricane path and as a portion of the lost spending was made up. The hurricanes were also expected to depress payroll employment in September, with a reversal over the next few months. Beyond 2017, the forecast for real GDP growth was little revised. In particular, the staff continued to project that real GDP would expand at a modestly faster pace than potential output through 2019. The unemployment

rate was projected to decline gradually over the next couple of years and to continue running below the staff's estimate of its longer-run natural rate over this period. Because of continued subdued inflation readings and, given real GDP growth, a larger-than-expected decline in the unemployment rate over much of the past year, the staff revised down slightly its estimate of the longer-run natural rate of unemployment in this projection.

The staff's forecast for consumer price inflation, as measured by the change in the PCE price index, was revised up somewhat for 2017 in response to hurricane-related effects on gasoline prices. The near-term forecast for core PCE price inflation was essentially unrevised. Total PCE price inflation this year was expected to run at the same pace as last year, with a slower increase in core PCE prices offset by a slightly larger increase in energy prices and an upturn in the prices for food and non-energy imports. Beyond 2017, the inflation forecast was little revised from the previous projection. The staff continued to project that inflation would edge higher in the next couple of years and that it would reach the Committee's longer-run objective in 2019.

The staff viewed the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as similar to the average of the past 20 years. On the one hand, many financial market indicators of uncertainty remained subdued, and the uncertainty associated with the foreign outlook still appeared to be less than last year; on the other hand, uncertainty about the direction of some economic policies was judged to have remained elevated. The staff saw the risks to the forecasts for real GDP growth and the unemployment rate as balanced. The risks to the projection for inflation were also seen as balanced. Downside risks included the possibilities that longer-term inflation expectations may have edged down or that the recent run of soft inflation readings could prove to be more persistent than the staff expected. These downside risks were seen as essentially counterbalanced by the upside risk that inflation could increase more than expected in an economy that was projected to continue operating above its longer-run potential.

Participants' Views on Current Conditions and the Economic Outlook

In conjunction with this FOMC meeting, members of the Board of Governors and Federal Reserve Bank presidents submitted their projections of the most likely outcomes for real output growth, the unemployment rate, and inflation for each year from 2017 through 2020 and over the longer run, based on their individual assessments of the appropriate path for the federal funds rate.[6] The longer-run projections represented each participant's assessment of the rate to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy. These projections and policy assessments are described in the Summary of Economic Projections, which is an addendum to these minutes.

In their discussion of the economic situation and the outlook, meeting participants agreed that information received over the intermeeting period indicated that the labor market had continued to strengthen and that economic activity had been rising moderately so far this year. Job gains had remained solid in recent months, and the unemployment rate had stayed low. Household spending had been expanding at a moderate rate, and growth in business fixed investment had picked up in recent quarters. On a 12-month basis, overall inflation and the measure excluding food and energy prices had declined this year and were running below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed on balance.

Participants acknowledged that Hurricanes Harvey, Irma, and Maria would affect economic activity in the near term. They expected growth of real GDP in the third quarter to be held down by the severe disruptions caused by the storms but to rebound beginning in the fourth quarter as rebuilding got under way and economic activity in the affected areas resumed. Similarly, employment would be temporarily depressed by the hurricanes, but, abstracting from those effects, employment gains were anticipated to remain solid, and the unemployment rate was expected to decline a bit further by year-end.

Based on the estimated effects of past major hurricanes that made landfall in the United States, participants judged that the recent storms were unlikely to materially alter the course of the national economy

[6] Four members of the Board of Governors, the same number as in June 2017, were in office at the time of the September 2017 meeting. The office of the president of the Federal Reserve Bank of Richmond was vacant at the time of both FOMC meetings; First Vice President Mark L. Mullinix submitted economic projections. One participant did not submit longer-run projections for real output growth, the unemployment rate, or the federal funds rate.

over the medium term. Moreover, they generally viewed the information on spending, production, and labor market activity that became available over the intermeeting period, which was mostly not affected by the hurricanes, as suggesting little change in the outlook for economic growth and the labor market over the medium term. Consequently, they continued to expect that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace and labor market conditions would strengthen somewhat further. In the aftermath of the hurricanes, higher prices for gasoline and some other items were likely to boost inflation temporarily. Apart from that effect, inflation on a 12-month basis was expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee's 2 percent objective over the medium term. Near-term risks to the economic outlook appeared roughly balanced, but participants agreed to continue to monitor inflation developments closely.

Consumer spending had been expanding at a moderate rate through the summer, and reports on retail activity from participants' contacts were generally positive. Participants expected some fluctuations in consumer spending to result from the hurricanes, but they generally judged that consumption growth would continue to be supported by still-solid fundamental determinants of household spending, including the income generated by the ongoing strength in the labor market, improved household balance sheets, and high levels of consumer confidence. Sales of autos and light trucks had softened over the summer, leading producers to slow production to address a buildup of inventories, but a couple of participants noted that automakers expected to see a temporary increase in demand as households and businesses replaced vehicles damaged during the storms.

Incoming data on business spending showed that equipment investment had picked up during 2017 after having been weak during much of 2016. Shipments and orders of nondefense capital goods had been on a steady uptrend over the first eight months of 2017. A number of participants reported that their business contacts appeared to have become more confident about the economic outlook, and it was noted that the National Federation of Independent Business reported that greater optimism among small businesses had contributed to a sharp increase in the proportion of small firms planning increases in their capital expenditures. A couple of participants commented that competitive pressures and tight labor markets were increasing the incentives for businesses to substitute capital for labor or to invest in information technology. In contrast, reports on the strength of nonresidential construction were mixed. And in energy-producing regions, the count of drilling rigs in operation had begun to level off before the onset of Hurricane Harvey.

Participants generally indicated that, before the recent hurricanes, business activity in their Districts was expanding at a moderate pace. Although industrial production in areas affected by the storms was estimated to have declined in August, a number of participants from other areas reported further solid gains in manufacturing activity in their Districts. Participants from the regions affected by the hurricanes reported that businesses in their Districts anticipated that the disruptions to business and sales would be relatively short lived. In the energy sector, Hurricane Harvey had shut down drilling and refining activity, but by the time of the meeting, these operations had substantially resumed. And many business contacts in the affected areas reported that they expected their operations to return to normal before the end of the year. Farming in some parts of the country had been affected by drought, and income in the agricultural sector was under downward pressure because of low crop prices.

Overall, the available information suggested that, although the storms would likely affect the quarterly pattern of changes in real GDP at least through the second half of the year, economic activity would continue to expand at a moderate rate over the medium term, supported by further gains in consumer spending and the pickup in business investment. In addition, improving global economic conditions and the depreciation of the dollar in recent months were anticipated to result in a modest positive contribution to domestic economic activity from net exports. In contrast, most participants had not assumed enactment of a fiscal stimulus package in their economic projections or had marked down the expected magnitude of any stimulus.

Labor market conditions strengthened further in recent months. The increases in nonfarm payroll employment in July and August remained well above the pace likely to be sustainable in the longer run. Although the unemployment rate was little changed from March to August, it remained below participants' estimates of its longer-run normal level. Other indicators suggested that labor market conditions had continued to tighten over recent quarters. The labor force participation rate had been moving side-

ways despite factors, such as demographic changes, that were contributing to a declining longer-run trend. In addition, the number of individuals working part time for economic reasons, as a share of household employment, had moved lower. The job openings rate, the quits rate, households' assessments of job availability, and the labor market conditions index prepared by the Federal Reserve Bank of Kansas City had returned to pre-recession levels. However, some participants still saw room for further increases in labor utilization, with a couple of them noting that the employment-to-population ratio and the participation rate for prime-age workers had not fully recovered to pre-recession levels.

Against the backdrop of the continued strengthening in labor market conditions, participants discussed recent wage developments. Increases in most aggregate measures of hourly wages and labor compensation remained subdued, and several participants commented that the absence of broad-based upward wage pressures suggested that the sustainable rate of unemployment might be lower than they currently estimated. Other factors that may have been contributing to the subdued pace of wage increases reported in the national data included low productivity growth, changes in the composition of the workforce, and competitive pressure on employers to hold down their costs. However, reports from business contacts in several Districts indicated that employers in labor markets in which demand was high or in which workers in some occupations were in short supply were raising wages noticeably to compete for workers and limit turnover. It was noted that the expected increase in demand for skilled construction workers for reconstruction in hurricane-affected areas would likely exacerbate existing shortages. Most participants expected wage increases to pick up over time as the labor market strengthened further; a couple of participants cautioned that a broader acceleration in wages may already have begun, consistent with already-tight labor market conditions.

Based on the available data, PCE price inflation over the 12 months ending in August was estimated to be about 1½ percent, remaining below the Committee's longer-run objective. In their review of the recent data and the outlook for inflation, participants discussed a number of factors that could be contributing to the low readings on consumer prices this year and weighed the extent to which those factors might be transitory or could prove more persistent. Many participants continued to believe that the cyclical pressures associated with a tightening labor market or an economy operating above its potential were likely to show through to higher inflation over the medium term. In addition, many judged that at least part of the softening in inflation this year was the result of idiosyncratic or one-time factors, and, thus, their effects were likely to fade over time. However, other developments, such as the effects of earlier changes to government health-care programs that had been holding down health-care costs, might continue to do so for some time. Some participants discussed the possibility that secular trends, such as the influence of technological innovations on competition and business pricing, also might have been muting inflationary pressures and could be intensifying. It was noted that other advanced economies were also experiencing low inflation, which might suggest that common global factors could be contributing to persistence of below-target inflation in the United States and abroad. Several participants commented on the importance of longer-run inflation expectations to the outlook for a return of inflation to 2 percent. A number of indicators of inflation expectations, including survey statistics and estimates derived from financial market data, were generally viewed as indicating that longer-run inflation expectations remained reasonably stable, although a few participants saw some of these measures as low or slipping.

Participants raised a number of important considerations about the implications of persistently low inflation for the path of the federal funds rate over the medium run. Several expressed concern that the persistence of low rates of inflation might imply that the underlying trend was running below 2 percent, risking a decline in inflation expectations. If so, the appropriate policy path should take into account the need to bolster inflation expectations in order to ensure that inflation returned to 2 percent and to prevent erosion in the credibility of the Committee's objective. It was also noted that the persistence of low inflation might result in the federal funds rate staying uncomfortably close to its effective lower bound. However, a few others pointed out the need to consider the lags in the response of inflation to tightening resource utilization and, thus, increasing upside risks to inflation as the labor market tightened further.

On balance, participants continued to forecast that PCE price inflation would stabilize around the Committee's 2 percent objective over the medium term. However, several noted that in preparing their projections for this meeting, they had taken on board the

likelihood that convergence to the Committee's symmetric 2 percent inflation objective might take somewhat longer than they anticipated earlier. Participants generally agreed it would be important to monitor inflation developments closely. Several of them noted that interpreting the next few inflation reports would likely be complicated by the temporary run-up in energy costs and in the prices of other items affected by storm-related disruptions and rebuilding.

In financial markets, longer-term interest rates and the foreign exchange value of the dollar declined over the intermeeting period, and equity prices increased. It was noted that U.S. financial conditions recently appeared to be responding as much or more to economic and financial news from abroad as to domestic developments. Many participants viewed accommodative financial conditions, which had prevailed even as the Committee raised the federal funds rate, as likely to provide support for the economic expansion. However, a couple of those participants expressed concern that the persistence of highly accommodative financial conditions could, over time, pose risks to financial stability. In contrast, a few participants cautioned that these financial market conditions might not deliver much impetus to aggregate demand if they instead reflected a more pessimistic assessment of prospects for longer-run economic growth and, accordingly, a view that the longer-run neutral rate of interest in the United States would remain low.

In their discussion of monetary policy, all participants agreed that the economy had evolved broadly as they had anticipated at the time of the June meeting and that the incoming data had not materially altered the medium-term economic outlook. Consistent with those assessments, participants saw it as appropriate, at this meeting, to announce implementation of the plan for reducing the Federal Reserve's securities holdings that the Committee released in June. Many underscored that the reduction in securities holdings would be gradual and that financial market participants appeared to have a clear understanding of the Committee's planned approach for a gradual normalization of the size of the Federal Reserve's balance sheet. Consequently, participants generally expected that any reaction in financial markets to the start of balance sheet normalization would likely be limited.

With the medium-term outlook little changed, inflation below 2 percent, and the neutral rate of interest estimated to be quite low, all participants thought it would be appropriate for the Committee to maintain the current target range for the federal funds rate at this meeting, and nearly all supported again indicating in the postmeeting statement that a gradual approach to increasing the federal funds rate will likely be warranted. Nevertheless, many participants expressed concern that the low inflation readings this year might reflect not only transitory factors, but also the influence of developments that could prove more persistent, and it was noted that some patience in removing policy accommodation while assessing trends in inflation was warranted. A few of these participants thought that no further increases in the federal funds rate were called for in the near term or that the upward trajectory of the federal funds rate might appropriately be quite shallow. Some other participants, however, were more worried about upside risks to inflation arising from a labor market that had already reached full employment and was projected to tighten further. Their concerns were heightened by the apparent easing in financial conditions that had developed since the Committee's policy normalization process was initiated in December 2015. These participants cautioned that an unduly slow pace in removing policy accommodation could result in an overshoot of the Committee's inflation objective in the medium term that would likely be costly to reverse or could lead to an intensification of financial stability risks or to other imbalances that might prove difficult to unwind.

Consistent with the expectation that a gradual rise in the federal funds rate would be appropriate, many participants thought that another increase in the target range later this year was likely to be warranted if the medium-term outlook remained broadly unchanged. Several others noted that, in light of the uncertainty around their outlook for inflation, their decision on whether to take such a policy action would depend importantly on whether the economic data in coming months increased their confidence that inflation was moving up toward the Committee's objective. A few participants thought that additional increases in the federal funds rate should be deferred until incoming information confirmed that the low readings on inflation this year were not likely to persist and that inflation was clearly on a path toward the Committee's symmetric 2 percent objective over the medium term. All agreed that they would closely monitor and assess incoming data before making any further adjustment to the federal funds rate.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members judged that information received since the Committee met in July indicated that the labor market had continued to strengthen and that economic activity had been rising moderately so far this year. Job gains had remained solid in recent months, and the unemployment rate had stayed low. Household spending had been expanding at a moderate rate, and growth in business fixed investment had picked up in recent quarters. On a 12-month basis, overall inflation and the measure excluding food and energy prices had declined this year and were running below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed on balance.

Members noted that Hurricanes Harvey, Irma, and Maria had devastated many communities, inflicting severe hardship. Members judged that storm-related disruptions and rebuilding would affect economic activity in the near term, but past experience suggested that the hurricanes were unlikely to materially alter the course of the national economy over the medium term. Consequently, the Committee continued to expect that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace, and labor market conditions would strengthen somewhat further. Higher prices for gasoline and some other items in the aftermath of the hurricanes would likely boost inflation temporarily; apart from that effect, inflation on a 12-month basis was expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee's 2 percent objective over the medium term. Members saw near-term risks to the economic outlook as roughly balanced, but they agreed to continue to monitor inflation developments closely.

After assessing current conditions and the outlook for economic activity, the labor market, and inflation, members decided to maintain the target range for the federal funds rate at 1 to 1¼ percent. They noted that the stance of monetary policy remained accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.

Members agreed that the timing and size of future adjustments to the target range for the federal funds rate would depend on their assessment of realized and expected economic conditions relative to the Committee's objectives of maximum employment and 2 percent inflation. They expected that economic conditions would evolve in a manner that would warrant gradual increases in the federal funds rate and that the federal funds rate was likely to remain, for some time, below levels that were expected to prevail in the longer run. Members also again stated that the actual path of the federal funds rate would depend on the economic outlook as informed by incoming data. In particular, they reaffirmed that they would carefully monitor actual and expected inflation developments relative to the Committee's symmetric inflation goal. Some members emphasized that, in considering the timing of further adjustments in the federal funds rate, they would be evaluating incoming information to assess the likelihood that recent low readings on inflation were transitory and that inflation was again on a trajectory consistent with achieving the Committee's 2 percent objective over the medium term.

Members agreed that, in October, the Committee would initiate the balance sheet normalization program described in the June 2017 Addendum to the Policy Normalization Principles and Plans. Several members observed that, in part because financial market participants appeared to have a clear understanding of the Committee's plan for gradually reducing the Federal Reserve's securities holdings, any reaction in financial markets to the announcement and implementation of the program would likely be limited.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until it was instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective September 21, 2017, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 1 to 1¼ percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 1.00 percent, in amounts limited only by the value of Treasury securities held outright

in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.

The Committee directs the Desk to continue rolling over at auction Treasury securities maturing during September, and to continue reinvesting in agency mortgage-backed securities the principal payments received through September from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities.

Effective in October 2017, the Committee directs the Desk to roll over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $6 billion, and to reinvest in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month that exceeds $4 billion. Small deviations from these amounts for operational reasons are acceptable.

The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

"Information received since the Federal Open Market Committee met in July indicates that the labor market has continued to strengthen and that economic activity has been rising moderately so far this year. Job gains have remained solid in recent months, and the unemployment rate has stayed low. Household spending has been expanding at a moderate rate, and growth in business fixed investment has picked up in recent quarters. On a 12-month basis, overall inflation and the measure excluding food and energy prices have declined this year and are running below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.

Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. Hurricanes Harvey, Irma, and Maria have devastated many communities, inflicting severe hardship. Storm-related disruptions and rebuilding will affect economic activity in the near term, but past experience suggests that the storms are unlikely to materially alter the course of the national economy over the medium term. Consequently, the Committee continues to expect that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, and labor market conditions will strengthen somewhat further. Higher prices for gasoline and some other items in the aftermath of the hurricanes will likely boost inflation temporarily; apart from that effect, inflation on a 12-month basis is expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee's 2 percent objective over the medium term. Near-term risks to the economic outlook appear roughly balanced, but the Committee is monitoring inflation developments closely.

In view of realized and expected labor market conditions and inflation, the Committee decided to maintain the target range for the federal funds rate at 1 to 1¼ percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.

In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.

In October, the Committee will initiate the balance sheet normalization program described in the June 2017 Addendum to the Committee's Policy Normalization Principles and Plans."

Voting for this action: Janet L. Yellen, William C. Dudley, Lael Brainard, Charles L. Evans, Stanley Fischer, Patrick Harker, Robert S. Kaplan, Neel Kashkari, and Jerome H. Powell.

Voting against this action: None.

Consistent with the Committee's decision to leave the target range for the federal funds rate unchanged, the Board of Governors voted unanimously to leave the interest rates on required and excess reserve balances unchanged at 1¼ percent and voted unanimously to approve establishment of the primary credit rate (discount rate) at the existing level of 1¾ percent.[7]

[7] The second vote of the Board also encompassed approval of the establishment of the interest rates for secondary and seasonal credit under the existing formulas for computing such rates.

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, October 31–November 1, 2017. The meeting adjourned at 10:05 a.m. on September 20, 2017.

Notation Vote

By notation vote completed on August 15, 2017, the Committee unanimously approved the minutes of the Committee meeting held on July 25–26, 2017.

Brian F. Madigan
Secretary

Addendum: Summary of Economic Projections

In conjunction with the Federal Open Market Committee (FOMC) meeting held on September 19–20, 2017, meeting participants submitted their projections of the most likely outcomes for real output growth, the unemployment rate, and inflation for each year from 2017 to 2020 and over the longer run.[8] Each participant's projections were based on information available at the time of the meeting, together with his or her assessment of appropriate monetary policy—including a path for the federal funds rate and its longer-run value—and assumptions about other factors likely to affect economic outcomes. The longer-run projections represent each participant's assessment of the value to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy.[9] "Appropriate monetary policy" is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her individual interpretation of the Federal Reserve's objectives of maximum employment and stable prices.

All participants who submitted longer-run projections expected that, under appropriate monetary policy, growth in real gross domestic product (GDP) this year would run somewhat above their individual estimates of its longer-run rate. Almost all participants projected that economic growth would moderate over the next three years, and almost all projected that real GDP growth in 2019 and 2020 would be at or close to their individual estimates of the economy's longer-run potential growth rate. All participants who submitted longer-run projections expected that the unemployment rate would run below their estimates of its longer-run normal level in 2017, and almost all projected that the unemployment rate would remain below their estimates of its longer-run level through 2020. All participants projected that inflation, as measured by the four-quarter percentage change in the price index for personal consumption expenditures (PCE), would run below 2 percent in 2017 and then step up in the next three years; about half of them projected that inflation would be at the Committee's 2 percent objective in 2019 and 2020, and all judged that inflation would be within a couple of tenths of a percentage point of the objective in those years. Most participants commented on the effects of Hurricanes Harvey and Irma and judged that there would likely be some effect on national economic activity and inflation in the near term but little effect in the medium term.[10] Table 1 and figure 1 provide summary statistics for the projections.

As shown in figure 2, participants generally expected that evolving economic conditions would likely warrant further gradual increases in the federal funds rate to achieve and sustain maximum employment and 2 percent inflation. Although some participants lowered their federal funds rate projections since June, the median projections for the federal funds rate in 2017 and 2018 were unchanged; the median projection for 2019 was slightly lower, and the median projection for the longer-run normal level of the federal funds rate edged down. However, because of considerable uncertainty about how the economy will evolve, the actual path of short-term interest rates, including the federal funds rate, can differ substantially from projections.

In general, participants viewed the uncertainty attached to their economic projections as broadly similar to the average of the past 20 years, and all participants saw the uncertainty associated with their forecasts for real GDP growth, the unemployment rate, and inflation as unchanged from June. Most participants judged the risks around their projections for economic growth, the unemployment rate, and inflation as broadly balanced.

The Outlook for Economic Activity

The median of participants' projections for the growth rate of real GDP, conditional on their individual assumptions about appropriate monetary policy, was 2.4 percent in 2017, about 2 percent in 2018 and 2019, and 1.8 percent in 2020; the median

[8] Four members of the Board of Governors, the same number as in June 2017, were in office at the time of the September 2017 meeting. As in June 2017, the office of the president of the Federal Reserve Bank of Richmond was vacant at the time of this FOMC meeting; First Vice President Mark L. Mullinix again submitted economic projections.

[9] One participant did not submit longer-run projections for real output growth, the unemployment rate, or the federal funds rate. This participant's projections over the next several years were informed by the view that the U.S. economy is characterized by multiple medium-term regimes, that these regimes are persistent, and that optimal monetary policy is regime dependent. Because switches between regimes are difficult to predict and affect the longer-run outlook, this participant's forecast did not incorporate convergence to longer-term outcomes for variables other than inflation.

[10] Participants had completed their submissions for the Summary of Economic Projections before the full effects of Hurricane Maria were evident.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assessments of projected appropriate monetary policy, September 2017

Percent

Variable	Median[1]					Central tendency[2]					Range[3]				
	2017	2018	2019	2020	Longer run	2017	2018	2019	2020	Longer run	2017	2018	2019	2020	Longer run
Change in real GDP	2.4	2.1	2.0	1.8	1.8	2.2–2.5	2.0–2.3	1.7–2.1	1.6–2.0	1.8–2.0	2.2–2.7	1.7–2.6	1.4–2.3	1.4–2.0	1.5–2.2
June projection	2.2	2.1	1.9	n.a.	1.8	2.1–2.2	1.8–2.2	1.8–2.0	n.a.	1.8–2.0	2.0–2.5	1.7–2.3	1.4–2.3	n.a.	1.5–2.2
Unemployment rate	4.3	4.1	4.1	4.2	4.6	4.2–4.3	4.0–4.2	3.9–4.4	4.0–4.5	4.5–4.8	4.2–4.5	3.9–4.5	3.8–4.5	3.8–4.8	4.4–5.0
June projection	4.3	4.2	4.2	n.a.	4.6	4.2–4.3	4.0–4.3	4.1–4.4	n.a.	4.5–4.8	4.1–4.5	3.9–4.5	3.8–4.5	n.a.	4.5–5.0
PCE inflation	1.6	1.9	2.0	2.0	2.0	1.5–1.6	1.8–2.0	2.0	2.0–2.1	2.0	1.5–1.7	1.7–2.0	1.8–2.2	1.9–2.2	2.0
June projection	1.6	2.0	2.0	n.a.	2.0	1.6–1.7	1.8–2.0	2.0–2.1	n.a.	2.0	1.5–1.8	1.7–2.1	1.8–2.2	n.a.	2.0
Core PCE inflation[4]	1.5	1.9	2.0	2.0		1.5–1.6	1.8–2.0	2.0	2.0–2.1		1.4–1.7	1.7–2.0	1.8–2.2	1.9–2.2	
June projection	1.7	2.0	2.0	n.a.		1.6–1.7	1.8–2.0	2.0–2.1	n.a.		1.6–1.8	1.7–2.1	1.8–2.2	n.a.	
Memo: Projected appropriate policy path															
Federal funds rate	1.4	2.1	2.7	2.9	2.8	1.1–1.4	1.9–2.4	2.4–3.1	2.5–3.5	2.5–3.0	1.1–1.6	1.1–2.6	1.1–3.4	1.1–3.9	2.3–3.5
June projection	1.4	2.1	2.9	n.a.	3.0	1.1–1.6	1.9–2.6	2.6–3.1	n.a.	2.8–3.0	1.1–1.6	1.1–3.1	1.1–4.1	n.a.	2.5–3.5

Note: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The June projections were made in conjunction with the meeting of the Federal Open Market Committee on June 13–14, 2017. One participant did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate in conjunction with the June 13–14, 2017, meeting, and one participant did not submit such projections in conjunction with the September 19–20, 2017, meeting.

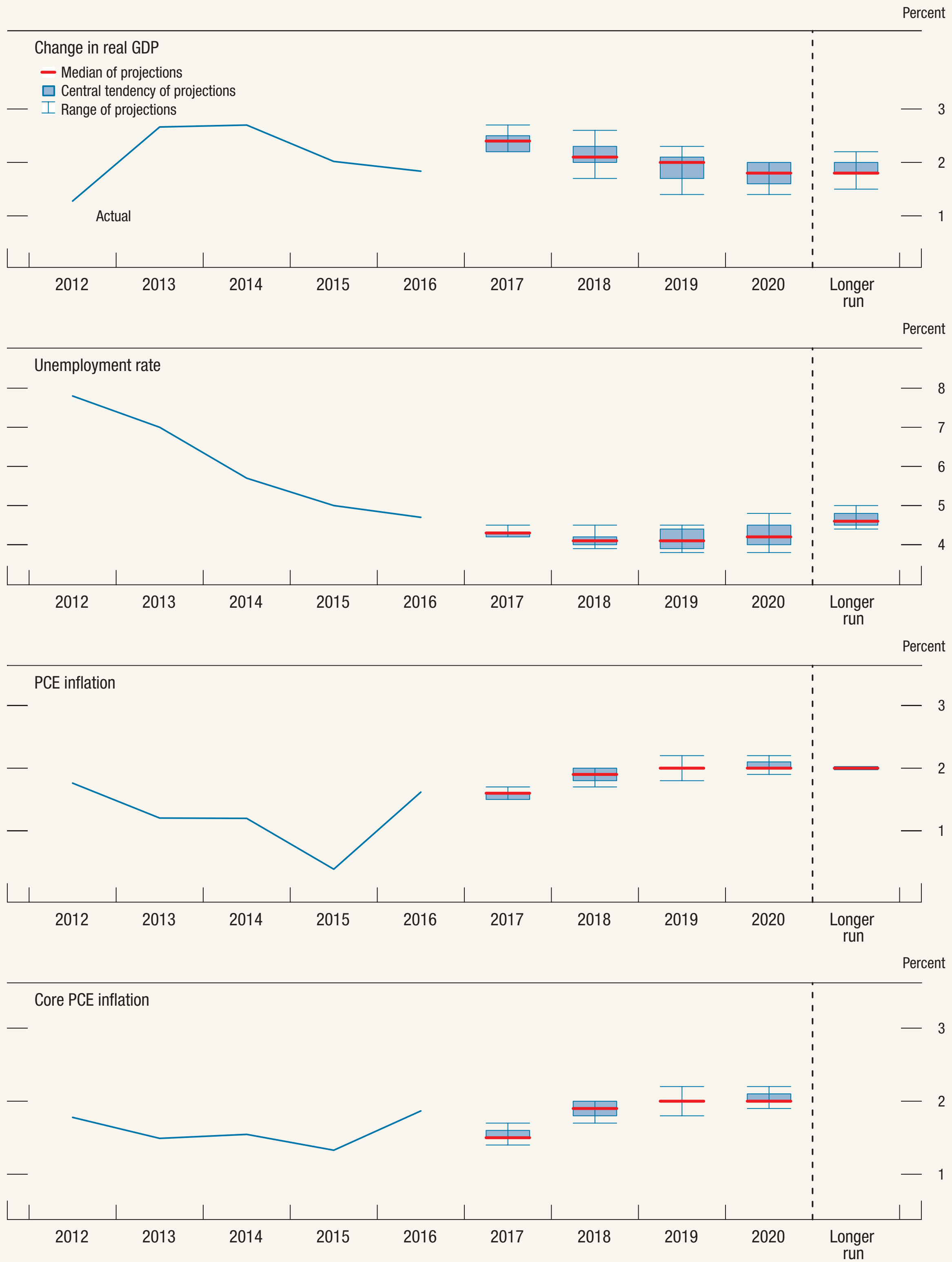
1 For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.

2 The central tendency excludes the three highest and three lowest projections for each variable in each year.

3 The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.

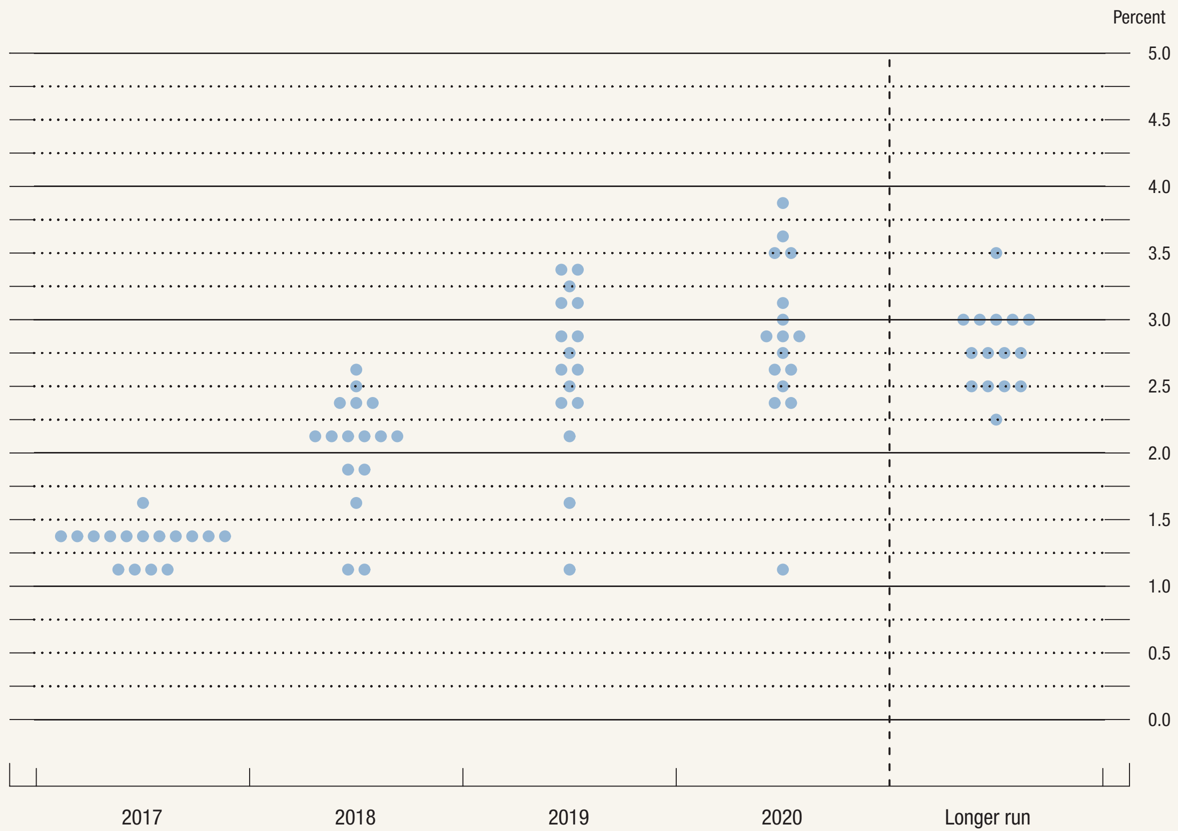
4 Longer-run projections for core PCE inflation are not collected.

Figure 1. Medians, central tendencies, and ranges of economic projections, 2017–20 and over the longer run



Note: Definitions of variables and other explanations are in the notes to table 1. The data for the actual values of the variables are annual.

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate



Note: Each shaded circle indicates the value (rounded to the nearest ⅛ percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. One participant did not submit longer-run projections for the federal funds rate.

of projections for the longer-run normal rate of real GDP growth was 1.8 percent. Compared with the June Summary of Economic Projections (SEP), the median of the forecasts for real GDP growth for 2017 was a bit higher, while the medians for 2018 and 2019, as well as the median assessment of the longer-run growth rate, were mostly unchanged. Most participants did not incorporate expectations of fiscal stimulus in their projections. Several participants who included some fiscal stimulus indicated that they had marked down its expected magnitude relative to their June projections.

The median of projections for the unemployment rate in the fourth quarter of 2017 was 4.3 percent, unchanged from June and 0.3 percentage point below the median assessment of its longer-run normal level. The medians of the unemployment rate projections for 2018 through 2020 were a little above 4 percent. The median estimate of the longer-run normal rate of unemployment was 4.6 percent, unchanged from June.

Figures 3.A and 3.B show the distributions of participants' projections for real GDP growth and the unemployment rate from 2017 to 2020 and in the longer run. The distribution of individual projections for real GDP growth for this year shifted up, with half of the participants now expecting real GDP growth of 2.4 or 2.5 percent and none seeing it below 2.2 percent. The distribution of projected real GDP growth in 2018 also shifted up a bit, while the distributions in 2019 and in the longer run were broadly similar to the distributions of the June projections. The distributions of individual projections for the unemployment rate in 2018 and 2019 shifted down slightly.

The Outlook for Inflation

The median of projections for headline PCE inflation was 1.6 percent this year, 1.9 percent next year, and 2 percent in 2019 and 2020, about unchanged from June. Most participants anticipated that inflation would continue to run slightly below 2 percent in 2018, while no participants expected inflation above 2 percent in that year. About half projected that inflation would be equal to the Committee's objective in 2019 and 2020; others projected that inflation would run a little above or below the Committee's objective in one or both of those years. The median of projections for core PCE inflation was 1.5 percent in 2017 and 1.9 percent in 2018, a decline of 0.2 percentage point and 0.1 percentage point from June, respectively. The median projection for core PCE inflation in 2019 and 2020 was 2.0 percent.

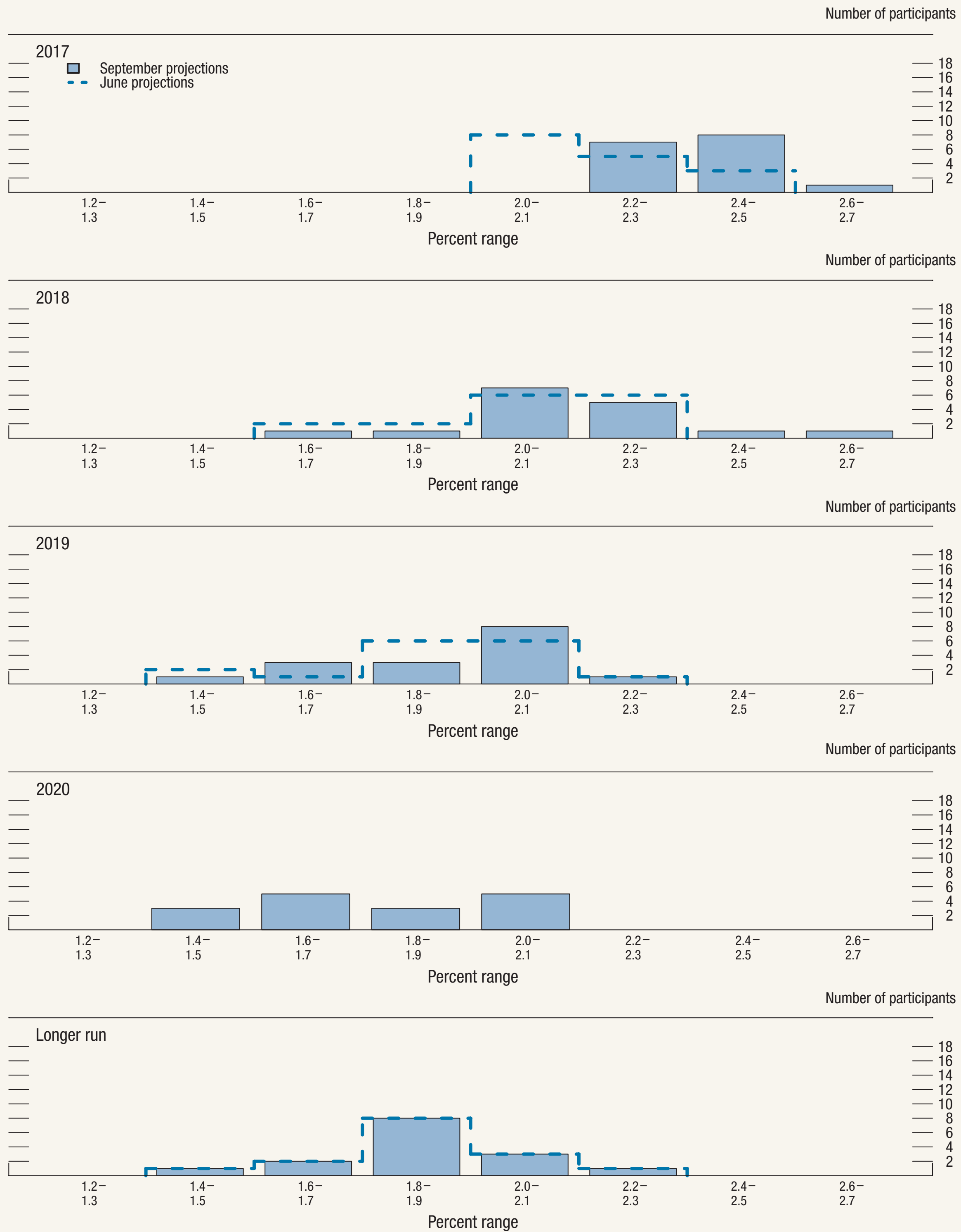
Figures 3.C and 3.D provide information on the distributions of participants' views about the outlook for inflation. The distributions of projections for headline PCE inflation and for core PCE inflation in 2017 moved down somewhat from June, and the distributions for both measures in 2018 shifted down slightly. Most participants indicated that the soft readings on inflation so far this year were a factor contributing to the revisions in their inflation forecasts.

Appropriate Monetary Policy

Figure 3.E provides the distribution of participants' judgments regarding the appropriate target or midpoint of the target range for the federal funds rate at the end of each year from 2017 to 2020 and over the longer run. The distributions for 2017 and 2018 became somewhat less dispersed compared with those in June. Even though the range of the distribution in 2019 was narrower than in June, other measures of dispersion were roughly unchanged. The median projections of the federal funds rate continued to show gradual increases, with the median assessment for 2017 standing at 1.38 percent, consistent with three 25 basis point increases this year. Thereafter, the medians of the projections were 2.13 percent at the end of 2018, 2.69 percent at the end of 2019, and 2.88 percent at the end of 2020. Compared with their projections prepared for the June SEP, some participants reduced their projection for the federal funds rate in the longer run; the median declined 0.25 percentage point, to 2.75 percent.

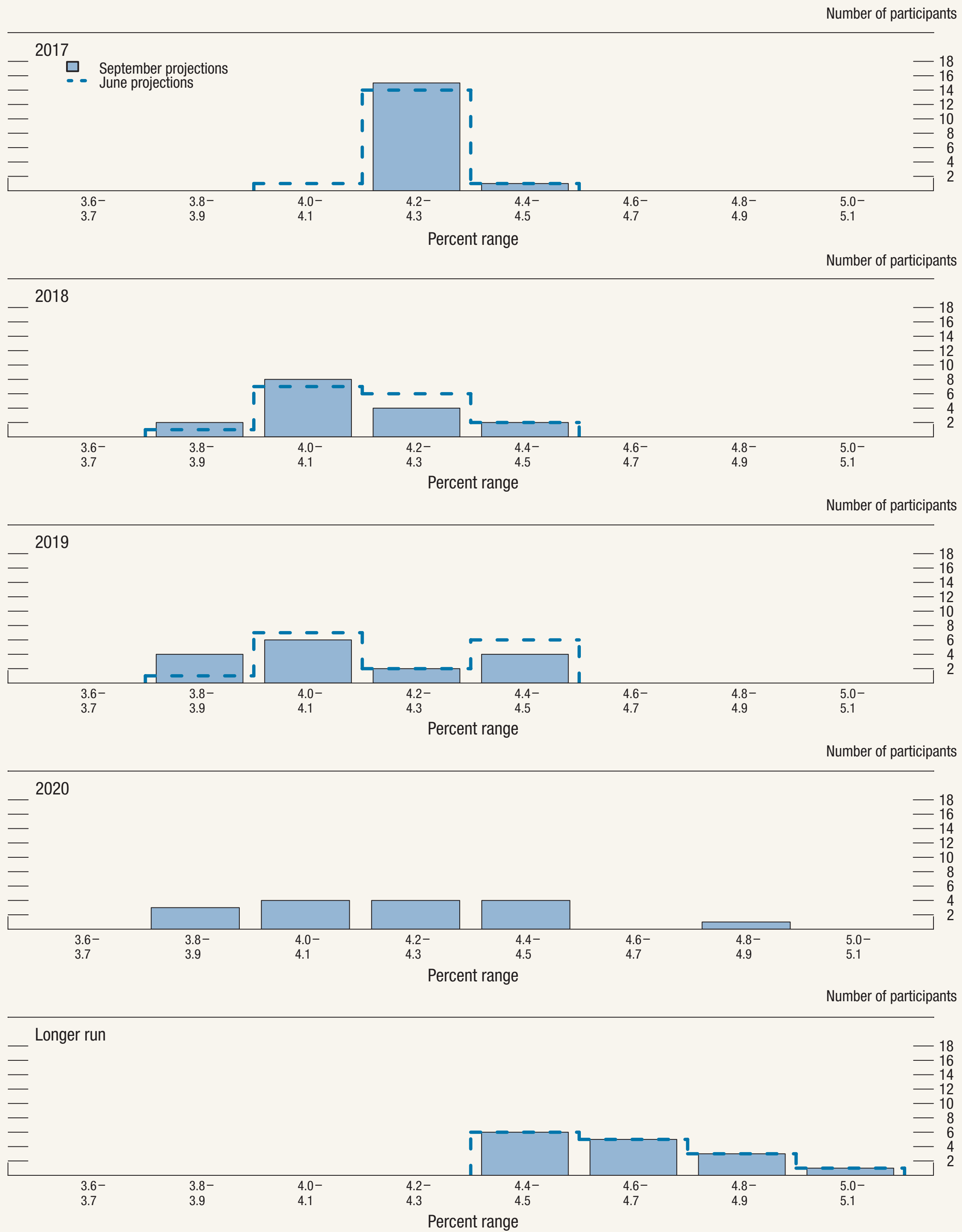
In discussing their September projections, many participants again expressed the view that the appropriate upward trajectory of the federal funds rate over the next few years would likely be gradual. That anticipated pace reflected a few factors, including a neutral real interest rate that was currently low and was expected to move up only slowly as well as a gradual return of inflation to the Committee's 2 percent objective. Some participants judged that a slightly lower path of the federal funds rate than in their previous projections would likely be appropriate, with a few citing a slower rate of progress toward the Committee's 2 percent inflation objective than previously expected or reduced prospects for fiscal stimulus. In their discussions of appropriate monetary policy, some of the participants mentioned

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2017–20 and over the longer run



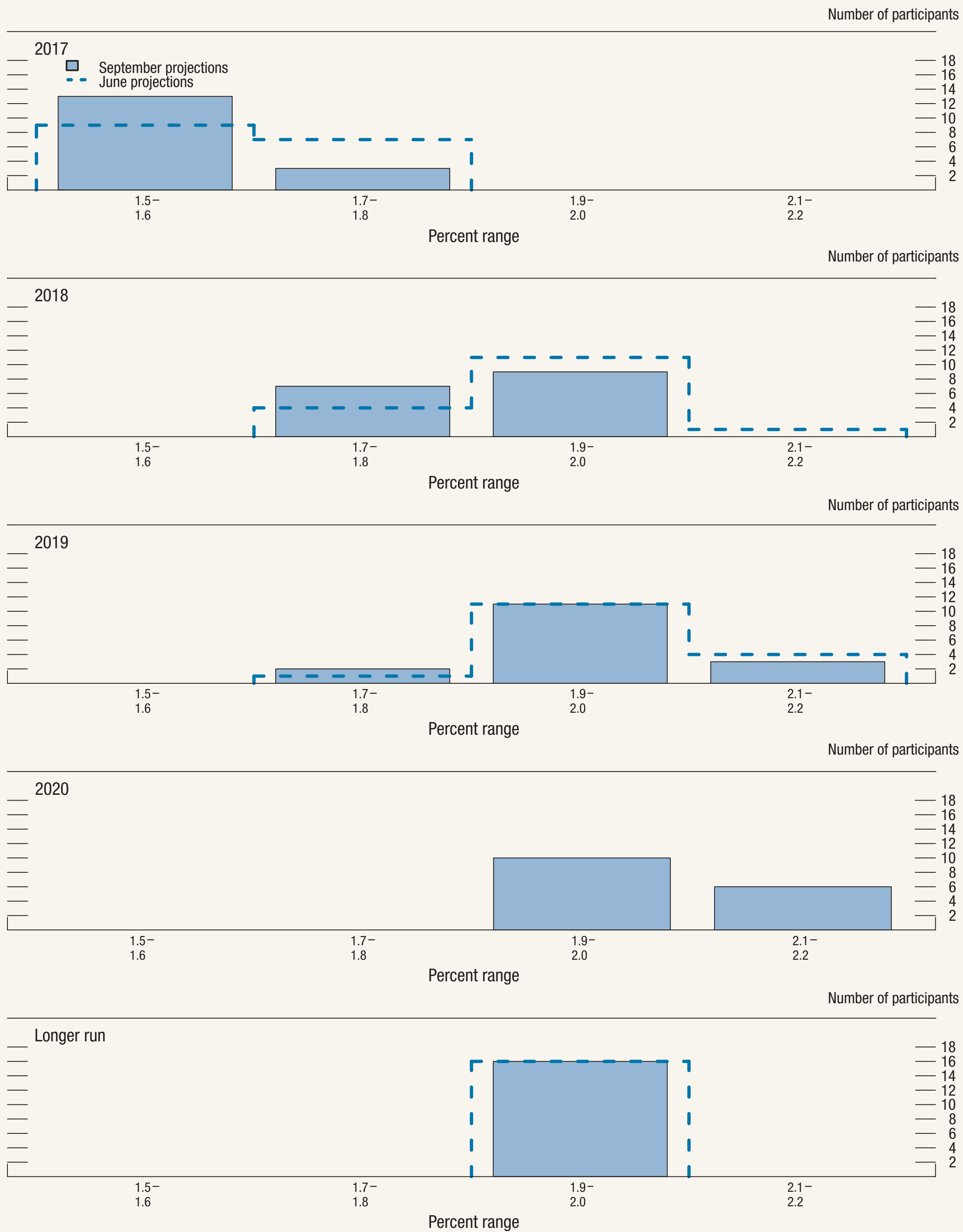
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2017–20 and over the longer run



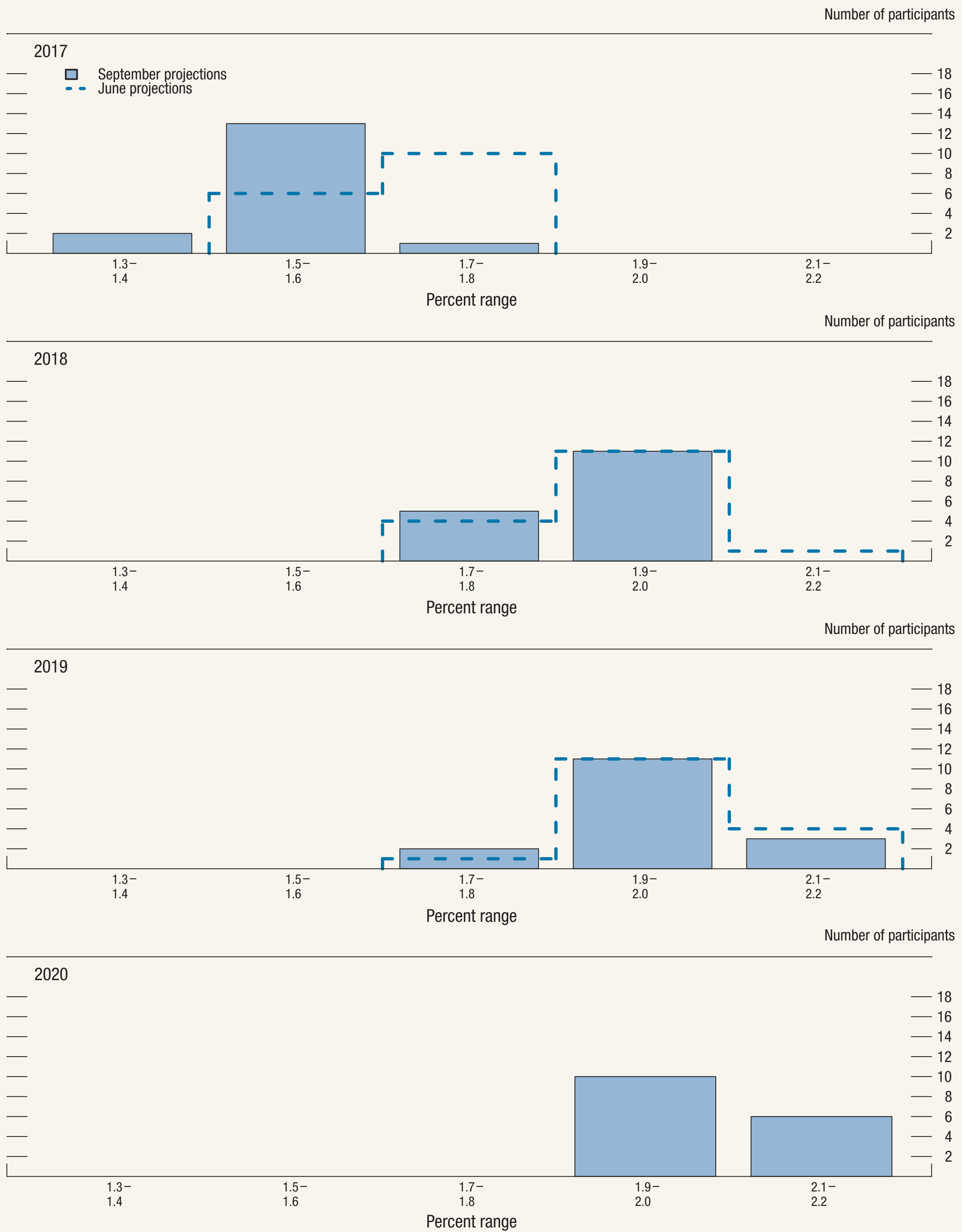
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2017–20 and over the longer run



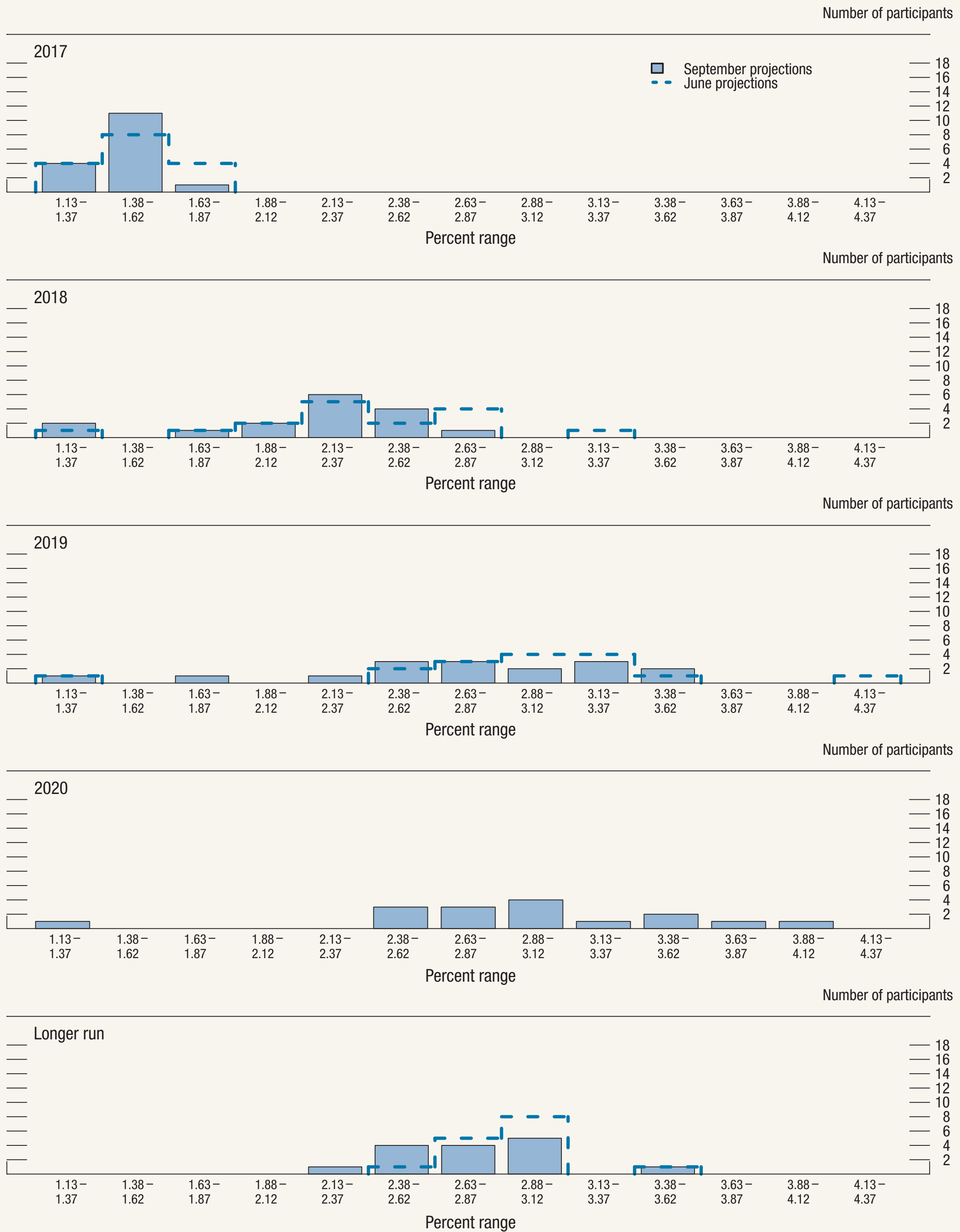
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2017–20



Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.E. Distribution of participants' judgments of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate, 2017–20 and over the longer run



Note: Definitions of variables and other explanations are in the notes to table 1.

Table 2. Average historical projection error ranges
Percentage points

Variable	2017	2018	2019	2020
Change in real GDP[1]	±1.2	±1.9	±2.0	±2.1
Unemployment rate[1]	±0.3	±1.1	±1.6	±2.0
Total consumer prices[2]	±0.8	±1.1	±1.2	±1.1
Short-term interest rates[3]	±0.5	±1.7	±2.3	±2.7

Note: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1997 through 2016 that were released in the summer by various private and government forecasters. As described in the box "Forecast Uncertainty," under certain assumptions, there is about a 70 percent probability that actual outcomes for real GDP, unemployment, consumer prices, and the federal funds rate will be in ranges implied by the average size of projection errors made in the past. For more information, see David Reifschneider and Peter Tulip (2017), "Gauging the Uncertainty of the Economic Outlook Using Historical Forecasting Errors: The Federal Reserve's Approach," Finance and Economics Discussion Series 2017-020 (Washington: Board of Governors of the Federal Reserve System, February), available at www.federalreserve.gov/econresdata/feds/2017/files/2017020pap.pdf.

1 Definitions of variables are in the general note to table 1.

2 Measure is the overall consumer price index, the price measure that has been most widely used in government and private economic forecasts. Projections are percent changes on a fourth quarter to fourth quarter basis.

3 For Federal Reserve staff forecasts, measure is the federal funds rate. For other forecasts, measure is the rate on 3-month Treasury bills. Projection errors are calculated using average levels, in percent, in the fourth quarter.

their assumptions for the Committee's reinvestment policy; all of those who did so anticipated that the Committee would begin its program of balance sheet normalization, described in the Addendum to the Policy Normalization Principles and Plans released in June, before the end of this year.

Uncertainty and Risks

The future outcomes of economic variables are subject to considerable uncertainty. In assessing the path of monetary policy that, in their view, is likely to be most appropriate, FOMC participants take account of the range of possible economic outcomes, the likelihood of those outcomes, and the potential benefits and costs should they occur. Table 2 provides one measure of forecast uncertainty for the change in real GDP, the unemployment rate, and total consumer price inflation—the root mean squared error (RMSE) from forecast errors of various private and government projections made over the past 20 years. This measure of forecast uncertainty is incorporated graphically in the top panels of figures 4.A, 4.B, and 4.C, which display "fan charts" plotting the median SEP projections for the three variables surrounded by symmetric confidence intervals derived from the RMSEs presented in table 2. The width of the confidence interval for each variable at a given point is a measure of forecast uncertainty at that horizon. If the degree of uncertainty attending these projections is similar to the typical magnitude of past forecast errors and the risks around the projections are broadly balanced, future outcomes of these variables would have about a 70 percent probability of occurring within these confidence intervals. For all three variables, this measure of forecast uncertainty is substantial and generally increases as the forecast horizon lengthens.

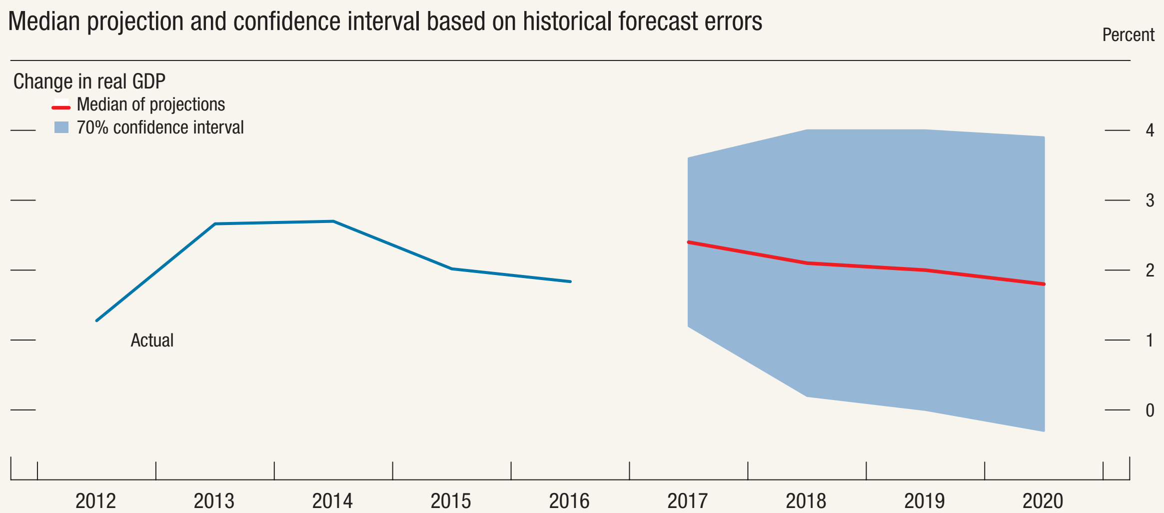
FOMC participants may judge that the width of the historical fan charts shown in figures 4.A through 4.C does not adequately capture their current assessments of the degree of uncertainty that surrounds their economic projections. Participants' assessments of the current level of uncertainty surrounding their economic projections are shown in the bottom-left panels of figures 4.A, 4.B, and 4.C. All or nearly all participants viewed the degree of uncertainty attached to their economic projections about GDP growth, the unemployment rate, and inflation as broadly similar to the average of the past 20 years, and all participants saw the degree of uncertainty as unchanged from June.[11] In their discussion of the uncertainty attached to their current projections, a few participants judged that near-term uncertainty for economic activity and inflation had increased as a result of the effects of Hurricanes Harvey and Irma but commented that their assessment of medium-term prospects was unaffected.

The fan charts, which are constructed so as to be symmetric around the median projections, also may not fully reflect participants' current assessments of the balance of risks to their economic projections. Participants' assessments of the balance of risks to their economic projections are shown in the bottom-right panels of figures 4.A, 4.B, and 4.C. As in June, most participants judged the risks to their projections of real GDP growth, the unemployment rate, headline inflation, and core inflation as broadly balanced—in other words, as broadly consistent with a symmetric fan chart. One fewer participant than in June judged the risks to GDP growth as weighted to the upside, and one fewer participant judged the risks to the unemployment rate as weighted to the downside. Also, one fewer participant judged the risks to inflation to be weighted to the upside, and one more viewed the risks as weighted to the downside.

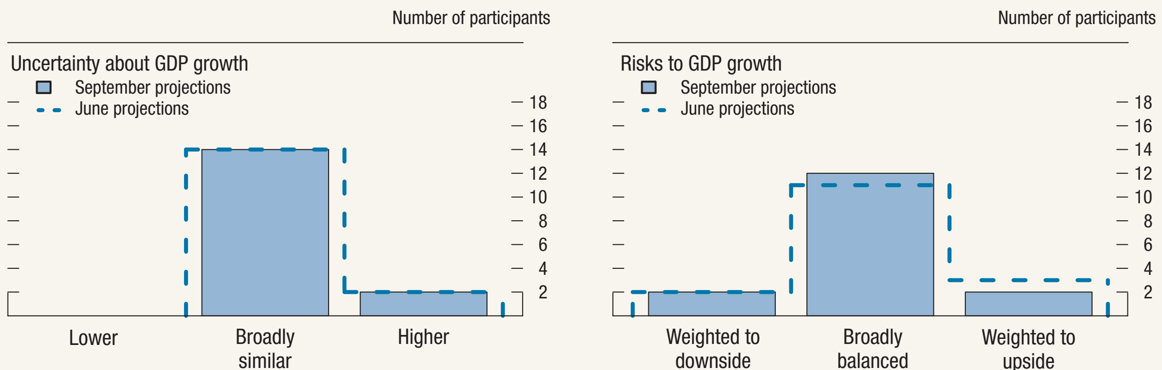
11 At the end of this summary, the box "Forecast Uncertainty" discusses the sources and interpretation of uncertainty in the economic forecasts and explains the approach used to assess the uncertainty and risks attending the participants' projections.

Figure 4.A. Uncertainty and risks in projections of GDP growth

Median projection and confidence interval based on historical forecast errors

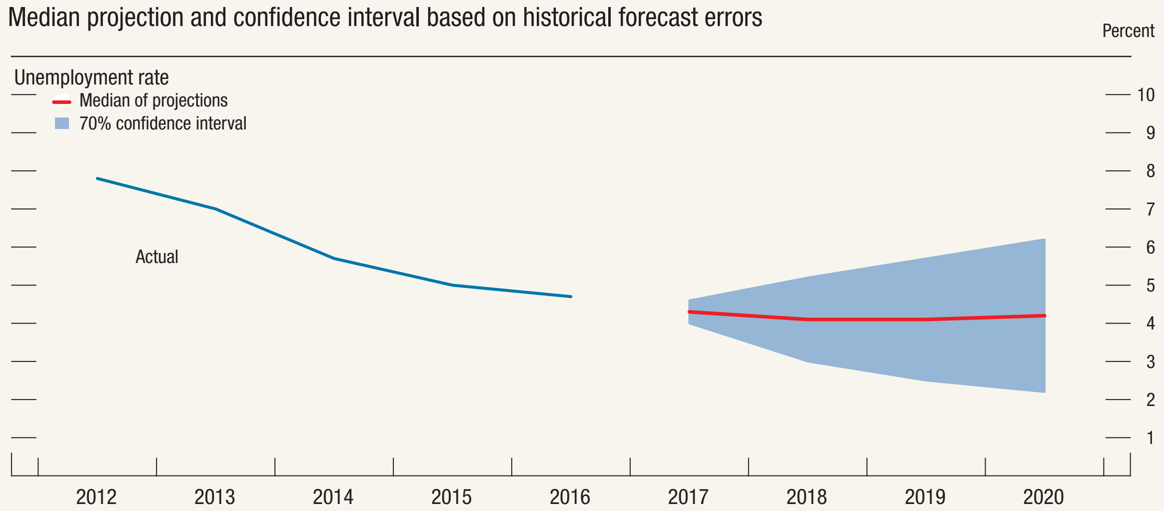


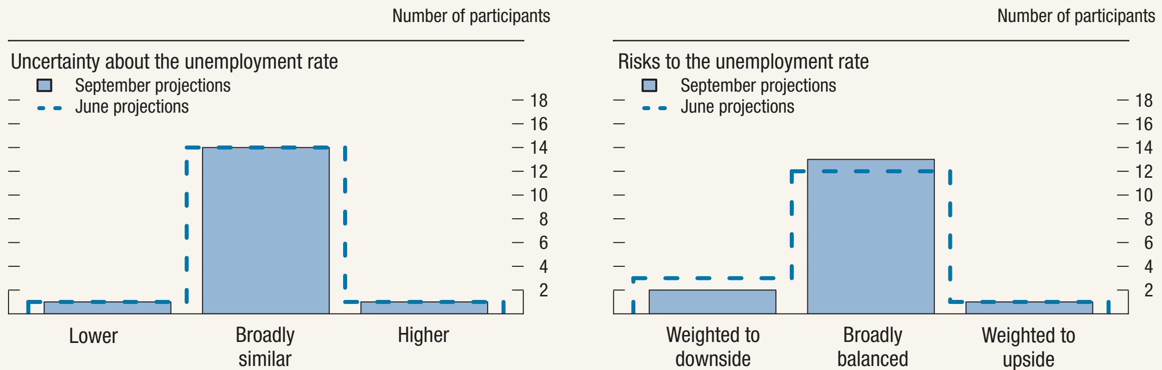
FOMC participants' assessments of uncertainty and risks around their economic projections



Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

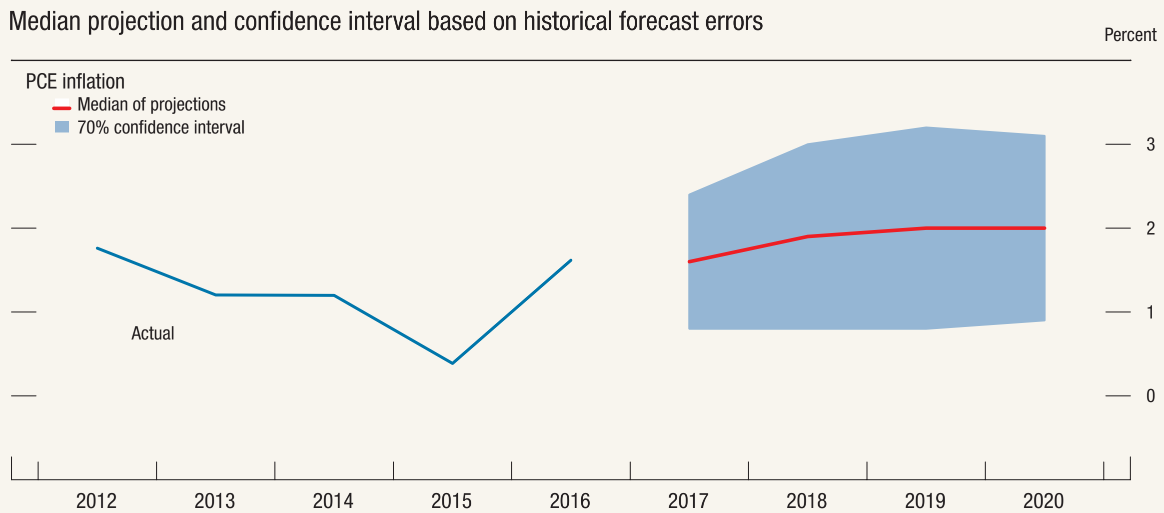
Figure 4.B. Uncertainty and risks in projections of the unemployment rate

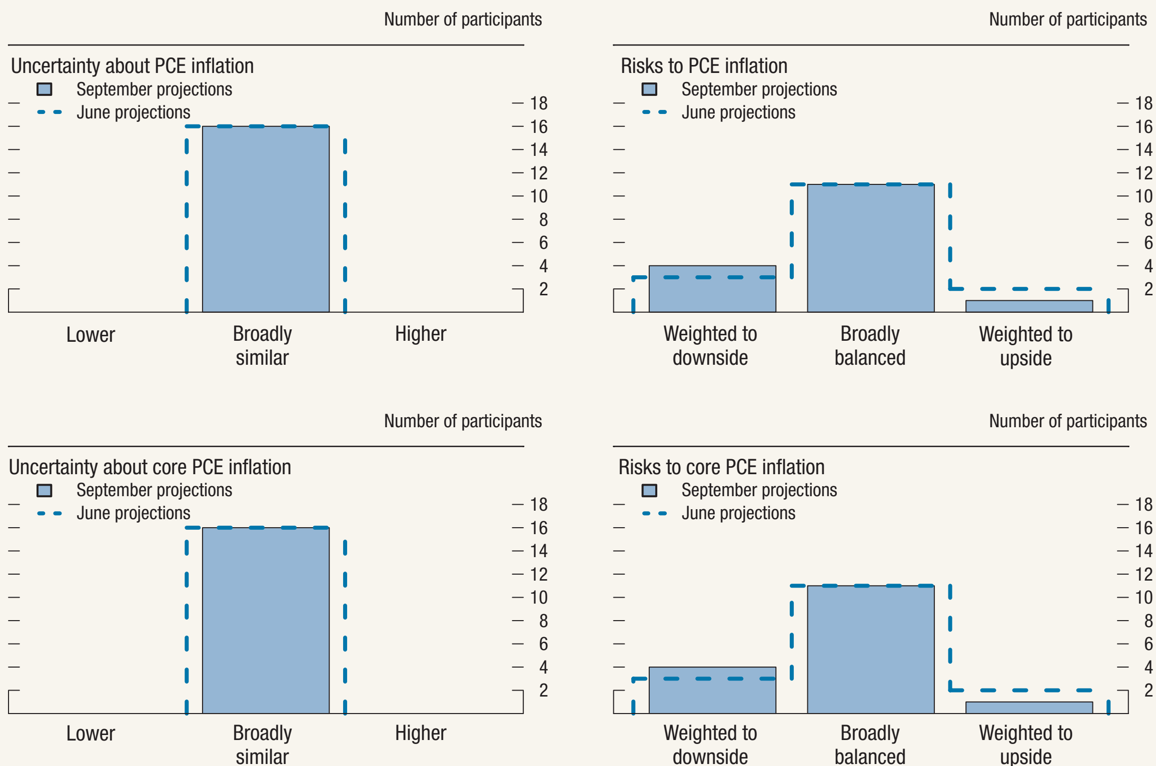




Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Figure 4.C. Uncertainty and risks in projections of PCE inflation

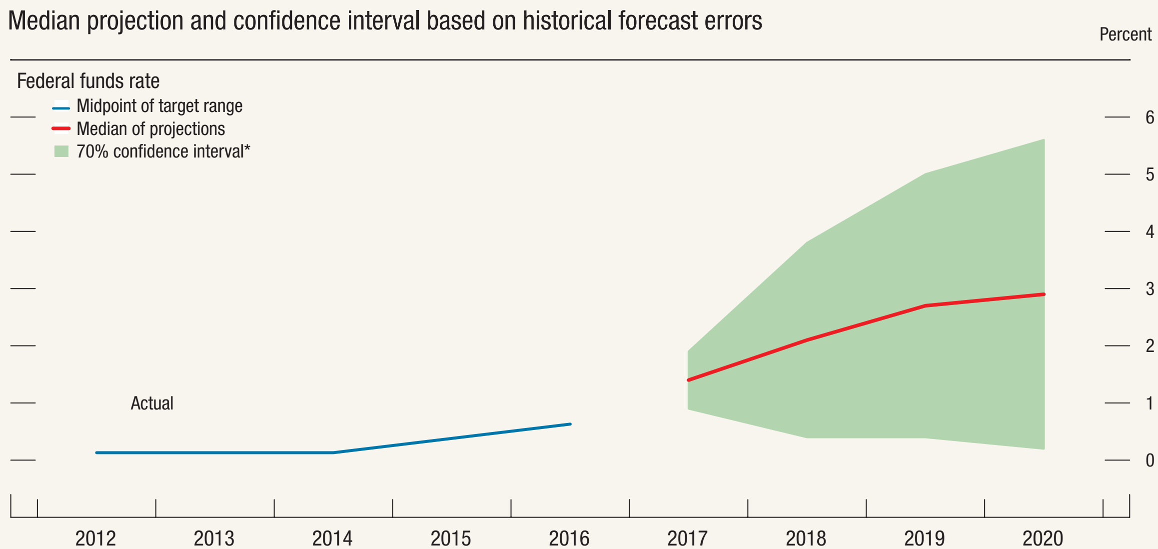




Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Participants' assessments of the future path of the federal funds rate consistent with appropriate policy are also subject to considerable uncertainty, reflecting in part uncertainty about the evolution of GDP growth, the unemployment rate, and inflation over time. The final line in table 2 shows the RMSEs for forecasts of short-term interest rates. These RMSEs are not strictly consistent with the SEP projections for the federal funds rate, in part because the SEP projections are not forecasts of the most likely outcomes but rather reflect each participant's individual assessment of appropriate monetary policy. However, the associated confidence intervals provide a sense of the likely uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables and additional adjustments to monetary policy that may be appropriate to offset the effects of shocks to the economy. To illustrate the uncertainty regarding the appropriate path for monetary policy, figure 5 shows a fan chart plotting the median SEP projections for the federal funds rate surrounded by confidence intervals derived from the results presented in table 2. As with the macroeconomic variables, forecast uncertainty is substantial and increases at longer horizons.

Figure 5. Uncertainty in projections of the federal funds rate



Note: The blue and red lines are based on actual values and median projected values, respectively, of the Committee's target for the federal funds rate at the end of the year indicated. The actual values are the midpoint of the target range; the median projected values are based on either the midpoint of the target range or the target level. The confidence interval around the median projected values is based on root mean squared errors of various private and government forecasts made over the previous 20 years. The confidence interval is not strictly consistent with the projections for the federal funds rate, primarily because these projections are not forecasts of the likeliest outcomes for the federal funds rate, but rather projections of participants' individual assessments of appropriate monetary policy. Still, historical forecast errors provide a broad sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that may be appropriate to offset the effects of shocks to the economy.

The confidence interval is assumed to be symmetric except when it is truncated at zero—the bottom of the lowest target range for the federal funds rate that has been adopted in the past by the Committee. This truncation would not be intended to indicate the likelihood of the use of negative interest rates to provide additional monetary policy accommodation if doing so was judged appropriate. In such situations, the Committee could also employ other tools, including forward guidance and large-scale asset purchases, to provide additional accommodation. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections.

* The confidence interval is derived from forecasts of the average level of short-term interest rates in the fourth quarter of the year indicated; more information about these data is available in table 2. The shaded area encompasses less than a 70 percent confidence interval if the confidence interval has been truncated at zero.

Forecast Uncertainty

The economic projections provided by the members of the Board of Governors and the presidents of the Federal Reserve Banks inform discussions of monetary policy among policymakers and can aid public understanding of the basis for policy actions. Considerable uncertainty attends these projections, however. The economic and statistical models and relationships used to help produce economic forecasts are necessarily imperfect descriptions of the real world, and the future path of the economy can be affected by myriad unforeseen developments and events. Thus, in setting the stance of monetary policy, participants consider not only what appears to be the most likely economic outcome as embodied in their projections, but also the range of alternative possibilities, the likelihood of their occurring, and the potential costs to the economy should they occur.

Table 2 summarizes the average historical accuracy of a range of forecasts, including those reported in past *Monetary Policy Reports* and those prepared by the Federal Reserve Board's staff in advance of meetings of the Federal Open Market Committee (FOMC). The projection error ranges shown in the table illustrate the considerable uncertainty associated with economic forecasts. For example, suppose a participant projects that real gross domestic product (GDP) and total consumer prices will rise steadily at annual rates of, respectively, 3 percent and 2 percent. If the uncertainty attending those projections is similar to that experienced in the past and the risks around the projections are broadly balanced, the numbers reported in table 2 would imply a probability of about 70 percent that actual GDP would expand within a range of 1.8 to 4.2 percent in the current year, 1.1 to 4.9 percent in the second year, 1.0 to 5.0 percent in the third year, and 0.9 to 5.1 percent in the fourth year. The corresponding 70 percent confidence intervals for overall inflation would be 1.2 to 2.8 percent in the current year, 0.9 to 3.1 percent in the second year, 0.8 to 3.2 percent in the third year, and 0.9 to 3.1 percent in the fourth year. Figures 4.A through 4.C illustrate these confidence bounds in "fan charts" that are symmetric and centered on the medians of FOMC participants' projections for GDP growth, the unemployment rate, and inflation. However, in some instances, the risks around the projections may not be symmetric. In particular, the unemployment rate cannot be negative; furthermore, the risks around a particular projection might be tilted to either the upside or the downside, in which case the corresponding fan chart would be asymmetrically positioned around the median projection.

Because current conditions may differ from those that prevailed, on average, over history, participants provide judgments as to whether the uncertainty attached to their projections of each economic variable is greater than, smaller than, or broadly similar to typical levels of forecast uncertainty seen in the past 20 years, as presented in table 2 and reflected in the widths of the confidence intervals shown in the top panels of figures 4.A through 4.C. Participants' current assessments of the uncertainty surrounding their projections are summarized in the bottom-left panels of those figures. Participants also provide judgments as to whether the risks to their projections are weighted to the upside, are weighted to the downside, or are broadly balanced. That is, while the symmetric historical fan charts shown in the top panels of figures 4.A through 4.C imply that the risks to participants' projections are balanced, participants may judge that there is a greater risk that a given variable will be above rather than below their projections. These judgments are summarized in the lower-right panels of figures 4.A through 4.C.

As with real activity and inflation, the outlook for the future path of the federal funds rate is subject to considerable uncertainty. This uncertainty arises primarily because each participant's assessment of the appropriate stance of monetary policy depends importantly on the evolution of real activity and inflation over time. If economic conditions evolve in an unexpected manner, then assessments of the appropriate setting of the federal funds rate would change from that point forward. The final line in table 2 shows the error ranges for forecasts of short-term interest rates. They suggest that the historical confidence intervals associated with projections of the federal funds rate are quite wide. It should be noted, however, that these confidence intervals are not strictly consistent with the projections for the federal funds rate, as these projections are not forecasts of the most likely quarterly outcomes but rather are projections of participants' individual assessments of appropriate monetary policy and are on an end-of-year basis. However, the forecast errors should provide a sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that would be appropriate to offset the effects of shocks to the economy.

If at some point in the future the confidence interval around the federal funds rate were to extend below zero, it would be truncated at zero for purposes of the fan chart shown in figure 5; zero is the bottom of the lowest target range for the federal funds rate that has been adopted by the Committee in the past. This approach to the construction of the federal funds rate fan chart would be merely a convention; it would not have any implications for possible future policy decisions regarding the use of negative interest rates to provide additional monetary policy accommodation if doing so were appropriate. In such situations, the Committee could also employ other tools, including forward guidance and asset purchases, to provide additional accommodation.

While figures 4.A through 4.C provide information on the uncertainty around the economic projections, figure 1 provides information on the range of views across FOMC participants. A comparison of figure 1 with figures 4.A through 4.C shows that the dispersion of the projections across participants is much smaller than the average forecast errors over the past 20 years.

Meeting Held on October 31–November 1, 2017

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, October 31, 2017, at 1:30 p.m. and continued on Wednesday, November 1, 2017, at 9:00 a.m.[1]

Present

Janet L. Yellen
Chair

William C. Dudley
Vice Chairman

Lael Brainard

Charles L. Evans

Patrick Harker

Robert S. Kaplan

Neel Kashkari

Jerome H. Powell

Randal K. Quarles

Raphael W. Bostic, Loretta J. Mester, Mark L. Mullinix, and John C. Williams
Alternate Members of the Federal Open Market Committee

James Bullard, Esther L. George, and Eric Rosengren
Presidents of the Federal Reserve Banks of St. Louis, Kansas City, and Boston, respectively

Brian F. Madigan
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

David W. Wilcox
Economist

James A. Clouse, Thomas A. Connors, Daniel G. Sullivan, William Wascher, Beth Anne Wilson, and Mark L. J. Wright
Associate Economists

Simon Potter
Manager, System Open Market Account

Lorie K. Logan
Deputy Manager, System Open Market Account

Ann E. Misback
Secretary, Office of the Secretary, Board of Governors

Matthew J. Eichner[2]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Michael S. Gibson
Director, Division of Supervision and Regulation, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Daniel M. Covitz
Deputy Director, Division of Research and Statistics, Board of Governors

Rochelle M. Edge and Stephen A. Meyer
Deputy Directors, Division of Monetary Affairs, Board of Governors

Trevor A. Reeve
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

John M. Roberts
Special Adviser to the Board, Office of Board Members, Board of Governors

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

David E. Lebow
Senior Associate Director, Division of Research and Statistics, Board of Governors

[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

[2] Attended through the discussion of developments in financial markets and open market operations.

Antulio N. Bomfim and Ellen E. Meade
Senior Advisers, Division of Monetary Affairs, Board of Governors

Shaghil Ahmed and Joseph W. Gruber
Associate Directors, Division of International Finance, Board of Governors

David López-Salido
Associate Director, Division of Monetary Affairs, Board of Governors

Stephanie R. Aaronson, Burcu Duygan-Bump, and Glenn Follette
Assistant Directors, Division of Research and Statistics, Board of Governors

Christopher J. Gust
Assistant Director, Division of Monetary Affairs, Board of Governors

Penelope A. Beattie[3]
Assistant to the Secretary, Office of the Secretary, Board of Governors

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Youngsuk Yook
Principal Economist, Division of Research and Statistics, Board of Governors

Jonathan E. Goldberg
Senior Economist, Division of Monetary Affairs, Board of Governors

Randall A. Williams
Senior Information Manager, Division of Monetary Affairs, Board of Governors

James Narron
First Vice President, Federal Reserve Bank of Philadelphia

David Altig, Kartik B. Athreya, Mary Daly, Jeff Fuhrer, Ellis W. Tallman, and Christopher J. Waller
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, San Francisco, Boston, Cleveland, and St. Louis, respectively

Marc Giannoni and Paolo A. Pesenti
Senior Vice Presidents, Federal Reserve Banks of Dallas and New York, respectively

Sarah K. Bell, Satyajit Chatterjee, and Jonathan L. Willis
Vice Presidents, Federal Reserve Banks of New York, Philadelphia, and Kansas City, respectively

[3] Attended Tuesday session only.

Selection of Committee Officer

By unanimous vote, the Committee selected James A. Clouse to serve as secretary, effective on November 26, 2017. This selection is effective until the selection of a successor at the Committee's first regularly scheduled meeting in 2018.

Developments in Financial Markets and Open Market Operations

The manager of the System Open Market Account (SOMA) reported on developments in domestic and foreign financial markets since the September FOMC meeting. Broad equity price indexes extended earlier increases, yields on longer-term Treasury securities rose, yield spreads on corporate bonds declined, and the foreign exchange value of the dollar increased. Money market interest rates suggested that market participants did not anticipate a change in the Committee's target range for the federal funds rate at this meeting but saw a high probability of a 25 basis point increase at the Committee's December meeting.

The deputy manager followed with a briefing on money market developments and open market operations. Over the intermeeting period, federal funds continued to trade near the center of the FOMC's target range except on quarter-end. Implementation of the Committee's balance sheet normalization program, which began in October, had proceeded smoothly so far. Take-up at the System's overnight reverse repurchase agreement facility averaged slightly more than in the previous period. A rebalancing of the SOMA's holdings of euro reserves, which reflected instructions provided by the Foreign Currency Subcommittee in September, was completed in October.

By unanimous vote, the Committee ratified the Open Market Desk's domestic transactions over the intermeeting period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Staff Review of the Economic Situation

The information reviewed for the October 31–November 1 meeting indicated that labor market conditions generally continued to strengthen and that real gross domestic product (GDP) expanded at a solid pace in the third quarter despite hurricane-related disruptions. Although the effects of the recent hurricanes led to a reported decline in payroll

employment in September, the unemployment rate decreased further. Retail gasoline prices jumped in the aftermath of the hurricanes, but total consumer price inflation, as measured by the 12-month percentage change in the price index for personal consumption expenditures (PCE), remained below 2 percent in September and was lower than early in the year. Survey-based measures of longer-run inflation expectations were little changed on balance.

Total nonfarm payroll employment was reported to have decreased in September, consistent with a substantial increase in the number of people who reported themselves as being absent from work due to bad weather and with payroll declines in the hurricane-affected states of Texas and Florida. However, the national unemployment rate moved down to 4.2 percent in September, and the labor force participation rate rose. The unemployment rates for African Americans, for Hispanics, and for whites were lower in September than around the start of the year, while the rate for Asians was roughly flat this year; the unemployment rates for each of these groups were close to the levels seen just before the most recent recession. The overall share of workers employed part time for economic reasons edged down in September, and the rates of private-sector job openings and quits were unchanged in August. The four-week moving average of initial claims for unemployment insurance benefits moved back down to a low level by late October after rising in September following the hurricanes. Recent readings showed a modest pickup in growth of labor compensation. The employment cost index for private workers increased 2½ percent over the 12 months ending in September, a little faster than in the 12-month period ending a year earlier. Increases in average hourly earnings for all employees stepped up to a rate of almost 3 percent over the 12 months ending in September; however, a portion of that acceleration possibly reflected a hurricane-related reduction in the number of lower-wage workers reported as having been paid during the reference week in September.

Total industrial production (IP) increased somewhat in September, reflecting output gains in manufacturing, in mining, and in utilities; the effects of the hurricanes appeared to hold IP down less in September than in August. Automakers' schedules indicated that light motor vehicle assemblies would increase in the fourth quarter. Broader indicators of manufacturing production, such as the new orders indexes from national and regional manufacturing surveys, pointed to an expansion in factory output in the near term.

Real PCE growth slowed in the third quarter, likely reflecting in part temporary effects of the hurricanes. Recent readings on key factors that influence consumer spending—including gains in real disposable personal income and households' net worth—remained supportive of solid increases in real PCE in the near term. Consumer sentiment in October, as measured by the University of Michigan Surveys of Consumers, was at its highest level since before the most recent recession.

Real residential investment declined further in the third quarter. Starts of both new single-family homes and multifamily units moved down in September. However, building permit issuance for new single-family homes—which tends to be a good indicator of the underlying trend in construction of such homes—edged up in September. Sales of new homes increased notably over the two months ending in September, although sales of existing homes decreased somewhat over that period.

Real private expenditures for business equipment and intellectual property continued to rise at a brisk pace in the third quarter. Nominal orders and shipments of nondefense capital goods excluding aircraft rose further over the two months ending in September, and readings on business sentiment remained upbeat. In contrast, real investment spending for nonresidential structures declined in the third quarter, as a further increase in the drilling and mining sector was more than offset by a decline in other sectors, particularly manufacturing.

Total real government purchases were about flat in the third quarter. Real federal purchases rose somewhat, mostly reflecting increased defense expenditures. In contrast, real purchases by state and local governments declined a little, as construction spending by these governments fell.

The nominal U.S. international trade deficit narrowed in August, as exports rose and imports fell. Export growth was driven by higher exports of capital goods and consumer goods, while the import decline was led by lower imports of industrial supplies and capital goods. Advance estimates for September suggested that goods imports grew more than exports, pointing to a widening of the monthly trade deficit. Despite this widening, net exports were reported to have contributed positively to real GDP growth for the third quarter as a whole.

Total U.S. consumer prices, as measured by the PCE price index, increased a bit more than 1½ percent over the 12 months ending in September. Core PCE price inflation, which excludes changes in consumer food and energy prices, was about 1¼ percent over that same period. Retail gasoline prices moved up sharply following the hurricanes and put upward pressure on total PCE prices in August and September; gasoline prices subsequently moved down somewhat through late October. The consumer price index (CPI) rose 2¼ percent over the 12 months ending in September, while core CPI inflation was 1¾ percent. Recent readings on survey-based measures of longer-run inflation expectations—including those from the Michigan survey, the Blue Chip Economic Indicators, and the Desk's Survey of Primary Dealers and Survey of Market Participants—were little changed on balance.

Foreign economic activity continued to expand at a solid pace. Incoming data suggested that in most advanced foreign economies (AFEs), economic growth slowed in the third quarter but remained firm. Economic activity in the emerging market economies (EMEs) also continued to grow briskly for the most part, especially in Asia. The Mexican economy, however, contracted in the third quarter, in part because hurricanes and earthquakes disrupted economic activity. Headline inflation in the AFEs generally remained subdued, but U.K. inflation stayed above the Bank of England's 2 percent target. Low inflation persisted in most EMEs as well, although rising food prices continued to put upward pressure on inflation in Mexico.

Staff Review of the Financial Situation

Movements in domestic financial asset prices over the intermeeting period reflected FOMC communications that were read as slightly less accommodative than expected, economic data releases that were generally better than anticipated, and market perceptions that U.S. tax reform was becoming more likely. On net, Treasury yields increased modestly, U.S. equity prices moved up, and the dollar appreciated. There was no discernible reaction in financial markets to the widely anticipated announcement of the FOMC's change to its balance sheet policy. Meanwhile, domestic financing conditions generally remained accommodative. Corporate bond spreads narrowed modestly, and corporations continued to tap credit markets at a solid pace. Credit also remained readily available to households, except for higher-risk borrowers in some markets.

FOMC communications over the intermeeting period were reportedly viewed by investors as slightly less accommodative than expected. The Committee's decisions at the September FOMC meeting to leave the target range for the federal funds rate unchanged and to announce the start of its balance sheet normalization program in October had been widely anticipated by the public. However, market participants noted that the medians of projections for the federal funds rate in the September Summary of Economic Projections (SEP) were unchanged, whereas some investors had expected slight downward revisions. In addition, market commentaries observed that, despite low inflation readings in recent months, the characterization of the inflation outlook in the September policy statement was little changed and the SEP showed only modest downward revisions to FOMC participants' near-term inflation projections. Communications by FOMC participants were also seen as reinforcing expectations for continued gradual removal of policy accommodation. The probability of an increase in the target range for the federal funds rate occurring at the October–November meeting, as implied by quotes on federal funds futures contracts, remained essentially zero; the probability of an increase at the December meeting rose to about 85 percent by the end of the intermeeting period. Levels of the federal funds rate at the end of 2018 and 2019 implied by overnight index swap rates moved up moderately.

The nominal Treasury yield curve shifted up and flattened somewhat over the intermeeting period. Yields increased following the September FOMC meeting and in response to news regarding proposals for tax reform. They also rose, on net, following domestic economic data releases, which generally came in above investors' expectations. Option-adjusted spreads on current-coupon mortgage-backed securities (MBS) over Treasury yields were little changed. The FOMC's September announcement that it would begin implementing in October its plan for normalizing the Federal Reserve's balance sheet was widely anticipated and appeared to have had little effect on either Treasury yields or MBS spreads. Near-term measures of option-implied volatility on 10-year swap rates remained near historically low levels. Measures of inflation compensation based on Treasury Inflation-Protected Securities declined somewhat following the slightly lower-than-expected September CPI data but were little changed on net.

Broad equity price indexes rose notably, reportedly reflecting in part investors' perceptions that tax

reform was becoming more likely. One-month-ahead option-implied volatility on the S&P 500 index—the VIX—remained near historically low levels. Spreads of yields on both investment- and speculative-grade corporate bonds over comparable-maturity Treasury securities narrowed modestly.

Conditions in short-term funding markets remained stable over the intermeeting period. The effective federal funds rate held steady, and rates and volumes in other unsecured and secured overnight and term funding markets continued to be stable aside from quarter-end. At the end of September, changes in money market rates and volumes were short lived and in line with previous quarter-ends.

Financing conditions for large nonfinancial firms remained accommodative. In September, the pace of gross equity issuance was about in line with that observed in recent months, gross issuance of corporate bonds dipped somewhat but stayed high by historical standards, and originations of institutional leveraged loans that raised new funds were robust. The credit performance of bonds issued by, and loans extended to, nonfinancial corporations also remained strong over the intermeeting period. Meanwhile, growth of banks' commercial and industrial (C&I) loans continued to be sluggish, although it picked up a bit in the third quarter. Responses to the October Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS) suggested that lackluster demand among banks' business customers was a key factor in this subdued growth. The survey also reported a notable increase in the share of banks that narrowed loan spreads for C&I loans over the previous three months, with many respondents citing more aggressive competition from other bank or nonbank lenders as an important reason for doing so.

Financing flows for commercial real estate (CRE) were more robust in the commercial mortgage-backed securities (CMBS) market than from banks in the third quarter. Issuance of CMBS continued to be robust and in line with last year's pace. Spreads on lower-rated CMBS over Treasury securities widened slightly over the intermeeting period but remained near the lower end of the range seen since the financial crisis. Delinquency rates on loans in CMBS pools continued to decline in September. Meanwhile, CRE loan growth at banks slowed, especially for nonfarm nonresidential loans. In the October SLOOS, banks reported that demand for CRE loans weakened, on net, over the third quarter and that lending standards continued to be somewhat tight.

Credit conditions in the residential mortgage market stayed accommodative in the third quarter for most borrowers. However, credit standards continued to be tight for borrowers with low credit scores or hard-to-document incomes. The October SLOOS suggested that the recent slowdown in mortgage originations for home purchases was partly attributable to weaker demand.

Consumer credit continued to expand at a moderate pace in the third quarter. However, the October SLOOS indicated that banks continued to tighten their credit policies for auto and credit card loans. Credit bureau data on loan originations and credit limits suggested that this tightening was most pronounced in the subprime segment of the market.

The broad index of the foreign exchange value of the dollar rose nearly 3 percent over the intermeeting period amid the rise in U.S. interest rates, market expectations that U.S. tax reform was becoming more likely, and foreign central bank actions and communications. The Canadian dollar depreciated significantly over the period and Canadian yields declined as the Bank of Canada left its policy rate unchanged and comments by the bank's governor were interpreted as more accommodative than expected. The euro also depreciated, despite the European Central Bank's (ECB's) announcement of a step-down in asset purchases next year, reflecting slight declines in investors' expectations for ECB policy rates and in German long-term sovereign yields. EME currencies generally depreciated as well, most notably the Turkish lira and the Mexican peso, the latter of which was held down in part by uncertainty about negotiations on the North American Free Trade Agreement. Most foreign equity indexes increased. In Japan, equity indexes rose notably in advance of parliamentary elections that resulted in a strong victory for Prime Minister Abe's ruling coalition, a development seen by market participants as signaling a continuation of stimulative economic policies.

The staff provided its latest report on vulnerabilities of the U.S. financial system. The staff continued to judge that the overall vulnerabilities were moderate: Asset valuation pressures across markets were judged to have increased slightly, on balance, since the previous assessment in July and to have remained elevated; leverage in the nonfinancial sector stayed moderate;

and, in the financial sector, leverage and vulnerabilities from maturity and liquidity transformation continued to be low. In addition, the staff assessed overall vulnerabilities to foreign financial stability as moderate. The staff highlighted specific vulnerabilities in some foreign economies, including—depending on the country—still-weak banks, heavy indebtedness in the corporate or household sector or both, rising property prices, overhangs of sovereign debt, and significant susceptibility to various political developments.

Staff Economic Outlook

The U.S. economic projection prepared by the staff for this FOMC meeting was broadly similar to the previous forecast. Real GDP was expected to rise at a solid pace in the fourth quarter of this year, boosted in part by a rebound in spending and production after the negative effects of the hurricanes in the third quarter. Payroll employment was also expected to rebound during the fourth quarter. Beyond 2017, the forecast for real GDP growth was essentially unrevised. In particular, the staff continued to project that real GDP would expand at a modestly faster pace than potential output through 2019. The unemployment rate was projected to decline gradually over the next couple of years and to continue running below the staff's estimate of its longer-run natural rate over this period.

The staff's forecast for total PCE price inflation was little changed for 2017, as a somewhat higher forecast for consumer energy prices was mostly offset by a slightly lower forecast for core PCE prices. Although total PCE price inflation was forecast to be about the same in 2017 as it was last year, core PCE price inflation was anticipated to be a little lower than in 2016, and consumer food and energy price inflation was expected to be a little higher. Total PCE price inflation was projected to pick up in 2018, as most of the softness in core PCE price inflation this year was expected to be transitory. However, the staff's forecasts for core inflation and, thus, for total inflation were revised down slightly for next year, reflecting the judgment that a bit of the unexplained weakness in core inflation this year may carry over into next year. Beyond 2018, the inflation forecast was unchanged from the previous projection. The staff continued to project that inflation would reach the Committee's 2 percent objective in 2019.

The staff viewed the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as similar to the average of the past 20 years. On the one hand, many indicators of uncertainty about the macroeconomic outlook continued to be subdued; on the other hand, considerable uncertainty remained about a number of federal government policies. The staff saw the risks to the forecasts for real GDP growth and the unemployment rate as balanced. The risks to the projection for inflation also were seen as balanced. Downside risks included the possibilities that longer-term inflation expectations may have edged lower or that the run of soft readings on core inflation this year could prove to be more persistent than the staff expected. These downside risks were seen as essentially counterbalanced by the upside risk that inflation could increase more than expected in an economy that was projected to move further above its longer-run potential.

Participants' Views on Current Conditions and the Economic Outlook

In their discussion of the economic situation and the outlook, meeting participants agreed that information received since the FOMC met in September indicated that the labor market had continued to strengthen and that economic activity had been rising at a solid rate despite hurricane-related disruptions. Although the hurricanes depressed payroll employment in September, the unemployment rate, which was less affected by the storms, declined further. Household spending had been expanding at a moderate rate, and growth in business fixed investment had picked up in recent quarters. Gasoline prices rose in the aftermath of the hurricanes, boosting overall inflation in September; however, inflation for items other than food and energy remained soft. On a 12-month basis, both inflation measures had declined this year and were running below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed, on balance.

Participants acknowledged that hurricane-related disruptions and rebuilding would continue to affect economic activity in the near term, and they noted that, in October, wildfires in California had displaced many households. Past experience, however, suggested that the economic effects of the hurricanes and other natural disasters would be mostly temporary and unlikely to materially alter the course of the national economy over the medium term. Participants saw the incoming information on spending and the labor market as consistent with continued above-trend economic growth and a further strengthening

in labor market conditions, although the hurricanes, in particular, made it more difficult than usual to interpret some of this information. They continued to expect that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace and labor market conditions would strengthen somewhat further. Inflation on a 12-month basis was expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee's 2 percent objective over the medium term. Near-term risks to the economic outlook appeared to be roughly balanced, but participants agreed that it would be important to continue to monitor inflation developments closely.

Participants expected solid growth in consumer spending in the near term, supported by ongoing strength in the labor market, improved household balance sheets, and a high level of consumer sentiment. Robust gains in consumer spending in September were viewed as consistent with that outlook. Light motor vehicle sales had rebounded in September, and District contacts generally expected sales to remain strong in the near term, boosted in part by demand to replace vehicles destroyed by the hurricanes.

Reports on business spending from District contacts were generally upbeat. Participants anticipated appreciable increases in business fixed investment. Improved demand from abroad, rising business profits, and the substitution of capital for labor in response to tightening labor markets were viewed as factors supporting growth in investment. Several participants reported that business contacts appeared to be more confident about the economic outlook and thus more inclined to undertake capital expansion plans. In that context, it was noted that the expansion in business fixed investment could be given additional impetus if legislation involving tax reductions was enacted; a few participants judged that the prospects for significant tax cuts had risen recently. Some firms, especially those operating in industries in which technological advances were spurring competition, were reportedly planning to expand capacity through mergers and acquisitions rather than through investment in new plant and equipment.

Reports from District contacts about both manufacturing and services were generally positive. District contacts in regions affected by the hurricanes reported that the disruptions to production and sales were mostly short lived, including in the energy sector where drilling and refining outages were temporary. However, some homebuilders were reporting shortages of certain building materials in the aftermath of the hurricanes. Farm incomes in some regions were said to remain under downward pressure because of declining crop and livestock prices.

Participants judged that increases in nonfarm payroll employment, apart from the temporary effects of the hurricanes, remained well above the pace likely to be sustainable in the longer run and that labor market conditions had strengthened further in recent months. Changes in payrolls, as measured by the establishment survey, had been temporarily depressed by the storms in September but were expected to bounce back in later months. Data from the household survey, which generally were viewed as not materially affected by the hurricanes, indicated that the unemployment rate ticked down to 4.2 percent in September, falling further below participants' estimates of its longer-run normal level. Participants also cited other indicators suggesting that labor market conditions continued to strengthen, including increases in the labor force participation rates of both prime-age and all individuals. Reports from some Districts pointed to difficulty attracting and retaining labor, but anecdotal information from other Districts suggested that workers with the requisite skills remained reasonably available. Many participants judged that the economy was operating at or above full employment and anticipated that the labor market would tighten somewhat further in the near term, as GDP was expected to grow at a pace exceeding that of potential output.

Participants discussed wage developments in light of the continued strengthening in labor market conditions. A few participants interpreted recent data on aggregate wage and labor compensation as indicating some firming in wage growth; a few others, however, judged wage growth to have been little changed over the past year. Overall, wage increases were generally seen as modest. A couple of participants expressed the view that, when the rate of labor productivity growth was taken into account, the pace of recent wage gains was consistent with an economy operating near full employment. Reports from District contacts indicated that some businesses facing tight labor markets found it more effective to expand their workforces by using a variety of nonpecuniary means, including offering greater job flexibility and training, rather than by increasing wages. Other District contacts, however, reported some increased wage pressure as a result of tightening labor market conditions.

Gasoline prices rose in the aftermath of the hurricanes, boosting overall inflation in September. Still, on a 12-month basis, PCE price inflation in September, at 1.6 percent, remained below the Committee's longer-run objective; core PCE price inflation, which excludes consumer food and energy prices, was only 1.3 percent. Many participants judged that much of the recent softness in core inflation reflected temporary or idiosyncratic factors and that inflation would begin to rise once the influence of these factors began to wane. Most participants continued to think that the cyclical pressures associated with a tightening labor market were likely to show through to higher inflation over the medium term.

With core inflation readings continuing to surprise on the downside, however, many participants observed that there was some likelihood that inflation might remain below 2 percent for longer than they currently expected, and they discussed possible reasons for the recent shortfall. Several participants pointed to a diminished responsiveness of inflation to resource utilization, to the possibility that the degree of labor market tightness was less than currently estimated, or to lags in the response of inflation to greater resource utilization as plausible explanations for the continued soft readings on inflation. A few noted that secular influences, such as the effect of technological innovation in disrupting existing business models, were likely offsetting cyclical upward pressure on inflation and contributing to below-target inflation.

In discussing the implications of these developments, several participants expressed concern that the persistently weak inflation data could lead to a decline in longer-term inflation expectations or may have done so already; they pointed to low market-based measures of inflation compensation, declines in some survey measures of inflation expectations, or evidence from statistical models suggesting that the underlying trend in inflation had fallen in recent years. In addition, the possibility was raised that monetary policy actions or communications over the past couple of years, while inflation was below the Committee's 2 percent objective, may have contributed to a decline in longer-run inflation expectations below a level consistent with that objective. Some other participants, however, noted that measures of inflation expectations had remained stable this year despite the low readings on inflation and judged that this stability should support the return of inflation to the Committee's objective.

In their comments regarding financial markets, participants generally judged that financial conditions remained accommodative despite the recent increases in the exchange value of the dollar and Treasury yields. In light of elevated asset valuations and low financial market volatility, several participants expressed concerns about a potential buildup of financial imbalances. They worried that a sharp reversal in asset prices could have damaging effects on the economy. It was noted, however, that elevated asset prices could be partly explained by a low neutral rate of interest. It was also observed that regulatory changes had contributed to an appreciable strengthening of capital and liquidity positions in the financial sector over recent years, increasing the resilience of the financial system to potential reversals in valuations.

A few participants mentioned the limited reaction in financial markets to the announcement and initial implementation of the Committee's plan for gradually reducing the Federal Reserve's securities holdings. It was noted that, consistent with that limited response, market participants had characterized the Committee's communications regarding the balance sheet normalization program as clear and effective.

In their discussion of monetary policy, all participants thought that it would be appropriate to maintain the current target range for the federal funds rate at this meeting. Nearly all participants reaffirmed the view that a gradual approach to increasing the target range was likely to promote the Committee's objectives of maximum employment and price stability. Participants commented on several factors that informed their assessments of the appropriate path of the federal funds rate. Several participants noted that the neutral level of the federal funds rate appeared to be quite low by historical standards. Most saw the outlook for economic activity and the labor market as little changed since the September meeting, and participants expected increasing tightness in the labor market to put only gradual upward pressure on inflation. Still, with an accommodative stance of policy, most participants continued to anticipate that inflation would stabilize around the Committee's 2 percent objective over the medium term.

Many participants observed, however, that continued low readings on inflation, which had occurred even as the labor market tightened, might reflect not only transitory factors, but also the influence of develop-

ments that could prove more persistent. A number of these participants were worried that a decline in longer-term inflation expectations would make it more challenging for the Committee to promote a return of inflation to 2 percent over the medium term. These participants' concerns were sharpened by the apparently weak responsiveness of inflation to resource utilization and the low level of the neutral interest rate, and such considerations suggested that the removal of policy accommodation should be quite gradual. In contrast, some other participants were concerned about upside risks to inflation in an environment in which the economy had reached full employment and the labor market was projected to tighten further, or about still very accommodative financial conditions. They cautioned that waiting too long to remove accommodation, or removing accommodation too slowly, could result in a substantial overshoot of the maximum sustainable level of employment that would likely be costly to reverse or could lead to increased risks to financial stability. A few of these participants emphasized that the lags in the response of inflation to tightening resource utilization implied that there could be increasing upside risks to inflation as the labor market tightened further.

Participants agreed that they would continue to monitor closely and assess incoming data before making any further adjustment to the target range for the federal funds rate. Consistent with their expectation that a gradual removal of monetary policy accommodation would be appropriate, many participants thought that another increase in the target range for the federal funds rate was likely to be warranted in the near term if incoming information left the medium-term outlook broadly unchanged. Several participants indicated that their decision about whether to increase the target range in the near term would depend importantly on whether the upcoming economic data boosted their confidence that inflation was headed toward the Committee's objective. A few other participants thought that additional policy firming should be deferred until incoming information confirmed that inflation was clearly on a path toward the Committee's symmetric 2 percent objective. A few participants cautioned that further increases in the target range for the federal funds rate while inflation remained persistently below 2 percent could unduly depress inflation expectations or lead the public to question the Committee's commitment to its longer-run inflation objective.

In view of the persistent shortfall of inflation from the Committee's 2 percent objective and questions about whether longer-term inflation expectations were consistent with achievement of that objective, a couple of participants discussed the possibility that potential alternative frameworks for the conduct of monetary policy could be helpful in fulfilling the Committee's statutory mandate. One question, for example, was whether a framework that generally sought to keep the price level close to a gradually rising path—rather than the current approach in which the Committee does not seek to make up for past deviations of inflation from the 2 percent goal—might be more effective in fostering the Committee's objectives if the neutral level of the federal funds rate remains low.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members judged that information received since the Committee met in September indicated that the labor market had continued to strengthen and that economic activity had been rising at a solid rate despite hurricane-related disruptions. Although the hurricanes depressed payroll employment in September, the unemployment rate declined further. Household spending had been expanding at a moderate rate, and growth in business fixed investment had picked up in recent quarters. Gasoline prices rose in the aftermath of the hurricanes, boosting overall inflation in September; however, inflation for items other than food and energy remained soft. On a 12-month basis, both inflation measures had declined this year and were running below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed, on balance.

Members acknowledged that hurricane-related disruptions and rebuilding would continue to affect economic activity, employment, and inflation in the near term. They noted, however, that past experience suggested that the storm-related disruptions were unlikely to materially alter the course of the national economy over the medium term. Consequently, the Committee continued to expect that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace, and labor market conditions would strengthen somewhat further. Inflation on a 12-month basis was expected to remain somewhat below 2 percent in the near term

but to stabilize around the Committee's 2 percent objective over the medium term. Members saw the near-term risks to the economic outlook as roughly balanced, but, in light of their concern about the ongoing softness in inflation, they agreed to continue to monitor inflation developments closely.

After assessing current conditions and the outlook for economic activity, the labor market, and inflation, members decided to maintain the target range for the federal funds rate at 1 to 1¼ percent. They noted that the stance of monetary policy remained accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.

Members agreed that the timing and size of future adjustments to the target range for the federal funds rate would depend on their assessments of realized and expected economic conditions relative to the Committee's objectives of maximum employment and 2 percent inflation. They noted that their assessments would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. Members reaffirmed their expectation that economic conditions would evolve in a manner that would warrant gradual increases in the federal funds rate, and that the federal funds rate was likely to remain, for some time, below levels that are expected to prevail in the longer run. Nonetheless, they reiterated that the actual path of the federal funds rate would depend on the economic outlook as informed by incoming data. In particular, members noted that they would carefully monitor actual and expected inflation developments relative to the Committee's symmetric inflation goal. Some members expressed concerns about the outlook for inflation expectations and inflation; they emphasized that, in considering the timing of further adjustments in the federal funds rate, they would be evaluating incoming information to assess the likelihood that recent low readings on inflation were transitory and that inflation was on a trajectory consistent with achieving the Committee's 2 percent objective over the medium term. Several other members, however, were reasonably confident that the economy and inflation would evolve in coming months such that an additional firming would likely be appropriate in the near term.

With the balance sheet normalization program under way and with the balance sheet not anticipated to be used to adjust the stance of monetary policy in response to incoming information in the years ahead, members generally agreed that the statement following this meeting needed to contain only a brief reference to the program and that subsequent statements might not need to mention the program. Balance sheet normalization was expected to proceed gradually, following the plan described in the Addendum to the Policy Normalization Principles and Plans that the Committee released in June.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until it was instructed otherwise, to execute transactions in the SOMA in accordance with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective November 2, 2017, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 1 to 1¼ percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 1.00 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $6 billion, and to continue reinvesting in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month that exceeds $4 billion. Small deviations from these amounts for operational reasons are acceptable.
>
> The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

"Information received since the Federal Open Market Committee met in September indicates that the labor market has continued to strengthen and that economic activity has been rising at a solid rate despite hurricane-related disruptions. Although the hurricanes caused a drop in payroll employment in September, the unemployment rate declined further. Household spending has been expanding at a moderate rate, and growth in business fixed investment has picked up in recent quarters. Gasoline prices rose in the aftermath of the hurricanes, boosting overall inflation in September; however, inflation for items other than food and energy remained soft. On a 12-month basis, both inflation measures have declined this year and are running below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.

Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. Hurricane-related disruptions and rebuilding will continue to affect economic activity, employment, and inflation in the near term, but past experience suggests that the storms are unlikely to materially alter the course of the national economy over the medium term. Consequently, the Committee continues to expect that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, and labor market conditions will strengthen somewhat further. Inflation on a 12-month basis is expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee's 2 percent objective over the medium term. Near-term risks to the economic outlook appear roughly balanced, but the Committee is monitoring inflation developments closely.

In view of realized and expected labor market conditions and inflation, the Committee decided to maintain the target range for the federal funds rate at 1 to 1¼ percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.

In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.

The balance sheet normalization program initiated in October 2017 is proceeding."

Voting for this action: Janet L. Yellen, William C. Dudley, Lael Brainard, Charles L. Evans, Patrick Harker, Robert S. Kaplan, Neel Kashkari, Jerome H. Powell, and Randal K. Quarles.

Voting against this action: None.

Consistent with the Committee's decision to leave the target range for the federal funds rate unchanged, the Board of Governors voted unanimously to leave the interest rates on required and excess reserve balances unchanged at 1¼ percent and voted unanimously to approve establishment of the primary credit rate (discount rate) at the existing level of 1¾ percent.[4]

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, December 12–13, 2017. The meeting adjourned at 10:30 a.m. on November 1, 2017.

Notation Vote

By notation vote completed on October 10, 2017, the Committee unanimously approved the minutes of the Committee meeting held on September 19–20, 2017.

Brian F. Madigan
Secretary

[4] The second vote of the Board also encompassed approval of the establishment of the interest rates for secondary and seasonal credit under the existing formulas for computing such rates.

Meeting Held on December 12–13, 2017

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, December 12, 2017, at 1:00 p.m. and continued on Wednesday, December 13, 2017, at 9:00 a.m.[1]

Present

Janet L. Yellen
Chair

William C. Dudley
Vice Chairman

Lael Brainard

Charles L. Evans

Patrick Harker

Robert S. Kaplan

Neel Kashkari

Jerome H. Powell

Randal K. Quarles

Raphael W. Bostic, Loretta J. Mester, Mark L. Mullinix, Michael Strine, and John C. Williams
Alternate Members of the Federal Open Market Committee

James Bullard, Esther L. George, and Eric Rosengren
Presidents of the Federal Reserve Banks of St. Louis, Kansas City, and Boston, respectively

James A. Clouse
Secretary

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Mark E. Van Der Weide
General Counsel

Michael Held
Deputy General Counsel

Steven B. Kamin
Economist

Thomas Laubach
Economist

David W. Wilcox
Economist

Thomas A. Connors, Michael Dotsey, Eric M. Engen, Evan F. Koenig, Daniel G. Sullivan, William Wascher, and Beth Anne Wilson
Associate Economists

Simon Potter
Manager, System Open Market Account

Lorie K. Logan
Deputy Manager, System Open Market Account

Ann E. Misback
Secretary, Office of the Secretary, Board of Governors

Matthew J. Eichner[2]
Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Andreas Lehnert
Director, Division of Financial Stability, Board of Governors

Jennifer Burns
Deputy Director, Division of Supervision and Regulation, Board of Governors

Rochelle M. Edge and Stephen A. Meyer
Deputy Directors, Division of Monetary Affairs, Board of Governors

Michael T. Kiley
Deputy Director, Division of Financial Stability, Board of Governors

Trevor A. Reeve
Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

Joseph W. Gruber, David Reifschneider, and John M. Roberts
Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson
Assistant to the Board, Office of Board Members, Board of Governors

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[1] The Federal Open Market Committee is referenced as the "FOMC" and the "Committee" in these minutes.

[2] Attended through the discussion of developments in financial markets and open market operations.

Antulio N. Bomfim, Edward Nelson, Ellen E. Meade, and Robert J. Tetlow
Senior Advisers, Division of Monetary Affairs, Board of Governors

Shaghil Ahmed
Associate Directors, Division of International Finance, Board of Governors

Elizabeth Kiser, John J. Stevens, and Stacey Tevlin
Associate Directors, Division of Research and Statistics, Board of Governors

David López-Salido
Associate Director, Division of Monetary Affairs, Board of Governors

Norman J. Morin and Shane M. Sherlund
Assistant Directors, Division of Research and Statistics, Board of Governors

Eric C. Engstrom
Adviser, Division of Monetary Affairs,
and
Adviser, Division of Research and Statistics, Board of Governors

Penelope A. Beattie[3]
Assistant to the Secretary, Office of the Secretary, Board of Governors

David H. Small
Project Manager, Division of Monetary Affairs, Board of Governors

Cynthia L. Doniger
Senior Economist, Division of Monetary Affairs, Board of Governors

Randall A. Williams
Senior Information Manager, Division of Monetary Affairs, Board of Governors

Kelly J. Dubbert
First Vice President, Federal Reserve Bank of Kansas City

David Altig, Kartik B. Athreya, Mary Daly, Beverly Hirtle, Geoffrey Tootell, and Christopher J. Waller
Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, San Francisco, New York, Boston, and St. Louis, respectively

[3] Attended Tuesday session only.

Todd E. Clark and Marc Giannoni
Senior Vice Presidents, Federal Reserve Banks of Cleveland and Dallas, respectively

Jonathan L. Willis
Vice President, Federal Reserve Bank of Kansas City

Benjamin Malin
Senior Research Economist, Federal Reserve Bank of Minneapolis

Developments in Financial Markets and Open Market Operations

The manager of the System Open Market Account (SOMA) reported on developments in domestic and international financial markets over the intermeeting period. Equity prices moved higher over the period, with market participants pointing to the likely passage of tax reform legislation as an important factor contributing to the rise. The narrowing of the spread between long- and short-term Treasury yields over recent months had been a focus of market attention. Market participants cited a range of factors as contributing to this narrowing, including the gradual firming in the stance of monetary policy as well as an increasing expectation among investors that the Treasury Department would issue substantial volumes of shorter-term securities in meeting its financing needs over coming years.

The deputy manager discussed open market operations over the period. Take-up at the System's overnight reverse repurchase (ON RRP) agreement facility dropped to relatively low levels over the period. In part, the decline appeared to reflect an increase in yields on alternative investments; Treasury bill yields, for example, had moved higher over recent weeks as the Treasury boosted net issuance of Treasury bills. The Open Market Desk continued to execute reinvestment operations for Treasury and agency securities in the SOMA in accordance with the procedure specified in the Committee's directive to the Desk. The deputy manager also provided an update on plans for the Federal Reserve Bank of New York, in conjunction with the Treasury's Office of Financial Research, to begin publishing reference interest rates for repurchase agreements involving Treasury securities by the middle of next year.

By unanimous vote, the Committee ratified the Desk's domestic transactions over the intermeeting

period. There were no intervention operations in foreign currencies for the System's account during the intermeeting period.

Staff Review of the Economic Situation

The information reviewed for the December 12–13 meeting indicated that labor market conditions continued to strengthen through November and suggested that real gross domestic product (GDP) was rising at a solid pace in the second half of 2017. Total consumer price inflation, as measured by the 12-month percentage change in the price index for personal consumption expenditures (PCE), remained below 2 percent in October and was lower than early in the year. Survey-based measures of longer-run inflation expectations were little changed on balance.

Total nonfarm payroll employment increased strongly in October and November, likely reflecting in part a rebound from the negative effects of the hurricanes in September. The national unemployment rate declined to 4.1 percent in October and remained at that level in November. The unemployment rates for Hispanics, for Asians, and for whites were lower in November than two months earlier, while the rate for African Americans was a little higher; the unemployment rates for each of these groups were close to the levels seen just before the most recent recession. The national labor force participation rate was lower in November than it had been in September but remained in the range seen over the past several years. The share of workers employed part time for economic reasons declined in October and was about unchanged in November. The rates of private-sector job openings and quits were little changed at relatively high levels in September and October, and the four-week moving average of initial claims for unemployment insurance benefits continued to be at a low level in early December. Recent readings showed that wage gains remained modest. Compensation per hour in the nonfarm business sector increased 1 percent over the four quarters ending in the third quarter, and average hourly earnings for all employees rose 2½ percent over the 12 months ending in November.

Total industrial production increased briskly in October, boosted in part by a continued return to more-normal operations that reflected the waning of the negative effects of recent hurricanes in the previous two months. Automakers' schedules indicated that light motor vehicle assemblies would likely move up in the coming months. Broader indicators of manufacturing production, such as the new orders indexes from national and regional manufacturing surveys, pointed to further increases in factory output in the near term.

Real PCE increased modestly in October after expanding strongly in September. The pace of light motor vehicle sales slowed in November from the elevated rate in the preceding two months but continued to be above levels seen earlier in the year. Recent readings on key factors that influence consumer spending—including gains in employment, real disposable personal income, and households' net worth—continued to be supportive of moderate real PCE growth in the fourth quarter. Consumer sentiment in early December, as measured by the University of Michigan Surveys of Consumers, remained at a high level.

Recent information on housing activity suggested that real residential investment spending was edging up in the fourth quarter after declining in the previous two quarters. Both starts and building permit issuance for new single-family homes increased somewhat in October, and starts for multifamily units moved up considerably. Sales of both new and existing homes rose moderately in October.

Real private expenditures for business equipment and intellectual property appeared to be rising further in the fourth quarter. Nominal shipments of nondefense capital goods excluding aircraft increased in October, and new orders of these goods continued to exceed shipments, which pointed to further gains in shipments in the near term. In addition, readings on business sentiment remained upbeat. Firms' nominal spending for nonresidential structures excluding drilling and mining rose in October, and the number of oil and gas rigs in operation—an indicator of spending for structures in the drilling and mining sector—started to edge up in late November after declining earlier in the fourth quarter.

Total real government purchases looked to be rising in the fourth quarter. Nominal defense expenditures in October and November pointed to a flattening in real federal government purchases. However, real purchases by state and local governments appeared to be moving up, as these governments expanded their payrolls modestly over the two months ending in November and their nominal construction spending increased in October.

The nominal U.S. international trade deficit widened slightly in September and sharply in October. Exports picked up in September, led by exports of industrial supplies, but were flat in October. Imports grew significantly in both months, reflecting strength in most categories, although imports of automobiles declined. The available trade data suggested that the change in real net exports would make a neutral contribution to real U.S. GDP growth in the fourth quarter.

Total U.S. consumer prices, as measured by the PCE price index, increased slightly more than 1½ percent over the 12 months ending in October. Core PCE price inflation, which excludes changes in consumer food and energy prices, was nearly 1½ percent over that same period. The consumer price index (CPI) rose 2¼ percent over the 12 months ending in November, while core CPI inflation was 1¾ percent. Recent readings on survey-based measures of longer-run inflation expectations—including those from the Michigan survey, the Survey of Professional Forecasters, and the Desk's Survey of Primary Dealers and Survey of Market Participants—were little changed on balance.

Economic activity expanded at a solid pace in most foreign economies in the third quarter. In several advanced foreign economies (AFEs), economic growth slowed but remained firm. Economic activity in the emerging market economies (EMEs) continued to grow briskly for the most part, especially in Asia. However, the Mexican economy contracted in the third quarter, as hurricanes and earthquakes disrupted economic activity. Despite a boost from recent increases in oil prices, inflation remained relatively subdued in most AFEs and moderate in EMEs.

Staff Review of the Financial Situation

Movements in domestic financial asset prices over the intermeeting period reflected slightly stronger-than-expected economic data releases, announcements related to Treasury debt issuance, and an increase in the perceived probability that the Congress would enact tax legislation. On net, the Treasury yield curve flattened, U.S. equity prices moved up, and the foreign exchange value of the dollar was little changed. Financing conditions for businesses and households remained broadly supportive of continued growth in household spending and business investment.

Federal Reserve communications and economic data releases over the intermeeting period were characterized by market participants as reinforcing perceptions of a likely increase in the target range for the federal funds rate at the December meeting. The probability of an increase as implied by quotes on federal funds futures contracts edged up to around 95 percent, roughly consistent with the average probability indicated by responses to the Desk's surveys of primary dealers and market participants in December.

The nominal Treasury yield curve flattened over the intermeeting period, as short-dated Treasury yields rose and the 10-year Treasury yield moved up only slightly. Market participants pointed to the November 1 release of the Treasury's quarterly financing statement and accompanying analysis by the Treasury Borrowing Advisory Committee that highlighted some advantages of increasing issuance of relatively short-dated Treasury securities as factors contributing to the flattening of the yield curve over the period. Measures of inflation compensation based on Treasury Inflation-Protected Securities were little changed, on net, over the intermeeting period. Option-adjusted spreads of yields on current-coupon mortgage-backed securities (MBS) over Treasury yields also were little changed. Overall, market participants did not attribute any price changes in Treasury and agency MBS markets to the implementation of reductions in reinvestments of the SOMA portfolio.

Broad equity price indexes rose over the intermeeting period, likely reflecting in part investors' perceptions of increased odds for the passage of federal tax legislation and an associated potential boost to corporate earnings. One-month-ahead option-implied volatility on the S&P 500 index—the VIX—was little changed, on net, at levels close to historical lows. Spreads on both investment- and speculative-grade corporate bond yields over comparable-maturity Treasury yields were about flat on net.

Conditions in short-term funding markets remained stable over the intermeeting period. The effective federal funds rate held steady, and rates and volumes in other overnight markets were little changed. Take-up of ON RRPs declined notably as Treasury bill supply continued to increase, and short-dated bill yields rose to levels significantly above the ON RRP offering rate. On December 11, the Treasury declared a debt

issuance suspension period to keep outstanding federal debt below the debt ceiling and began to use extraordinary measures to allow continued financing of government operations.

Financing conditions for large nonfinancial corporations continued to be accommodative on balance. Gross issuance of corporate bonds and gross equity issuance remained robust. Institutional leveraged loan issuance in November was brisk. Growth of bank-intermediated credit to nonfinancial firms, however, was tepid. On balance, the credit quality of nonfinancial corporations was little changed over the intermeeting period and appeared to remain solid. Financing conditions for small businesses also appeared to have remained favorable. In municipal bond markets, gross issuance was strong and credit quality remained stable.

In commercial real estate (CRE) markets, spreads of commercial mortgage-backed securities (CMBS) yields over comparable-maturity Treasury yields remained near the lower end of the range seen since the financial crisis, and delinquency rates on loans in CMBS pools continued to decrease. The growth of CRE loans held by the largest banks continued to slow, while CRE loan growth at smaller banks remained strong overall and even picked up a bit in October.

In the residential mortgage market, although credit standards had loosened gradually for borrowers with low credit scores, they continued to be tight for borrowers with low credit scores and hard-to-document incomes. Mortgage credit remained readily available for borrowers with strong credit scores. Similarly, consumer credit remained readily available to borrowers with strong credit histories, but conditions for subprime borrowers stayed tight in credit card markets and continued to tighten for auto loans. Issuance of asset-backed securities (ABS) funding consumer loans was robust in recent months, and ABS spreads were about unchanged over the intermeeting period.

On balance, the broad index of the foreign exchange value of the dollar was little changed, longer-term sovereign bond yields in AFEs declined modestly, and most foreign equity indexes moved lower over the intermeeting period. The euro appreciated modestly against the U.S. dollar, in part because of strong economic data for the euro area early in the intermeeting period. The British pound was somewhat volatile amid Brexit-related developments, and the Mexican peso fluctuated on news about negotiations associated with the North American Free Trade Agreement, but both currencies ended the period little changed. Following missed interest payments on its sovereign bonds, Venezuela was assigned selective default status by two credit rating agencies in early November, which precipitated a "credit event" ruling by the International Swaps and Derivatives Association. However, developments related to Venezuela generated little spillover to global financial markets.

Staff Economic Outlook

The U.S. economic projection prepared by the staff for the December FOMC meeting was generally comparable with the staff's previous forecast. Real GDP was forecast to have increased at a solid pace in the second half of 2017. Beyond 2017, the forecast for real GDP growth was revised up modestly, reflecting the staff's updated assumption that the reduction in federal income taxes expected to begin next year would be larger than assumed in the previous projection. The staff projected that real GDP would increase at a modestly faster pace than potential output through 2019. The unemployment rate was projected to decline further over the next few years and to continue running below the staff's slightly downward-revised estimate of the longer-run natural rate over this period.

The staff's forecast for total PCE price inflation was revised up a little for 2017, as somewhat higher forecasts for core PCE prices and for consumer energy prices were offset only partially by a lower forecast for consumer food prices. Total PCE price inflation in 2018 was projected to be about the same as in 2017, despite projected declines in consumer energy prices; core PCE prices were forecast to rise faster in 2018, reflecting the expected waning of transitory factors that held down those prices in 2017. Beyond 2018, the inflation forecast was little changed from the previous projection. The staff projected that inflation would be very close to the Committee's 2 percent objective in 2019 and at that objective in 2020.

The staff viewed the uncertainty around its projections for real GDP growth, the unemployment rate, and inflation as similar to the average of the past 20 years. On the one hand, many indicators of uncertainty about the macroeconomic outlook continued to be subdued; on the other hand, considerable uncertainty remained about a number of federal government policies relevant for the economic outlook. The staff saw the risks to the forecasts for real GDP

growth and the unemployment rate as balanced. The risks to the projection for inflation also were seen as balanced. Downside risks to inflation included the possibility that longer-term inflation expectations may move lower or that the run of soft core inflation readings this year could prove to be more persistent than the staff expected. These downside risks were seen as essentially counterbalanced by the upside risk that inflation could increase more than expected in an economy that was projected to move further above its potential.

Participants' Views on Current Conditions and the Economic Outlook

In conjunction with this FOMC meeting, members of the Board of Governors and Federal Reserve Bank presidents submitted their projections of the most likely outcomes for real GDP growth, the unemployment rate, and inflation for each year from 2017 through 2020 and over the longer run, based on their individual assessments of the appropriate path for the federal funds rate.[4] The longer-run projections represented each participant's assessment of the rate to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy. These projections and policy assessments are described in the Summary of Economic Projections (SEP), which is an addendum to these minutes.

In their discussion of economic conditions and the outlook, meeting participants agreed that information received since the FOMC met in November indicated that economic activity had been rising at a solid rate and that the labor market had continued to strengthen. Averaging through fluctuations associated with the recent hurricanes, job gains had been solid and the unemployment rate had declined further. Household spending had been expanding at a moderate rate, and growth in business fixed investment had picked up in recent quarters. On a 12-month basis, both overall inflation and inflation for items other than food and energy had declined this year and were running below 2 percent. Market-based measures of inflation compensation remained low; survey-based measures of longer-term inflation expectations were little changed, on balance.

Real economic activity appeared to be growing at a solid pace, buttressed by gains in consumer and business spending, supportive financial conditions, and an improving global economy. Participants judged that hurricane-related disruptions and rebuilding had affected economic activity, employment, and inflation in recent months but had not materially altered the outlook for the national economy. They saw the incoming information on spending and the labor market as consistent with continued above-trend growth and a further strengthening in labor market conditions. Consequently, participants continued to expect that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace and labor market conditions would remain strong. Inflation on a 12-month basis was expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee's 2 percent objective over the medium term. Near-term risks to the economic outlook appeared to be roughly balanced, but participants agreed that it would be important to continue to monitor inflation developments closely.

Participants expected moderate growth in consumer spending in the near term, underpinned by ongoing strength in the labor market, further improvements in households' net worth, and buoyant consumer sentiment. Business contacts in a few Districts reported strong pre-holiday sales. Many participants expected the proposed cuts in personal taxes to provide some boost to consumer spending. A few participants noted that expectations of tax reform may have already raised consumer spending somewhat to the extent that those expectations had spurred increases in asset valuations and household net worth. A number of participants expressed uncertainty about the magnitude of the effects of tax reform on consumer spending.

District contacts were optimistic, and their reports were generally consistent with continued steady growth in business spending. Reports from District contacts about both the manufacturing and service sectors were generally positive. In contrast, reports on housing and nonresidential construction were mixed. Activity in the energy sector continued to firm, with transportation bottlenecks and residual effects of the hurricanes putting some upward pressure on gasoline prices. In the agricultural sector, farm income was under downward pressure due to low crop prices, and contacts expressed concern about the effects of the possible renegotiation of trade agreements on exports.

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[4] The incoming president of the Federal Reserve Bank of Richmond is scheduled to assume office on January 1, 2018; First Vice President Mark L. Mullinix submitted economic projections for this meeting. One participant did not submit longer-run projections for real output growth, the unemployment rate, or the federal funds rate.

Many participants judged that the proposed changes in business taxes, if enacted, would likely provide a modest boost to capital spending, although the magnitude of the effects was uncertain. The resulting increase in the capital stock could contribute to positive supply-side effects, including an expansion of potential output over the next few years. However, some business contacts and respondents to business surveys suggested that firms were cautious about expanding capital spending in response to the proposed tax changes or noted that the increase in cash flow that would result from corporate tax cuts was more likely to be used for mergers and acquisitions or for debt reduction and stock buybacks.

Labor market conditions continued to strengthen in recent months, with the unemployment rate declining further and payroll gains well above a pace consistent with maintaining a stable unemployment rate over time. Other indicators, such as consumer and business surveys of job availability and job openings, also pointed to a further tightening in labor market conditions. A couple of participants noted that broad improvements in labor market conditions over the past several years were evident across demographic groups. In several Districts, reports from business contacts or evidence from surveys pointed to some difficulty in finding qualified workers; in some cases, labor shortages were making it hard to fill customer demand or expand business. A few participants noted that a reduction in personal tax rates could potentially increase labor supply, but the magnitude of such effects was quite uncertain.

Against the backdrop of the continued strengthening in labor market conditions, participants discussed recent wage developments. Overall, the pace of wage increases had generally been modest and in line with inflation and productivity growth. In some Districts, reports from business contacts or evidence from surveys pointed to a pickup in wage gains, particularly for unskilled or entry-level workers. In a couple of regions, businesses facing tight labor market conditions were said to be offering more flexible work arrangements or taking advantage of technology to use employees more efficiently, rather than raising wages. A few participants judged that the tightness in labor markets was likely to translate into an acceleration in wages; however, another observed that the absence of broad-based upward wage pressures suggested that there might be scope for further improvement in labor market conditions.

PCE price inflation over the 12 months ending in October, at 1.6 percent, continued to run below the Committee's longer-run objective of 2 percent; core PCE price inflation for items other than consumer food and energy prices was only 1.4 percent over the same period. It was noted that recent readings on monthly inflation had edged up, and a couple of participants observed that core inflation on a year-over-year basis appeared to be stabilizing. Many indicated that they expected cyclical pressures associated with a tightening labor market to show through to higher inflation over the medium term. These participants generally judged that much of the softness in core inflation this year reflected transitory factors and that inflation would begin to rise as the influence of these factors waned. However, one of them noted that secular trends, such as technological innovation or globalization, could be affecting competition and business pricing, and muting inflationary pressures. With core inflation readings having moved down this year and remaining well below 2 percent, some participants observed that there was a possibility that inflation might stay below the objective for longer than they currently expected. Several of them expressed concern that persistently weak inflation may have led to a decline in longer-term inflation expectations; they pointed to low market-based measures of inflation compensation, declines in some survey measures of inflation expectations, or evidence from statistical models suggesting that the underlying trend in inflation had fallen in recent years. A few participants, however, noted that measures of inflation expectations had remained broadly stable this year despite the low readings on inflation and judged that this stability should support the return of inflation to the Committee's 2 percent objective.

With regard to financial markets, some participants observed that financial conditions remained accommodative, citing a range of indicators including low interest rates, narrow credit spreads, high equity values, a lower dollar, and some evidence of easier terms for lending to risky borrowers. In light of elevated asset valuations and low financial market volatility, a couple of participants expressed concern that the persistence of highly accommodative financial conditions could, over time, pose risks to financial stability. Participants also noted that term premiums on longer-term nominal Treasury securities remained low. A number of factors were seen as possibly contributing to the low levels of term premiums, includ-

ing large holdings of longer-term assets by major central banks, persistently low global inflation, and substantial global demand for assets with long durations.

Meeting participants also discussed the recent narrowing of the gap between the yields on long- and short-maturity nominal Treasury securities, which had resulted in a flatter profile of the term structure of interest rates. Among the factors contributing to the flattening, participants pointed to recent increases in the target range for the federal funds rate, reductions in investors' estimates of the longer-run neutral real interest rate, lower longer-term inflation expectations, and lower term premiums. They generally agreed that the current degree of flatness of the yield curve was not unusual by historical standards. However, several participants thought that it would be important to continue to monitor the slope of the yield curve. Some expressed concern that a possible future inversion of the yield curve, with short-term yields rising above those on longer-term Treasury securities, could portend an economic slowdown, noting that inversions have preceded recessions over the past several decades, or that a protracted yield curve inversion could adversely affect the financial condition of banks and other financial institutions and pose risks to financial stability. A couple of other participants viewed the flattening of the yield curve as an expected consequence of increases in the Committee's target range for the federal funds rate, and judged that a yield curve inversion under such circumstances would not necessarily foreshadow or cause an economic downturn. It was also noted that contacts in the financial sector generally did not express concern about the recent flattening of the term structure.

In their discussion of monetary policy, participants saw the outlook for economic activity and the labor market as having remained strong or having strengthened since their previous meeting, in part reflecting a modest boost from the expected passage of the tax legislation under consideration. Regarding inflation, participants generally viewed the medium-term outlook as little changed, and a majority commented that they continued to expect inflation to gradually return to the Committee's 2 percent longer-run objective. A few participants again noted that transitory factors had likely held down inflation earlier this year. However, several participants observed that survey-based measures of inflation expectations or market-based measures of inflation compensation remained low, or that other persistent factors may be holding down inflation, which would present challenges for the Committee in promoting a return of inflation to 2 percent over the medium term.

Based on their current assessments, almost all participants expressed the view that it would be appropriate for the Committee to raise the target range for the federal funds rate 25 basis points at this meeting. These participants agreed that, even after an increase in the target range at this meeting, the stance of monetary policy would remain accommodative, supporting strong labor market conditions and a sustained return to 2 percent inflation. A couple of participants did not believe it was appropriate to raise the target range for the federal funds rate at this meeting; these participants suggested that the Committee should maintain the target range at 1 to 1¼ percent until the actual rate of inflation had moved further toward the Committee's 2 percent longer-run objective or inflation expectations had increased. They judged that leaving the target range at its current level would better support an increase in inflation expectations and thereby increase the likelihood that inflation will rise to 2 percent.

Regarding the determination of the appropriate timing and size of future adjustments to the target range for the federal funds rate, participants reaffirmed the need to continue to assess realized and expected economic conditions. Most participants reiterated their support for continuing a gradual approach to raising the target range, noting that this approach helped to balance risks to the outlook for economic activity and inflation. Participants discussed several risks that, if realized, could necessitate a steeper path of increases in the target range; these risks included the possibility that inflation pressures could build unduly if output expanded well beyond its maximum sustainable level, perhaps owing to fiscal stimulus or accommodative financial market conditions. Participants also discussed risks that could lead to a flatter trajectory for the federal funds rate in the medium term, including a failure of actual or expected inflation to move up to the Committee's 2 percent objective. While participants generally saw the risks to the economic outlook as roughly balanced, they agreed that inflation developments should be monitored closely. A few participants indicated that they were not comfortable with the degree of additional policy tightening through the end of 2018 implied by the median projections for the federal funds rate in the December SEP. They expressed concern that such a path of increases in the policy rate, while gradual, might prove inconsistent with a sustained return of

inflation to 2 percent, or that the level of the federal funds rate might already be near its current neutral value. A few other participants mentioned that they saw as appropriate a pace of additional policy tightening through the end of 2018 that was somewhat faster than that implied by the December SEP median forecast. They noted that financial conditions had not materially tightened since the removal of monetary policy accommodation began, that continued low interest rates risked financial instability in the future, or that the labor market was increasingly tight. A couple of participants noted the need to continue to monitor and evaluate the effects of balance sheet normalization on long-term interest rates and economic performance.

Due to the persistent shortfall of inflation from the Committee's 2 percent objective, or the risk that monetary policy could again become constrained by the zero lower bound, a few participants suggested that further study of potential alternative frameworks for the conduct of monetary policy such as price-level targeting or nominal GDP targeting could be useful.

Committee Policy Action

In their discussion of monetary policy for the period ahead, members judged that information received since the Committee met in November indicated that the labor market had continued to strengthen and that economic activity had been rising at a solid rate. Averaging through hurricane-related fluctuations, job gains had been solid, and the unemployment rate had declined further. Household spending had been expanding at a moderate rate, and growth in business fixed investment had picked up in recent quarters. On a 12-month basis, both overall inflation and inflation for items other than food and energy had declined for the year to date and were running below 2 percent. Market-based measures of inflation compensation had remained low; survey-based measures of longer-term inflation expectations had changed little, on balance.

Members acknowledged that hurricane-related disruptions and rebuilding had affected economic activity, employment, and inflation in recent months but had not materially altered the outlook for the national economy. They continued to expect that, with gradual adjustments in the stance of monetary policy, economic activity would expand at a moderate pace and labor market conditions would remain strong. Members expected inflation on a 12-month basis to remain somewhat below 2 percent in the near term. They also expected inflation to stabilize around the Committee's 2 percent objective over the medium term, but a couple of members expressed concern about whether inflation would return to 2 percent on a sustained basis in the medium term if the Committee increased the target range for the federal funds rate at the pace that is implied by the medians of the projections from the December SEP. Members saw the near-term risks to the economic outlook as roughly balanced, but they agreed to monitor inflation developments closely.

After assessing current conditions and the outlook for economic activity, the labor market, and inflation, nearly all members agreed to raise the target range for the federal funds rate to 1¼ to 1½ percent. These members noted that the stance of monetary policy remains accommodative, thereby supporting strong labor market conditions and a sustained return to 2 percent inflation. Two members preferred to leave the target range at 1 to 1¼ percent, suggesting that the Committee should wait to raise the target range until inflation moves up closer to 2 percent on a sustained basis or inflation expectations increase.

Members agreed that the timing and size of future adjustments to the target range for the federal funds rate would depend on their assessments of realized and expected economic conditions relative to the Committee's objectives of maximum employment and 2 percent inflation. They noted that their assessments would take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. Members agreed that their assessments would also take into account actual and expected inflation developments relative to the Committee's symmetric inflation goal. Almost all members reaffirmed their expectation that economic conditions would evolve in a manner that would warrant gradual increases in the federal funds rate, and that the federal funds rate would be likely to remain, for some time, below levels that were expected to prevail in the longer run. Nonetheless, members reiterated that the actual path of the federal funds rate would depend on the economic outlook as informed by incoming data.

At the conclusion of the discussion, the Committee voted to authorize and direct the Federal Reserve Bank of New York, until it was instructed otherwise, to execute transactions in the SOMA in accordance

with the following domestic policy directive, to be released at 2:00 p.m.:

> "Effective December 14, 2017, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 1¼ to 1½ percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 1.25 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during December that exceeds $6 billion, and to continue reinvesting in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during December that exceeds $4 billion. Effective in January, the Committee directs the Desk to roll over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $12 billion, and to reinvest in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month that exceeds $8 billion. Small deviations from these amounts for operational reasons are acceptable.
>
> The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

The vote also encompassed approval of the statement below to be released at 2:00 p.m.:

> "Information received since the Federal Open Market Committee met in November indicates that the labor market has continued to strengthen and that economic activity has been rising at a solid rate. Averaging through hurricane-related fluctuations, job gains have been solid, and the unemployment rate declined further. Household spending has been expanding at a moderate rate, and growth in business fixed investment has picked up in recent quarters. On a 12-month basis, both overall inflation and inflation for items other than food and energy have declined this year and are running below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.
>
> Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. Hurricane-related disruptions and rebuilding have affected economic activity, employment, and inflation in recent months but have not materially altered the outlook for the national economy. Consequently, the Committee continues to expect that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace and labor market conditions will remain strong. Inflation on a 12-month basis is expected to remain somewhat below 2 percent in the near term but to stabilize around the Committee's 2 percent objective over the medium term. Near-term risks to the economic outlook appear roughly balanced, but the Committee is monitoring inflation developments closely.
>
> In view of realized and expected labor market conditions and inflation, the Committee decided to raise the target range for the federal funds rate to 1¼ to 1½ percent. The stance of monetary policy remains accommodative, thereby supporting strong labor market conditions and a sustained return to 2 percent inflation.
>
> In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal.

The Committee expects that economic conditions will evolve in a manner that will warrant gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data."

Voting for this action: Janet L. Yellen, William C. Dudley, Lael Brainard, Patrick Harker, Robert S. Kaplan, Jerome H. Powell, and Randal K. Quarles.

Voting against this action: Charles L. Evans and Neel Kashkari.

Messrs. Evans and Kashkari dissented because they preferred to maintain the existing target range for the federal funds rate at this meeting.

In Mr. Evans's view, with inflation continuing to run substantially below 2 percent and measures of inflation expectations lower than he believed to be consistent with a symmetric 2 percent inflation objective, it was important to pause in the process of policy normalization. Leaving the target range at 1 to 1¼ percent for a time would better support an increase in inflation expectations, increase the likelihood that inflation will rise to 2 percent and perhaps modestly beyond, and thus provide more support for the symmetry of the Committee's inflation objective. Such a pause also would better allow the Committee time to assess the degree to which earlier soft readings on inflation were transitory or more persistent.

In Mr. Kashkari's view, while employment growth remained strong, wage growth had not picked up and inflation remained notably below the Committee's 2 percent target. In addition, the yield curve had flattened as long-term rates had not moved higher even though the Committee raised the federal funds rate target range. He was concerned that the flattening yield curve was partly due to falling longer-term inflation expectations or a lower neutral real rate of interest. He preferred to wait for inflation to move closer to 2 percent on a sustained basis or for inflation expectations to move up before further raising the target range for the federal funds rate.

To support the Committee's decision to raise the target range for the federal funds rate, the Board of Governors voted unanimously to raise the interest rates on required and excess reserve balances ¼ percentage point, to 1½ percent, effective December 14, 2017. The Board of Governors also voted unanimously to approve a ¼ percentage point increase in the primary credit rate (discount rate) to 2 percent, effective December 14, 2017.[5]

It was agreed that the next meeting of the Committee would be held on Tuesday–Wednesday, January 30–31, 2018. The meeting adjourned at 10:15 a.m. on December 13, 2017.

Notation Vote

By notation vote completed on November 21, 2017, the Committee unanimously approved the minutes of the Committee meeting held on October 31–November 1, 2017.

James A. Clouse
Secretary

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[5] In taking this action, the Board approved requests submitted by the boards of directors of the Federal Reserve Banks of Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta, Kansas City, Dallas, and San Francisco. This vote also encompassed approval by the Board of Governors of the establishment of a 2 percent primary credit rate by the remaining Federal Reserve Banks, effective on the later of December 14, 2017, and the date such Reserve Banks informed the Secretary of the Board of such a request. (Secretary's note: Subsequently, the Federal Reserve Banks of Chicago, St. Louis, and Minneapolis were informed by the Secretary of the Board of the Board's approval of their establishment of a primary credit rate of 2 percent, effective December 14, 2017.) The second vote of the Board also encompassed approval of the establishment of the interest rates for secondary and seasonal credit under the existing formulas for computing such rates.

Addendum: Summary of Economic Projections

In conjunction with the Federal Open Market Committee (FOMC) meeting held on December 12–13, 2017, meeting participants submitted their projections of the most likely outcomes for real gross domestic product (GDP) growth, the unemployment rate, and inflation for each year from 2017 to 2020 and over the longer run.[6] Each participant's projection was based on information available at the time of the meeting, together with his or her assessment of appropriate monetary policy—including a path for the federal funds rate and its longer-run value—and assumptions about other factors likely to affect economic outcomes. The longer-run projections represent each participant's assessment of the value to which each variable would be expected to converge, over time, under appropriate monetary policy and in the absence of further shocks to the economy.[7] "Appropriate monetary policy" is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her individual interpretation of the statutory mandate to promote maximum employment and price stability.

All participants who submitted longer-run projections expected that, under appropriate monetary policy, growth in real GDP in 2018 would be somewhat stronger than their individual estimates of its longer-run rate. All participants projected that real GDP growth would moderate in 2019, and nearly all predicted that it would ease further in 2020; a solid majority of participants thought that growth in real GDP would be at or close to their individual estimates of the economy's longer-run growth rate by 2020. All participants who submitted longer-run projections expected that the unemployment rate would run below their estimates of its longer-run normal level through 2020. Participants generally projected that inflation, as measured by the four-quarter percentage change in the price index for personal consumption expenditures (PCE), would step up toward the Committee's 2 percent objective in 2018 and be at or close to that objective by 2019. Most participants indicated that prospective changes in federal tax policy were a factor that led them to boost their projections of real GDP growth over the next couple of years; some participants, however, noted that they had already incorporated at least some effects of future tax cuts in their September projections. Several also noted the possibility that changes to tax policy could raise the level of potential GDP in the longer run.[8] Table 1 and figure 1 provide summary statistics for the projections.

As shown in figure 2, participants generally expected that the evolution of the economy relative to their objectives of maximum employment and 2 percent inflation would likely warrant further gradual increases in the federal funds rate. Compared with the projections they submitted in September, some participants raised their federal funds rate projections for 2018 and 2019, while several others lowered their projections, leaving the median projection for the federal funds rate in those years unchanged; the median projection for 2020 was slightly higher, and the median projection for the longer-run normal level of the federal funds rate was unchanged. Nearly all participants saw it as likely to be appropriate for the federal funds rate to rise above their estimates of its longer-run normal level at some point during the forecast period. Participants generally noted several sources of uncertainty about the future course of the federal funds rate, including the details of potential changes in tax policy, how those changes would affect the economy, and the range of factors influencing inflation over the medium term.

In general, participants viewed the uncertainty attached to their economic projections as broadly similar to the average of the past 20 years, and all participants saw the uncertainty associated with their projections for real GDP growth, the unemployment rate, and inflation as essentially unchanged from September. As in September, most participants judged the risks around their projections for economic growth, the unemployment rate, and inflation as broadly balanced.

The Outlook for Economic Activity

The median of participants' projections for the growth rate of real GDP for 2018, conditional on their indi-

[6] Four members of the Board of Governors were in office at the time of the December 2017 meeting, the same number as in September 2017. However, since the September meeting, one member, Stanley Fischer, resigned from the Board and another, Randal K. Quarles, joined. The incoming president of the Federal Reserve Bank of Richmond is scheduled to assume office on January 1, 2018; First Vice President Mark L. Mullinix submitted economic projections at this meeting as he did in September.

[7] One participant did not submit longer-run projections for real output growth, the unemployment rate, or the federal funds rate.

[8] Participants completed their submissions for the Summary of Economic Projections before the reconciliation of the House and Senate tax bills in the Congress.

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assessments of projected appropriate monetary policy, December 2017
Percent

Variable	Median[1]					Central tendency[2]					Range[3]				
	2017	2018	2019	2020	Longer run	2017	2018	2019	2020	Longer run	2017	2018	2019	2020	Longer run
Change in real GDP	2.5	2.5	2.1	2.0	1.8	2.4–2.5	2.2–2.6	1.9–2.3	1.7–2.0	1.8–1.9	2.4–2.6	2.2–2.8	1.7–2.4	1.1–2.2	1.7–2.2
September projection	2.4	2.1	2.0	1.8	1.8	2.2–2.5	2.0–2.3	1.7–2.1	1.6–2.0	1.8–2.0	2.2–2.7	1.7–2.6	1.4–2.3	1.4–2.0	1.5–2.2
Unemployment rate	4.1	3.9	3.9	4.0	4.6	4.1	3.7–4.0	3.6–4.0	3.6–4.2	4.4–4.7	4.1	3.6–4.0	3.5–4.2	3.5–4.5	4.3–5.0
September projection	4.3	4.1	4.1	4.2	4.6	4.2–4.3	4.0–4.2	3.9–4.4	4.0–4.5	4.5–4.8	4.2–4.5	3.9–4.5	3.8–4.5	3.8–4.8	4.4–5.0
PCE inflation	1.7	1.9	2.0	2.0	2.0	1.6–1.7	1.7–1.9	2.0	2.0–2.1	2.0	1.5–1.7	1.7–2.1	1.8–2.3	1.9–2.2	2.0
September projection	1.6	1.9	2.0	2.0	2.0	1.5–1.6	1.8–2.0	2.0	2.0–2.1	2.0	1.5–1.7	1.7–2.0	1.8–2.2	1.9–2.2	2.0
Core PCE inflation[4]	1.5	1.9	2.0	2.0		1.5	1.7–1.9	2.0	2.0–2.1		1.4–1.5	1.7–2.0	1.8–2.3	1.9–2.3	
September projection	1.5	1.9	2.0	2.0		1.5–1.6	1.8–2.0	2.0	2.0–2.1		1.4–1.7	1.7–2.0	1.8–2.2	1.9–2.2	
Memo: Projected appropriate policy path															
Federal funds rate	1.4	2.1	2.7	3.1	2.8	1.4	1.9–2.4	2.4–3.1	2.6–3.1	2.8–3.0	1.1–1.4	1.1–2.6	1.4–3.6	1.4–4.1	2.3–3.0
September projection	1.4	2.1	2.7	2.9	2.8	1.1–1.4	1.9–2.4	2.4–3.1	2.5–3.5	2.5–3.0	1.1–1.6	1.1–2.6	1.1–3.4	1.1–3.9	2.3–3.5

Note: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The September projections were made in conjunction with the meeting of the Federal Open Market Committee on September 19–20, 2017. One participant did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate in conjunction with the September 19–20, 2017, meeting, and one participant did not submit such projections in conjunction with the December 12–13, 2017, meeting.

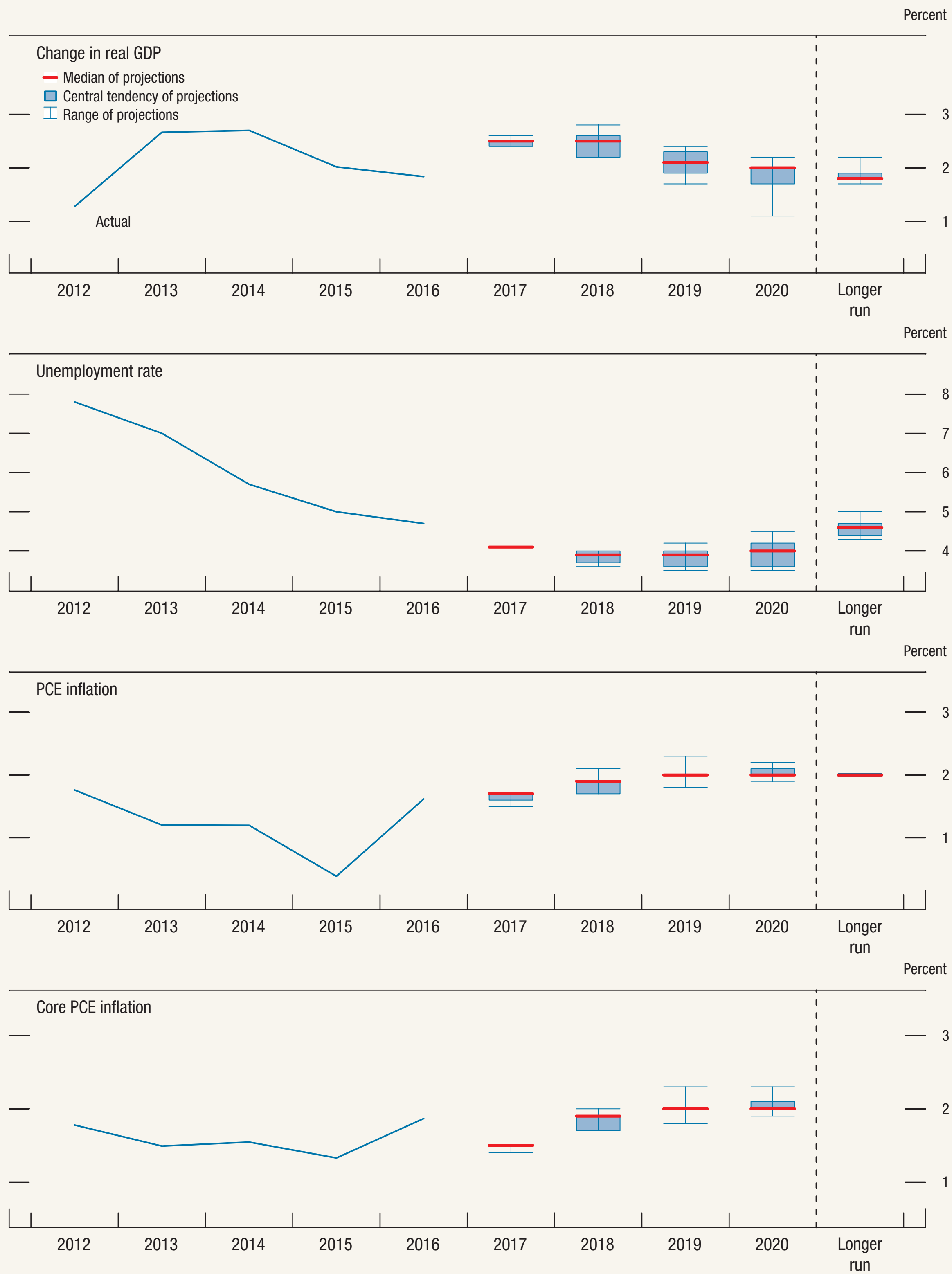
1 For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.

2 The central tendency excludes the three highest and three lowest projections for each variable in each year.

3 The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.

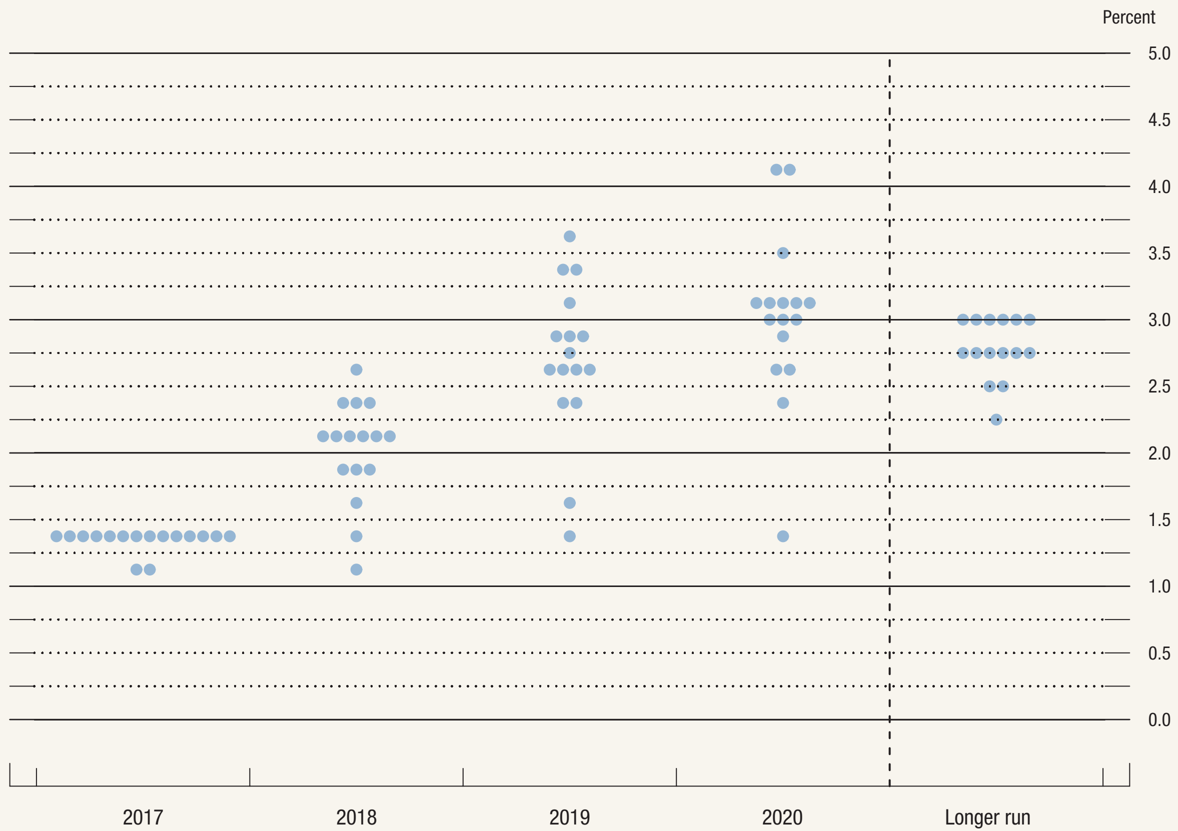
4 Longer-run projections for core PCE inflation are not collected.

Figure 1. Medians, central tendencies, and ranges of economic projections, 2017–20 and over the longer run



Note: Definitions of variables and other explanations are in the notes to table 1. The data for the actual values of the variables are annual.

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate



Note: Each shaded circle indicates the value (rounded to the nearest ⅛ percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. One participant did not submit longer-run projections for the federal funds rate.

vidual assessments of appropriate monetary policy, was 2.5 percent, the same as for 2017. The median projections for GDP growth in 2019 and 2020 were slightly lower, at 2.1 and 2.0 percent, respectively. Compared with the Summary of Economic Projections (SEP) from September, the median of the projections for real GDP growth for 2018 was notably higher, while the medians for real GDP growth for 2019 and 2020 were modestly higher. The median of projections for the longer-run normal rate of real GDP growth remained at 1.8 percent. Most participants pointed to changes in tax policy as likely to provide some boost to real GDP growth over the forecast period; in September, fewer than half of the participants incorporated prospective tax policy changes in their projections. Several participants indicated that they had marked up their estimates of the magnitude of tax cuts, relative to their assumptions in September.

The medians of projections for the unemployment rate in the fourth quarter of both 2018 and 2019 were 3.9 percent, 0.2 percentage point below the medians from September and about ¾ percentage point below the median assessment of its longer-run normal level. The median projection for the unemployment rate ticked up slightly to 4.0 percent in 2020.

Figures 3.A and 3.B show the distributions of participants' projections for real GDP growth and the unemployment rate from 2017 to 2020 and in the longer run. The distribution of individual projections for real GDP growth for 2018 shifted up, with more than half of the participants now expecting real GDP growth of 2.5 percent or more and none seeing it below 2.2 percent. The distribution of projected real GDP growth in 2019 and 2020 also shifted up, albeit only slightly. The distribution for the longer-run normal rate of GDP growth was little changed from September. The distributions of individual projections for the unemployment rate in 2018 and 2019 shifted down relative to those in September, broadly consistent with the changes in the distributions for real GDP growth.

The Outlook for Inflation

The median of projections for headline PCE price inflation was 1.9 percent in 2018 and 2 percent in 2019 and 2020, the same as in the September SEP. Most participants anticipated that inflation would continue to run a bit below 2 percent in 2018, and only one participant expected inflation above 2 percent that year. A majority of participants projected that inflation would be equal to the Committee's objective in 2019 and 2020. Several participants projected that inflation would slightly exceed 2 percent in 2019 or 2020. The medians of projections for core PCE price inflation over the 2018–20 period were the same as those for headline inflation.

Figures 3.C and 3.D provide information on the distributions of participants' views about the outlook for inflation. On the whole, the distributions of projections for headline PCE price inflation and core PCE price inflation beyond 2017 were little changed from September.

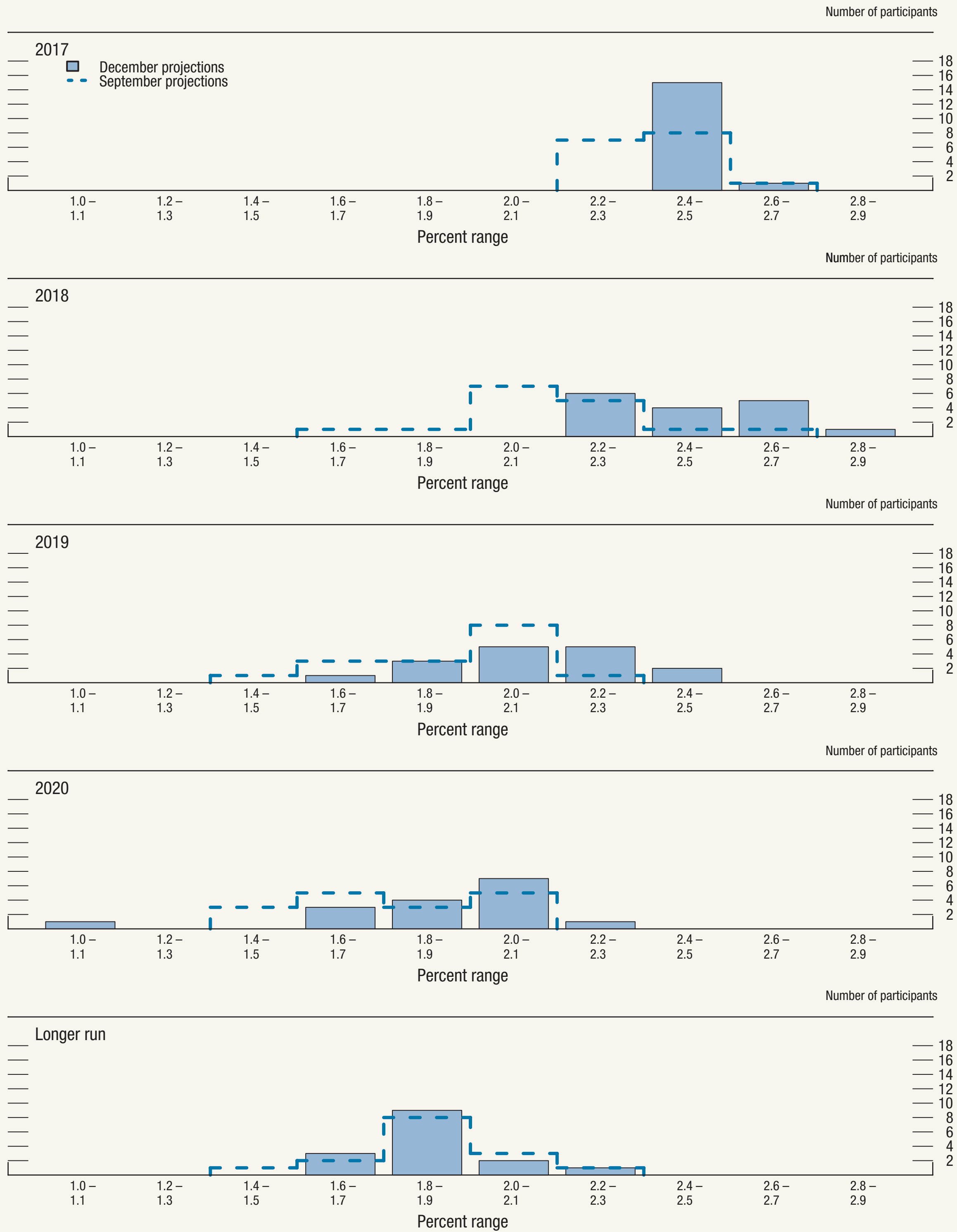
Appropriate Monetary Policy

Figure 3.E provides the distribution of participants' judgments regarding the appropriate target—or midpoint of the target range—for the federal funds rate at the end of each year from 2017 to 2020 and in the longer run. Overall, the distributions differed in only small ways from those reported in the September SEP. There was a moderate reduction in the dispersion of the distribution for 2020 and for the longer run; some of the lower-end projections for those horizons from the September SEP were revised up in the current projections.

The median projection of the year-end federal funds rate continued to rise gradually over the 2018–20 period. The median projection for the end of 2018 was 2.13 percent; the medians of the projections were 2.69 percent at the end of 2019 and 3.07 percent at the end of 2020. Nearly all participants projected that it would likely be appropriate for the federal funds rate to rise above their individual estimates of the longer-run normal rate at some point over the forecast period. Compared with their projections prepared for the September SEP, a few participants raised their projections for the federal funds rate in the longer run and one lowered it; the median was unchanged at 2.75 percent.

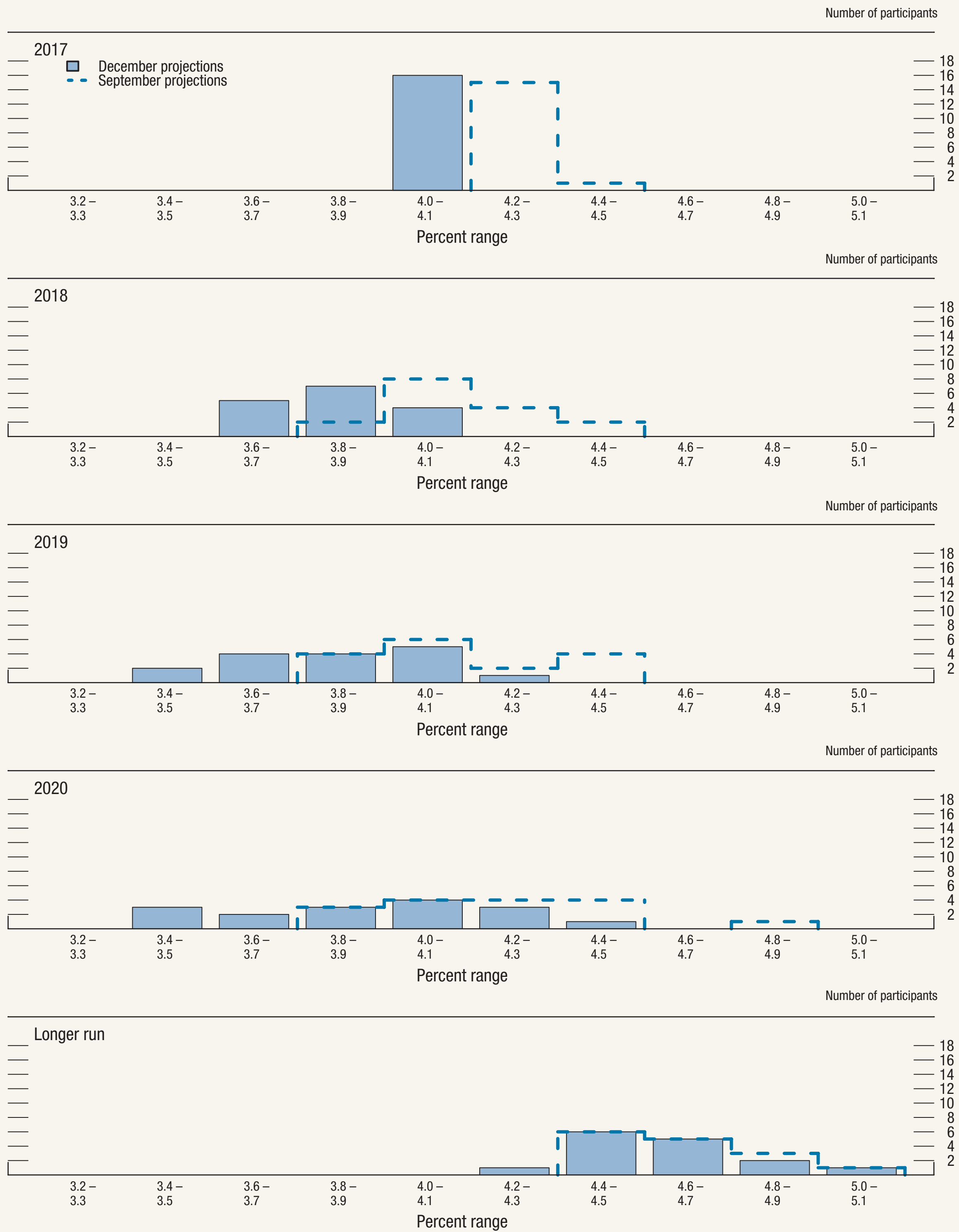
In discussing their projections, many participants once again expressed the view that the appropriate trajectory of the federal funds rate over the next few years would likely involve gradual increases. This view was predicated on several factors, including a judgment that the neutral real interest rate was currently low and would move up only slowly, as well as the balancing of risks associated with, among other things, the possibility that inflation pressures could build if the economy expands well beyond its longer-run sustainable level, and the possibility that the forces depressing inflation could prove to be more

Figure 3.A. Distribution of participants' projections for the change in real GDP, 2017–20 and over the longer run



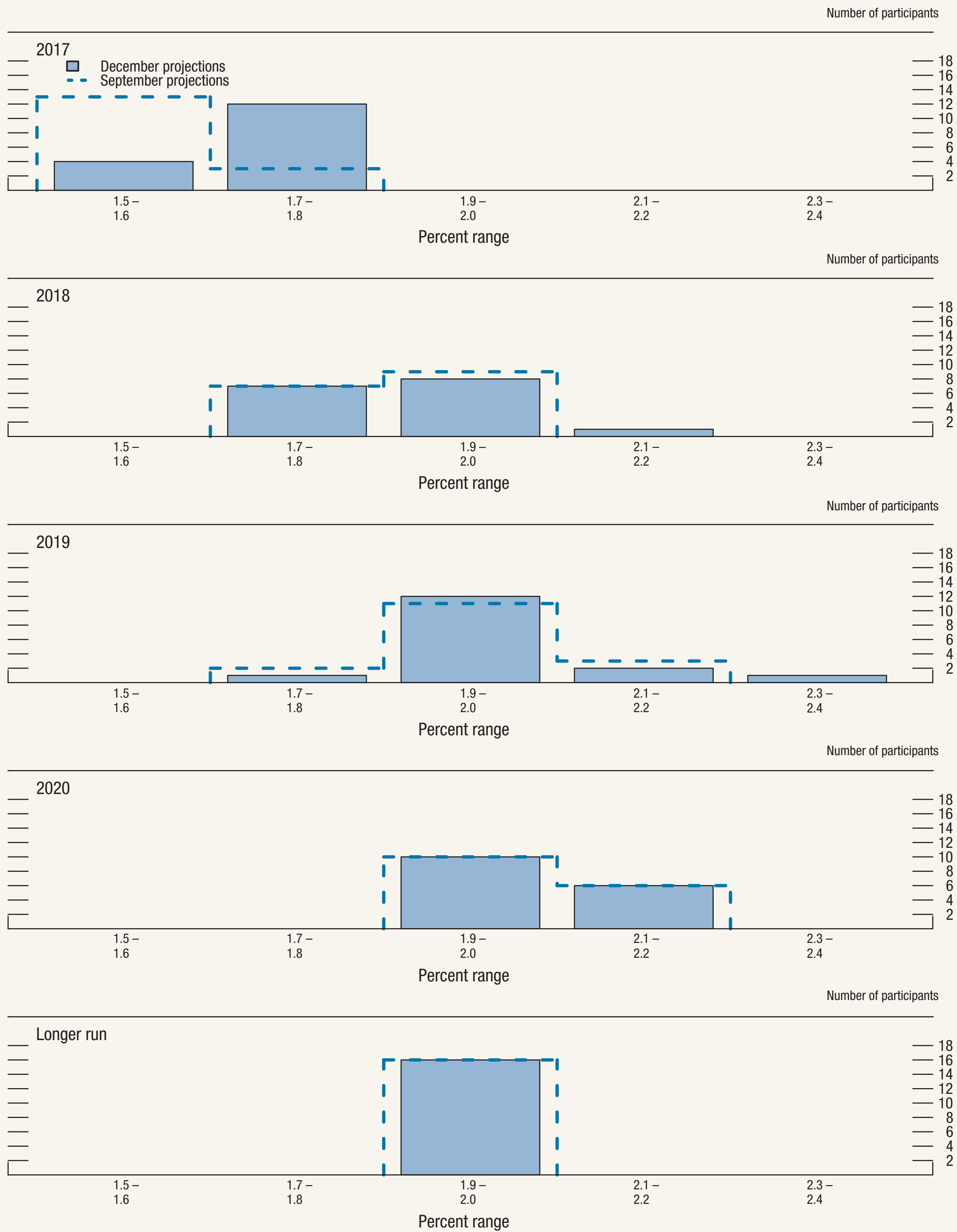
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.B. Distribution of participants' projections for the unemployment rate, 2017–20 and over the longer run



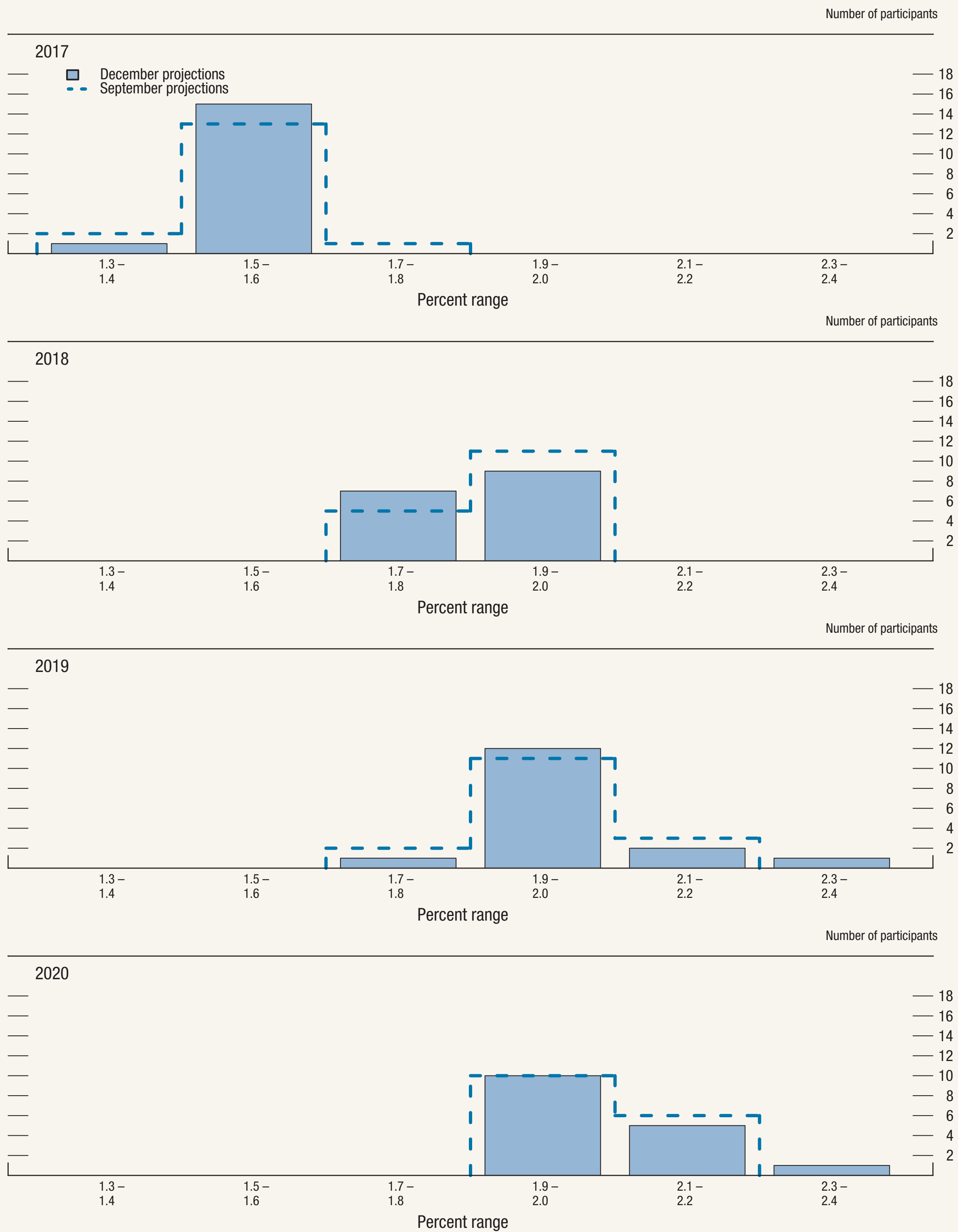
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.C. Distribution of participants' projections for PCE inflation, 2017–20 and over the longer run



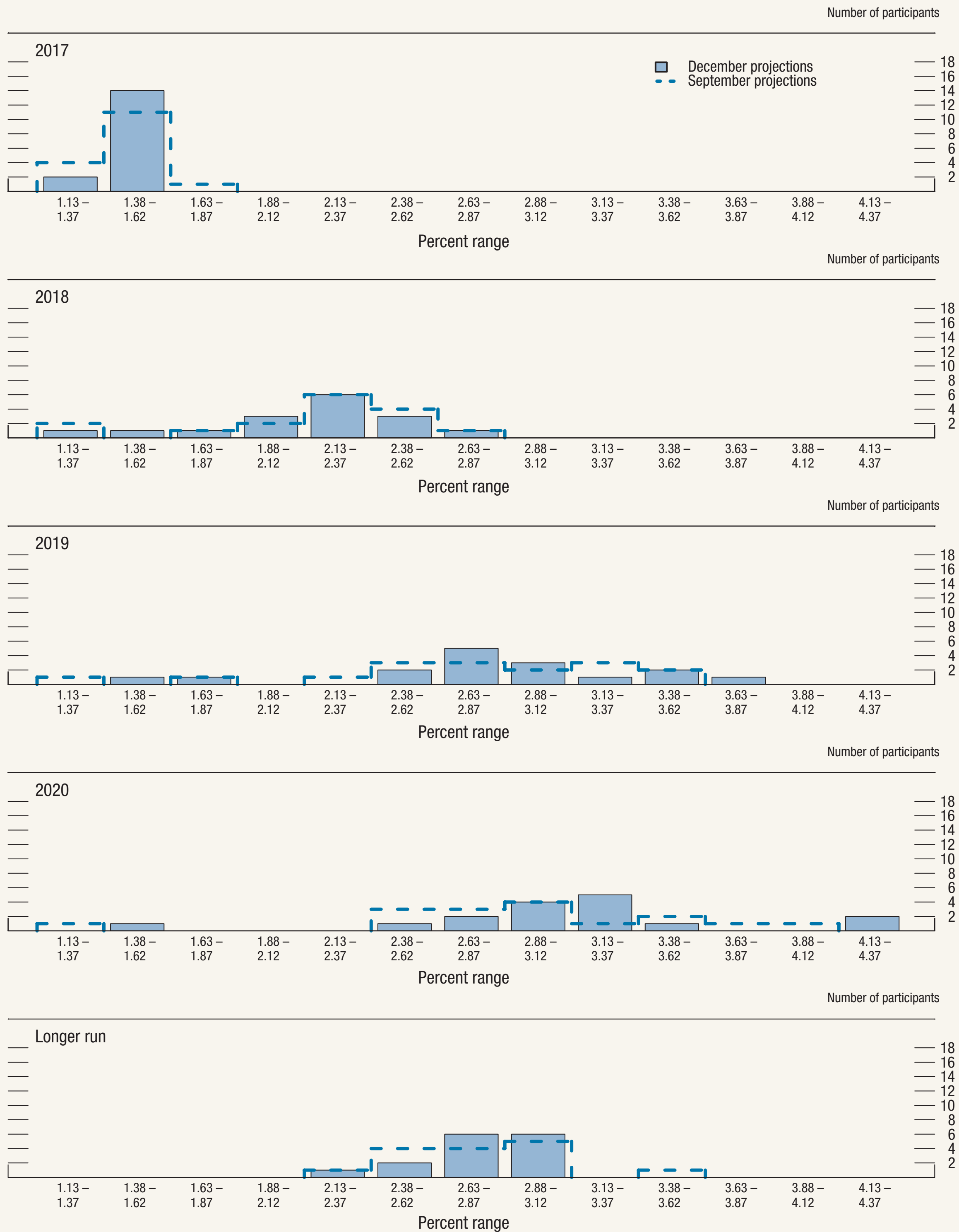
Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.D. Distribution of participants' projections for core PCE inflation, 2017–20



Note: Definitions of variables and other explanations are in the notes to table 1.

Figure 3.E. Distribution of participants' judgments of the midpoint of the appropriate target range for the federal funds rate or the appropriate target level for the federal funds rate, 2017–20 and over the longer run



Note: Definitions of variables and other explanations are in the notes to table 1.

Table 2. Average historical projection error ranges
Percentage points

Variable	2017	2018	2019	2020
Change in real GDP[1]	±0.8	±1.7	±2.1	±2.2
Unemployment rate[1]	±0.1	±0.8	±1.5	±1.9
Total consumer prices[2]	±0.2	±1.0	±1.1	±1.0
Short-term interest rates[3]	±0.1	±1.4	±1.9	±2.4

Note: Error ranges shown are measured as plus or minus the root mean squared error of projections for 1997 through 2016 that were released in the winter by various private and government forecasters. As described in the box "Forecast Uncertainty," under certain assumptions, there is about a 70 percent probability that actual outcomes for real GDP, unemployment, consumer prices, and the federal funds rate will be in ranges implied by the average size of projection errors made in the past. For more information, see David Reifschneider and Peter Tulip (2017), "Gauging the Uncertainty of the Economic Outlook Using Historical Forecasting Errors: The Federal Reserve's Approach," Finance and Economics Discussion Series 2017-020 (Washington: Board of Governors of the Federal Reserve System, February), www.federalreserve.gov/econresdata/feds/2017/files/2017020pap.pdf.

1 Definitions of variables are in the general note to table 1.

2 Measure is the overall consumer price index, the price measure that has been most widely used in government and private economic forecasts. Projections are percent changes on a fourth quarter to fourth quarter basis.

3 For Federal Reserve staff forecasts, measure is the federal funds rate. For other forecasts, measure is the rate on 3-month Treasury bills. Projection errors are calculated using average levels, in percent, in the fourth quarter.

persistent than currently anticipated. As always, the actual path of the federal funds rate will depend on evolving economic conditions and their implications for the economic outlook.

Uncertainty and Risks

In assessing the path for the federal funds rate that, in their view, is likely to be appropriate, FOMC participants take account of the range of possible economic outcomes, the likelihood of those outcomes, and the potential benefits and costs should they occur. As a reference, table 2 provides a measure of forecast uncertainty, based on the forecast errors of various private and government forecasts over the past 20 years, for real GDP growth, the unemployment rate, and total consumer price inflation. That measure is incorporated graphically in the top panels of figures 4.A, 4.B, and 4.C, which display "fan charts" plotting the median SEP projections for the three variables surrounded by symmetric confidence intervals derived from the forecast errors presented in table 2. If the degree of uncertainty attending these projections is similar to the typical magnitude of past forecast errors and the risks around the projections are broadly balanced, future outcomes of these variables would have about a 70 percent probability of occurring within these confidence intervals. For all three variables, this measure of projection uncertainty is substantial and generally increases as the forecast horizon lengthens.

Participants' assessments of the level of uncertainty surrounding their economic projections are shown in the bottom-left panels of figures 4.A, 4.B, and 4.C. Nearly all participants viewed the degree of uncertainty attached to their economic projections about GDP growth, the unemployment rate, and inflation as broadly similar to the average of the past 20 years, a view that was essentially unchanged from September.[9] About half of the participants who commented on this topic suggested that uncertainties about the details of the pending tax legislation had raised their assessment of uncertainty for GDP growth, albeit not by enough to tip their assessments into the higher-than-average category.

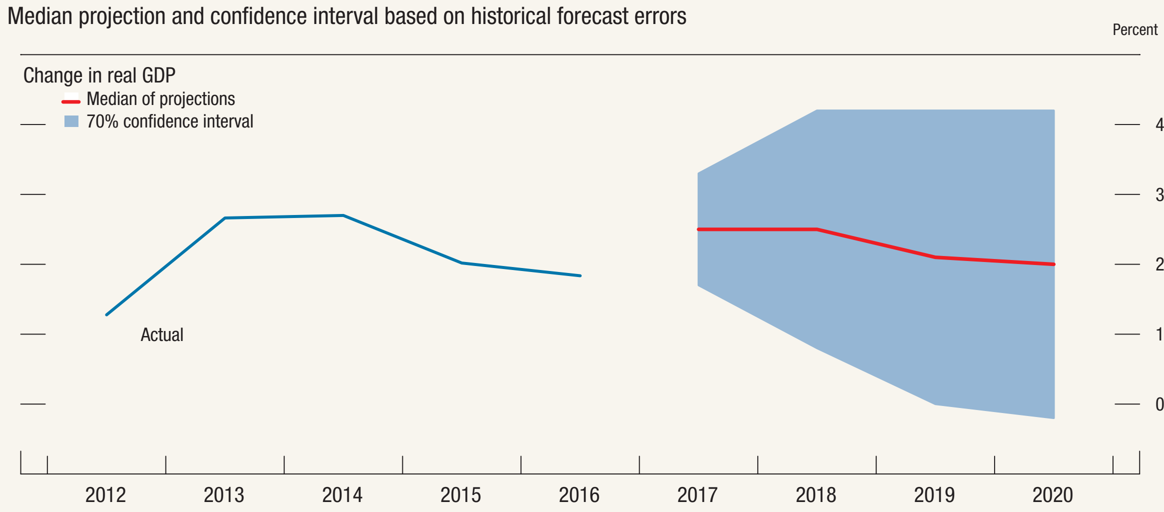
Because the fan charts are constructed to be symmetric around the median projection, they do not reflect any asymmetries in the balance of risks that participants may see in their economic projections. Accordingly, participants' assessments of the balance of risks to their economic projections are shown in the bottom-right panels of figures 4.A, 4.B, and 4.C. As in September, most participants judged the risks to their projections of real GDP growth, the unemployment rate, headline inflation and core inflation as broadly balanced—in other words, as broadly consistent with a symmetric fan chart. The balance of risks to the economic outlook shifted slightly in the direction of strength, with two more participants seeing upside risks to growth in real GDP than in September and one more seeing risks to the unemployment rate as weighted to the downside. In addition, one more participant than before saw risks to inflation as weighted to the upside.

Participants' assessments of the future path of the federal funds rate consistent with appropriate policy are also subject to considerable uncertainty. Because the Committee adjusts the federal funds rate in response to actual and prospective developments over time in real GDP growth, unemployment, and inflation, uncertainty surrounding the projected path for the funds rate importantly reflects the uncertainties about the path for those key economic variables. Figure 5 provides a graphical representation of this uncertainty, plotting the median SEP projection for the federal funds rate surrounded by confidence intervals derived from the results presented in table 2. As with the macroeconomic variables, forecast uncertainty is substantial and increases for longer horizons.

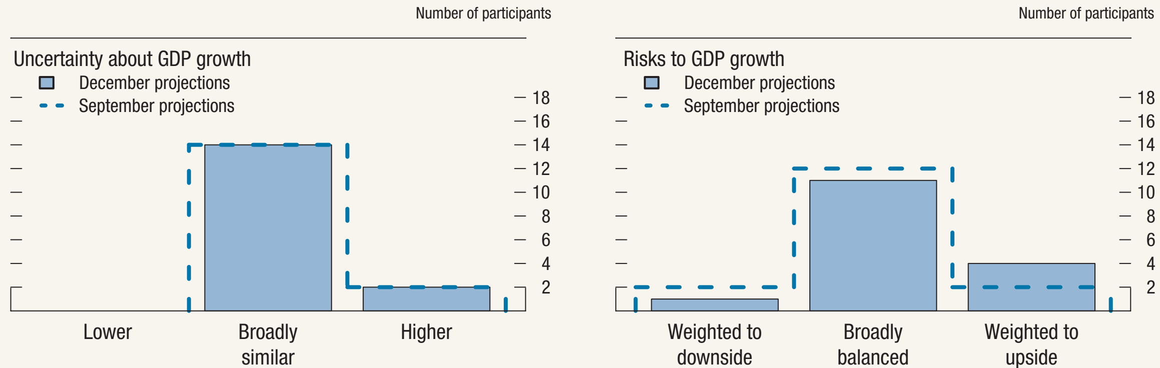
9 At the end of this summary, the box "Forecast Uncertainty" discusses the sources and interpretation of uncertainty in the economic forecasts and explains the approach used to assess the uncertainty and risks attending the participants' projections.

Figure 4.A. Uncertainty and risks in projections of GDP growth

Median projection and confidence interval based on historical forecast errors

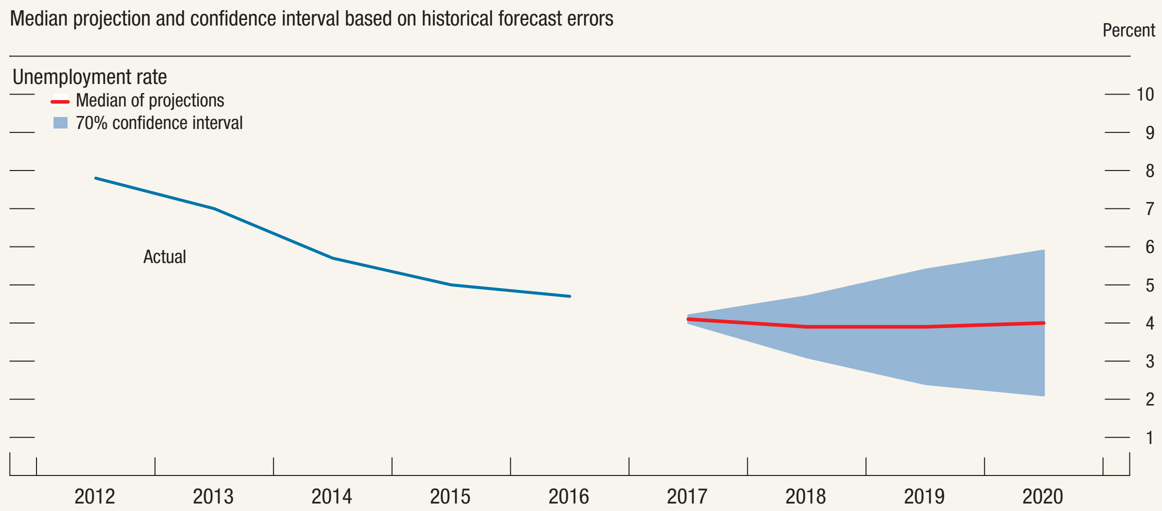


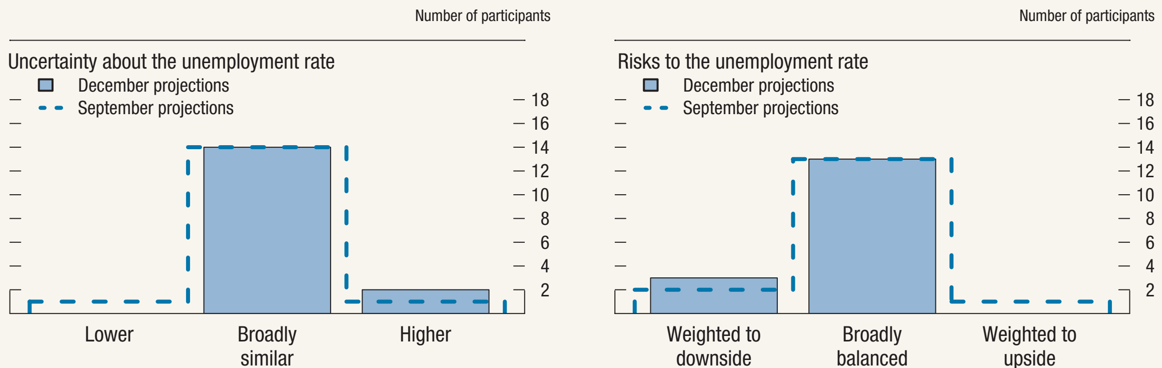
FOMC participants' assessments of uncertainty and risks around their economic projections



Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

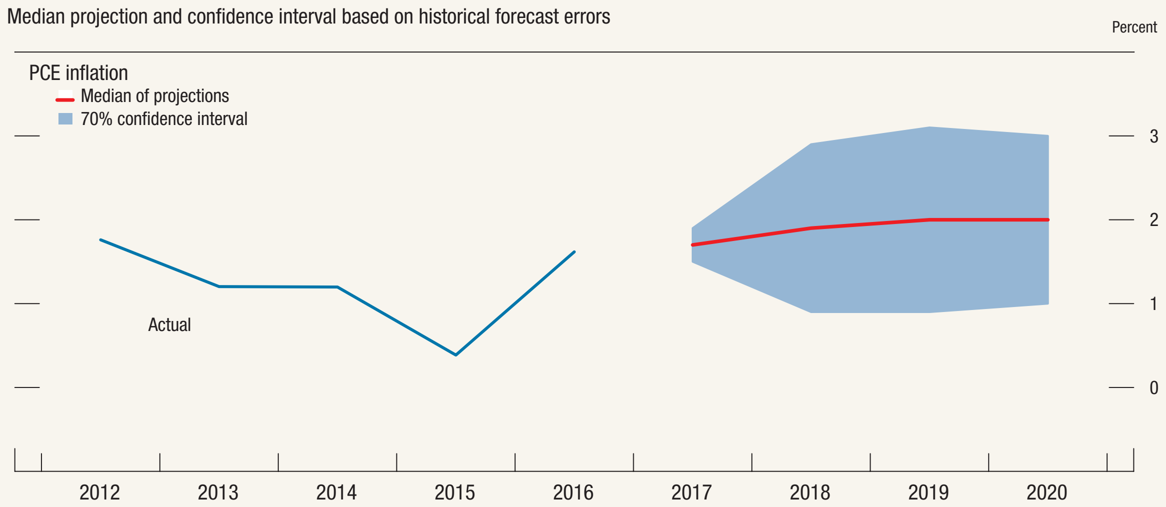
Figure 4.B. Uncertainty and risks in projections of the unemployment rate

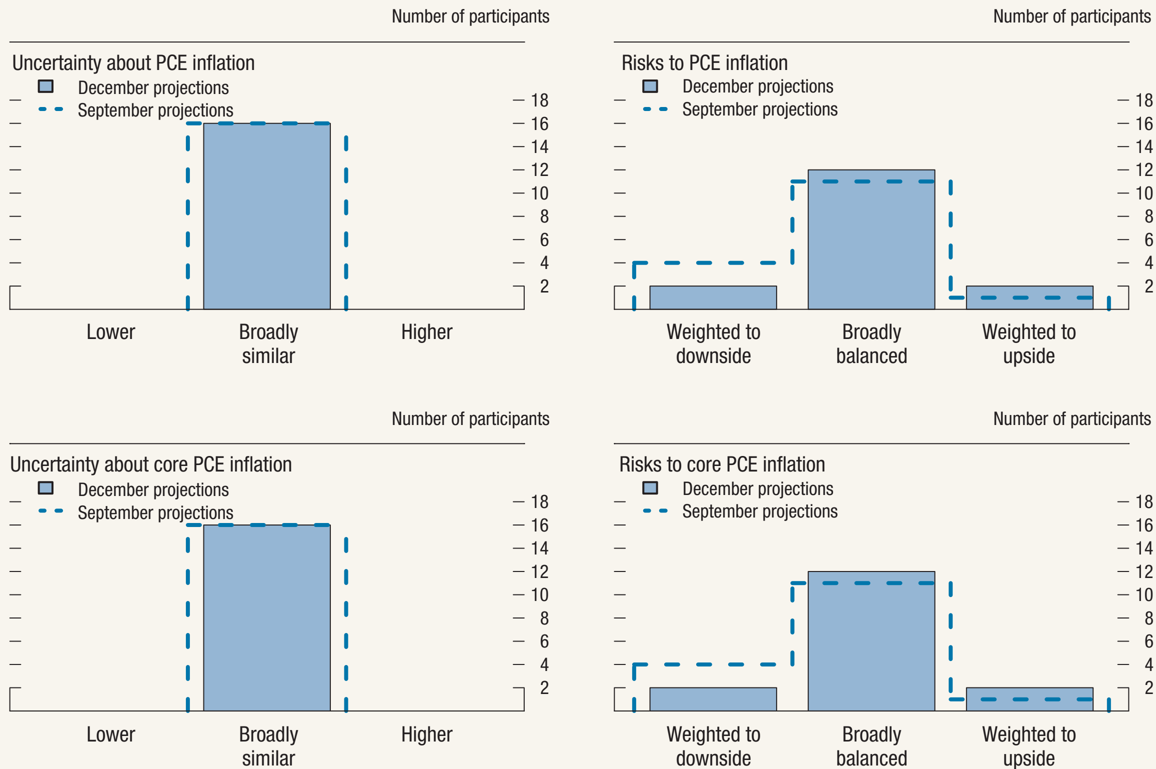




Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

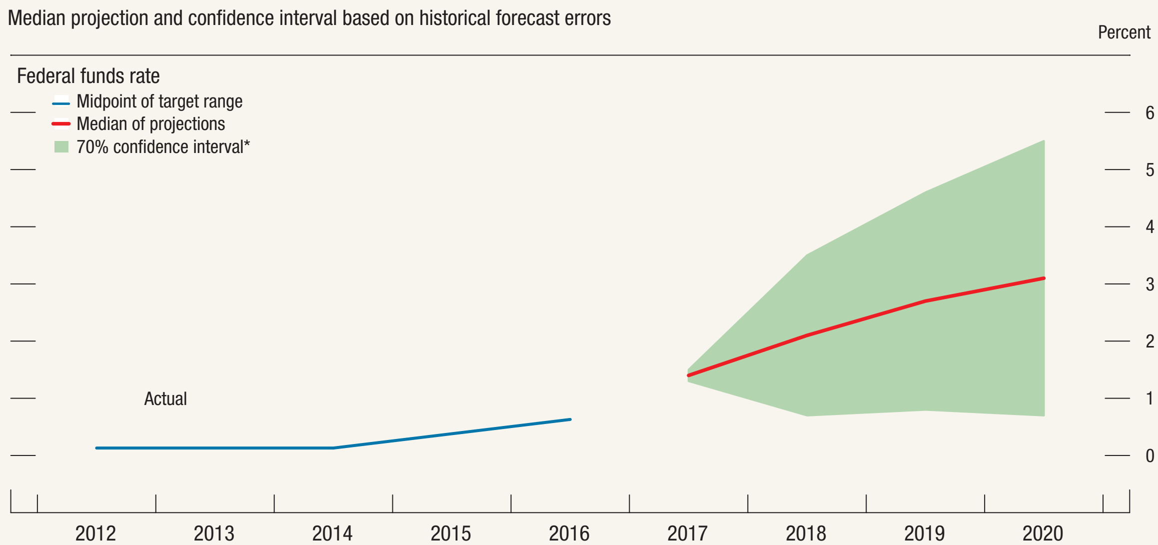
Figure 4.C. Uncertainty and risks in projections of PCE inflation





Note: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty."

Figure 5. Uncertainty in projections of the federal funds rate



Note: The blue and red lines are based on actual values and median projected values, respectively, of the Committee's target for the federal funds rate at the end of the year indicated. The actual values are the midpoint of the target range; the median projected values are based on either the midpoint of the target range or the target level. The confidence interval around the median projected values is based on root mean squared errors of various private and government forecasts made over the previous 20 years. The confidence interval is not strictly consistent with the projections for the federal funds rate, primarily because these projections are not forecasts of the likeliest outcomes for the federal funds rate, but rather projections of participants' individual assessments of appropriate monetary policy. Still, historical forecast errors provide a broad sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that may be appropriate to offset the effects of shocks to the economy.

The confidence interval is assumed to be symmetric except when it is truncated at zero—the bottom of the lowest target range for the federal funds rate that has been adopted in the past by the Committee. This truncation would not be intended to indicate the likelihood of the use of negative interest rates to provide additional monetary policy accommodation if doing so was judged appropriate. In such situations, the Committee could also employ other tools, including forward guidance and large-scale asset purchases, to provide additional accommodation. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections.

* The confidence interval is derived from forecasts of the average level of short-term interest rates in the fourth quarter of the year indicated; more information about these data is available in table 2. The shaded area encompasses less than a 70 percent confidence interval if the confidence interval has been truncated at zero.

Forecast Uncertainty

The economic projections provided by the members of the Board of Governors and the presidents of the Federal Reserve Banks inform discussions of monetary policy among policymakers and can aid public understanding of the basis for policy actions. Considerable uncertainty attends these projections, however. The economic and statistical models and relationships used to help produce economic forecasts are necessarily imperfect descriptions of the real world, and the future path of the economy can be affected by myriad unforeseen developments and events. Thus, in setting the stance of monetary policy, participants consider not only what appears to be the most likely economic outcome as embodied in their projections, but also the range of alternative possibilities, the likelihood of their occurring, and the potential costs to the economy should they occur.

Table 2 summarizes the average historical accuracy of a range of forecasts, including those reported in past *Monetary Policy Reports* and those prepared by the Federal Reserve Board's staff in advance of meetings of the Federal Open Market Committee (FOMC). The projection error ranges shown in the table illustrate the considerable uncertainty associated with economic forecasts. For example, suppose a participant projects that real gross domestic product (GDP) and total consumer prices will rise steadily at annual rates of, respectively, 3 percent and 2 percent. If the uncertainty attending those projections is similar to that experienced in the past and the risks around the projections are broadly balanced, the numbers reported in table 2 would imply a probability of about 70 percent that actual GDP would expand within a range of 2.2 to 3.8 percent in the current year, 1.3 to 4.7 percent in the second year, 0.9 to 5.1 percent in the third year, and 0.8 to 5.2 percent in the fourth year. The corresponding 70 percent confidence intervals for overall inflation would be 1.8 to 2.2 percent in the current year, 1.0 to 3.0 percent in the second year, 0.9 to 3.1 percent in the third year, and 1.0 to 3.0 percent in the fourth year. Figures 4.A through 4.C illustrate these confidence bounds in "fan charts" that are symmetric and centered on the medians of FOMC participants' projections for GDP growth, the unemployment rate, and inflation. However, in some instances, the risks around the projections may not be symmetric. In particular, the unemployment rate cannot be negative; furthermore, the risks around a particular projection might be tilted to either the upside or the downside, in which case the corresponding fan chart would be asymmetrically positioned around the median projection.

Because current conditions may differ from those that prevailed, on average, over history, participants provide judgments as to whether the uncertainty attached to their projections of each economic variable is greater than, smaller than, or broadly similar to typical levels of forecast uncertainty seen in the past 20 years, as presented in table 2 and reflected in the widths of the confidence intervals shown in the top panels of figures 4.A through 4.C. Participants' current assessments of the uncertainty surrounding their projections are summarized in the bottom-left panels of those figures. Participants also provide judgments as to whether the risks to their projections are weighted to the upside, are weighted to the downside, or are broadly balanced. That is, while the symmetric historical fan charts shown in the top panels of figures 4.A through 4.C imply that the risks to participants' projections are balanced, participants may judge that there is a greater risk that a given variable will be above rather than below their projections. These judgments are summarized in the lower-right panels of figures 4.A through 4.C.

As with real activity and inflation, the outlook for the future path of the federal funds rate is subject to considerable uncertainty. This uncertainty arises primarily because each participant's assessment of the appropriate stance of monetary policy depends importantly on the evolution of real activity and inflation over time. If economic conditions evolve in an unexpected manner, then assessments of the appropriate setting of the federal funds rate would change from that point forward. The final line in table 2 shows the error ranges for forecasts of short-term interest rates. They suggest that the historical confidence intervals associated with projections of the federal funds rate are quite wide. It should be noted, however, that these confidence intervals are not strictly consistent with the projections for the federal funds rate, as these projections are not forecasts of the most likely quarterly outcomes but rather are projections of participants' individual assessments of appropriate monetary policy and are on an end-of-year basis. However, the forecast errors should provide a sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that would be appropriate to offset the effects of shocks to the economy.

If at some point in the future the confidence interval around the federal funds rate were to extend below zero, it would be truncated at zero for purposes of the fan chart shown in figure 5; zero is the bottom of the lowest target range for the federal funds rate that has been adopted by the Committee in the past. This approach to the construction of the federal funds rate fan chart would be merely a convention; it would not have any implications for possible future policy decisions regarding the use of negative interest rates to provide additional monetary policy accommodation if doing so were appropriate. In such situations, the Committee could also employ other tools, including forward guidance and asset purchases, to provide additional accommodation.

While figures 4.A through 4.C provide information on the uncertainty around the economic projections, figure 1 provides information on the range of views across FOMC participants. A comparison of figure 1 with figures 4.A through 4.C shows that the dispersion of the projections across participants is much smaller than the average forecast errors over the past 20 years.

10 Litigation

During 2017, the Board of Governors was a party in 6 lawsuits or appeals filed that year and was a party in 11 other cases pending from previous years, for a total of 17 cases. In 2016, the Board had been a party in a total of 17 cases. As of December 31, 2017, 13 cases were pending.

Pending

Handy v. Johnson & Johnson, et al., 18-1008 (4th Circuit, notice of appeal filed December 29, 2017), is an appeal of the dismissal of an action arising out of employment at a Federal Reserve Bank.

Baylor v. Yellen, No. 17-cv-02647 (D. District of Columbia, filed December 11, 2017), is an employment discrimination case.

BBX Capital Corporation v. FDIC, No. 17-cv-62317 (S.D. Florida, filed November 22, 2017), is an action relating to golden parachute payments.

Board of Governors v. Afnani, No. 17-cv-00503 (E.D. Virginia, filed May 1, 2017), is a claim for recovery of disability benefits.

The Loan Syndications and Trading Association v. Board of Governors, No. 17-5004 (D.C. Circuit, appeal docketed February 10, 2017), is an appeal of a district court decision (223 F. Supp. 3d 37) upholding the credit risk retention rules issued under Section 941 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010.

Mitchell v. Yellen, No. 17-cv-00182 (D. District of Columbia, filed January 27, 2017), is an employment discrimination case.

Center for Popular Democracy v. Board of Governors, No. 16-cv-5829 (E.D. New York, filed October 19, 2016), is an action under the Freedom of Information Act.

Richardson v. Board of Governors, No. 16-cv-867 (D. District of Columbia, filed May 9, 2016), is a case under the Federal Tort Claims Act, Privacy Act, and Freedom of Information Act, among other claims.

Hardy v. Yellen, No. 16-cv-1572 (D. District of Columbia, filed August 2, 2016), is an employment discrimination action.

Burford v. Yellen, No. 15-cv-02074 (D. District of Columbia, filed December 1, 2015), is an employment discrimination claim.

Richardson v. Yellen, No. 14-cv-01673 (D. District of Columbia, filed October 8, 2014), is an employment discrimination claim.

Community Financial Services Association of America, Ltd., v. Board of Governors, No. 14-cv-00853 (D. District of Columbia, filed June 11, 2014), is a challenge to actions of the Board, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency that allegedly disadvantage payday lenders.

Crisman v. Board of Governors et al., No. 12-cv-1871 (D. District of Columbia, filed November 19, 2012), is a Freedom of Information Act case.

Resolved

Mullins v. Board of Governors et al., No. 16-cv-00046 (W.D. Virginia, filed December 15, 2016), was an action relating to golden parachute payments. On May 17, 2017, the district court dismissed the Board as a party to the action.

Rodriguez v. Bank of America, et al., No. 16-cv-8197 (D. New Jersey, filed November 3, 2016), was an action relating to a mortgage loan foreclosure. On July 20, 2017, the district court dismissed the action.

Haase v. Bank of America, et al., No. 16-cv-1567 (S.D. Texas, filed April 25, 2016, removed to federal court June 3, 2016), was an action against 69 defendants, including individual governors, Federal Reserve Banks, and the Federal Reserve System under the Texas Constitution, among other claims. On February 8, 2017, the court dismissed the action.

WMI Liquidating Trust v. Board of Governors, No. 13-cv-01706 (W.D. Washington, filed September 20, 2013), is an action for a declaratory judgment regarding golden parachute payments. On July 3, 2014, the action was transferred to the United States Bankruptcy Court for the District of Delaware (Adv. Pro. No. 14-50435-MFW (Bankr. D. Del.)). On February 15, 2017, the district court granted the Board's motion to dismiss all claims.

11 Statistical Tables

Table 1. Federal Reserve open market transactions, 2017
Millions of dollars

Type of security and transaction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
U.S. Treasury securities[1]													
Outright transactions[2]													
Treasury bills													
Gross purchases	0	0	0	0	0	0	0	0	0	0	0	0	0
Gross sales	0	0	0	0	0	0	0	0	0	0	0	0	0
Exchanges	0	0	0	0	0	0	0	0	0	0	0	0	0
For new bills	0	0	0	0	0	0	0	0	0	0	0	0	0
Redemptions	0	0	0	0	0	0	0	0	0	0	0	0	0
Others up to 1 year													
Gross purchases	0	0	0	0	0	0	0	0	0	0	0	0	0
Gross sales	0	0	0	0	0	0	0	0	0	0	0	0	0
Exchanges	-10,459	-20,334	-13,559	-14,518	-32,393	-12,885	-13,072	-21,852	-10,947	-2,701	-12,911	-11,504	-177,136
Redemptions	0	0	0	0	0	0	0	0	0	6,000	6,000	6,000	18,000
Over 1 to 5 years													
Gross purchases	0	0	0	0	0	0	0	0	0	0	0	0	0
Gross sales	0	0	0	0	55	0	0	0	0	0	0	0	55
Exchanges	6,086	11,092	8,838	10,434	15,147	8,873	8,173	9,541	7,464	1,876	6,174	7,843	101,542
Over 5 to 10 years													
Gross purchases	0	0	0	0	0	0	0	0	200	0	0	0	200
Gross sales	0	0	0	0	145	0	0	0	0	0	0	0	145
Exchanges	3,708	6,539	4,722	3,986	12,291	3,404	4,625	7,798	3,483	700	4,913	3,660	59,829
More than 10 years													
Gross purchases	0	0	200	0	0	0	0	0	0	0	0	0	200
Gross sales	0	0	0	0	0	0	0	0	0	0	0	200	200
Exchanges	665	2,703	0	99	4,956	608	274	4,513	0	125	1,824	0	15,766
All maturities													
Gross purchases	0	0	200	0	0	0	0	0	200	0	0	0	400
Gross sales	0	0	0	0	200	0	0	0	0	0	0	200	400
Redemptions	0	0	0	0	0	0	0	0	0	6,000	6,000	6,000	18,000
Net change in U.S. Treasury securities	0	0	200	0	-200	0	0	0	200	-6,000	-6,000	-6,200	-18,000
Federal agency obligations													
Outright transactions[2]													
Gross purchases	0	0	0	0	0	0	0	0	0	0	0	0	0
Gross sales	0	0	0	0	0	0	0	0	0	0	0	0	0
Redemptions	0	2,851	0	1,500	2,995	737	0	1,340	0	0	2,366	0	11,789
Net change in federal agency obligations	0	-2,851	0	-1,500	-2,995	-737	0	-1,340	0	0	-2,366	0	-11,789
Mortgage-backed securities[3]													
Net settlements[2]													
Net change in mortgage-backed securities	3,241	18,550	5,940	-107	1,942	-677	-1,263	-1,464	607	2,469	-3,535	-2,166	23,538
Total net change in securities holdings[4]	**3,241**	**15,699**	**6,140**	**-1,607**	**-1,253**	**-1,414**	**-1,263**	**-2,804**	**807**	**-3,531**	**-11,901**	**-8,366**	**-6,251**

(continued on next page)

Table 1.—*continued*

Type of security and transaction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Temporary transactions													
Repurchase agreements[5]	0	0	0	0	8	0	0	0	0	0	12	0	n/a
Reverse repurchase agreements[5]	410,722	383,946	469,797	372,160	417,381	429,851	397,673	358,017	395,544	354,447	279,947	345,540	n/a
Foreign official and international accounts	254,142	252,833	246,683	247,124	242,172	239,208	244,084	241,284	241,859	232,855	228,108	229,850	n/a
Others	156,579	131,113	223,114	125,037	175,209	190,643	153,590	116,732	153,686	121,592	51,838	115,689	n/a

Note: Purchases of Treasury securities and federal agency obligations increase securities holdings; sales and redemptions of these securities decrease securities holdings. Exchanges occur when the Federal Reserve rolls the proceeds of maturing securities into newly issued securities, and so exchanges do not affect total securities holdings. Positive net settlements of mortgage-backed securities increase securities holdings, while negative net settlements of these securities decrease securities holdings. Components may not sum to totals because of rounding. See table 2 of the H.4.1 release (www.federalreserve.gov/releases/h41/) for the maturity distribution of the securities.

1 Transactions exclude changes in compensation for the effects of inflation on the principal of inflation-indexed securities. Transactions include the rollover of inflation compensation into new securities. The maturity distributions of exchanged Treasury securities are based on the announced maturity of new securities rather than actual day counts.

2 Excludes the effect of temporary transactions—repurchase agreements and reverse repurchase agreements.

3 Guaranteed by Fannie Mae, Freddie Mac, and Ginnie Mae. Monthly net change in the remaining principal balance of the securities, reported at face value.

4 The net change in securities holdings reflects the settlements of purchases, reinvestments, sales, and maturities of portfolio securities.

5 Averages of daily business cash value of agreements, which are collateralized by U.S. Treasury securities, federal agency debt securities, and mortgage-backed securities. For additional details on temporary transactions, see the temporary open market operations historical search available at https://apps.newyorkfed.org/markets/autorates/tomo-search-page.

n/a Not applicable.

Table 2. Federal Reserve Bank holdings of U.S. Treasury and federal agency securities, December 31, 2015–17
Millions of dollars

Description	December 31			Change	
	2017	2016	2015	2016 to 2017	2015 to 2016
U.S. Treasury securities					
Held outright[1]	**2,454,208**	**2,463,616**	**2,461,552**	**-9,408**	**2,064**
By remaining maturity					
Bills					
1–90 days	0	0	0	0	0
91 days to 1 year	0	0	0	0	0
Notes and bonds					
1 year or less	443,679	206,822	216,115	236,857	-9,293
More than 1 year through 5 years	1,077,270	1,224,348	1,118,349	-147,078	105,999
More than 5 years through 10 years	310,375	399,277	489,226	-88,902	-89,949
More than 10 years	622,884	633,169	637,862	-10,285	-4,693
By type					
Bills	0	0	0	0	0
Notes	1,624,620	1,638,172	1,634,772	-13,552	3,400
Bonds	829,588	825,444	826,780	4,144	-1,336
Federal agency securities					
Held outright[1]	**4,391**	**16,180**	**32,944**	**-11,789**	**-16,764**
By remaining maturity					
Discount notes					
1–90 days	0	0	0	0	0
91 days to 1 year	0	0	0	0	0
Coupons					
1 year or less	1,982	11,789	16,764	-9,807	-4,975
More than 1 year through 5 years	62	2,044	13,833	-1,982	-11,789
More than 5 years through 10 years	0	0	0	0	0
More than 10 years	2,347	2,347	2,347	0	0
By type					
Discount notes	0	0	0	0	0
Coupons	4,391	16,180	32,944	-11,789	-16,764
By issuer					
Federal Home Loan Mortgage Corporation	2,573	8,356	15,711	-5,783	-7,355
Federal National Mortgage Association	1,818	5,401	11,541	-3,583	-6,140
Federal Home Loan Banks	0	2,423	5,692	-2,423	-3,269
Mortgage-backed securities[2]					
Held outright[1]	**1,764,929**	**1,741,391**	**1,747,461**	**23,538**	**-6,070**
By remaining maturity					
1 year or less	1	0	0	1	0
More than 1 year through 5 years	173	77	467	96	-390
More than 5 years through 10 years	20,013	10,584	9,014	9,429	1,570
More than 10 years	1,744,742	1,730,730	1,737,980	14,012	-7,250
By issuer					
Federal Home Loan Mortgage Corporation	515,025	506,931	510,463	8,094	-3,532
Federal National Mortgage Association	826,306	836,558	872,113	-10,252	-35,555
Government National Mortgage Association	423,598	397,901	364,885	25,697	33,016
Temporary transactions					
Repurchase agreements[3]	**0**	**0**	**0**	**0**	**0**
Reverse repurchase agreements[3]	**563,958**	**725,210**	**712,401**	**-161,252**	**12,809**
Foreign official and international accounts	244,363	256,855	237,809	-12,492	19,046
Primary dealers and expanded counterparties	319,595	468,355	474,592	-148,760	-6,237

Note: Components may not sum to totals because of rounding.

[1] Excludes the effect of temporary transactions—repurchase agreements and reverse repurchase agreements.

[2] Guaranteed by Fannie Mae, Freddie Mac, and Ginnie Mae.

[3] Cash value of agreements, which are collateralized by U.S. Treasury securities, federal agency debt securities, and mortgage-backed securities.

Table 3. Federal Reserve Bank interest rates on loans to depository institutions, December 31, 2017

Percent

Reserve Bank	Primary credit	Secondary credit	Seasonal credit
All banks	2.00	2.50	1.40

Note: For details on rate changes over the course of 2017, see “Discount Rates for Depository Institutions in 2017” in section 8 of this annual report (“Record of Policy Actions of the Board of Governors”). Primary credit is available for very short terms as a backup source of liquidity to depository institutions that are in generally sound financial condition in the judgment of the lending Federal Reserve Bank. Secondary credit is available in appropriate circumstances to depository institutions that do not qualify for primary credit. Seasonal credit is available to help relatively small depository institutions meet regular seasonal needs for funds that arise from a clear pattern of intra-yearly movements in their deposits and loans. The discount rate on seasonal credit takes into account rates charged by market sources of funds and is reestablished on the first business day of each two-week reserve maintenance period.

Table 4. Reserve requirements of depository institutions, December 31, 2017

Liability Type	Requirements	
	Percentage of liabilities	Effective date
Net transaction accounts[1]		
$0 million–$15.5 million[2]	0	1/19/2017
More than $15.5 million–$115.1 million[3]	3	1/19/2017
More than $115.1 million	10	1/19/2017
Nonpersonal time deposits	0	12/27/1990
Eurocurrency liabilities	0	12/27/1990

Note: The table reflects the liability types and percentages of those liabilities subject to requirements for the maintenance period that contains the year end. Required reserves must be held in the form of vault cash and, if vault cash is insufficient, also in the form of a deposit with a Federal Reserve Bank. An institution must hold that deposit directly with a Reserve Bank or with another institution in a pass-through relationship. Reserve requirements are imposed on commercial banks, savings banks, savings and loan associations, credit unions, U.S. branches and agencies of foreign banks, Edge corporations, and agreement corporations.

1 Total transaction accounts consist of demand deposits, automatic transfer service (ATS) accounts, NOW accounts, share draft accounts, telephone or preauthorized transfer accounts, ineligible acceptances, and affiliate-issued obligations maturing in seven days or less. Net transaction accounts are total transaction accounts less amounts due from other depository institutions and less cash items in the process of collection.

For a more detailed description of these deposit types, see Form FR 2900.

2 The amount of net transaction accounts subject to a reserve requirement ratio of 0 percent (the “exemption amount”) is adjusted each year by statute. The exemption amount is adjusted upward by 80 percent of the previous year’s (June 30 to June 30) rate of increase in total reservable liabilities at all depository institutions. No adjustment is made in the event of a decrease in such liabilities.

3 The amount of net transaction accounts subject to a reserve requirement ratio of 3 percent is the “low reserve tranche.” By statute, the upper limit of the low reserve tranche is adjusted each year by 80 percent of the previous year’s (June 30 to June 30) rate of increase or decrease in net transaction accounts held by all depository institutions.

Table 5. Banking offices and banks affiliated with bank holding companies in the United States, December 31, 2016 and 2017

Type of office	Total	Commercial banks[1]					State-chartered savings banks
		Total	Member			Nonmember	
			Total	National	State		
All banking offices							
Banks							
Number, Dec. 31, 2016	**5,389**	**5,117**	**1,720**	**914**	**806**	**3,397**	**272**
Changes during 2017							
New banks	18	13	4	2	2	9	5
Banks converted into branches	-203	-193	-51	-23	-28	-142	-10
Ceased banking operations[2]	-24	-23	-3	-1	-2	-20	-1
Other[3]	0	2	-14	-26	12	16	-2
Net change	-209	-201	-64	-48	-16	-137	-8
Number, Dec. 31, 2017	**5,180**	**4,916**	**1,656**	**866**	**790**	**3,260**	**264**
Branches and additional offices							
Number, Dec. 31, 2016	**81,658**	**78,792**	**55,167**	**40,582**	**14,585**	**23,625**	**2,866**
Changes during 2017							
New branches	1,066	963	523	361	162	440	103
Banks converted to branches	203	194	76	36	40	118	9
Discontinued[2]	-2,408	-2,378	-1,809	-1,289	-520	-569	-30
Other[3]	0	22	387	124	263	-365	-22
Net change	-1,139	-1,199	-823	-768	-55	-376	60
Number, Dec. 31, 2017	**80,519**	**77,593**	**54,344**	**39,814**	**14,530**	**23,249**	**2,926**
Banks affiliated with bank holding companies							
Banks							
Number, Dec. 31, 2016	**4,517**	**4,387**	**1,543**	**808**	**735**	**2,844**	**130**
Changes during 2017							
BHC-affiliated new banks	52	44	11	3	8	33	8
Banks converted into branches	-171	-165	-43	-20	-23	-122	-6
Ceased banking operations[2]	-24	-24	-5	-3	-2	-19	0
Other[3]	0	2	-12	-24	12	14	-2
Net change	-143	-143	-49	-44	-5	-94	0
Number, Dec. 31, 2017	**4,374**	**4,244**	**1,494**	**764**	**730**	**2,750**	**130**

Note: Includes banks, banking offices, and bank holding companies in U.S. territories and possessions (affiliated insular areas).

[1] For purposes of this table, banks are entities that are defined as banks in the Bank Holding Company Act, as amended, which is implemented by Federal Reserve Regulation Y. Generally, a bank is any institution that accepts demand deposits and is engaged in the business of making commercial loans or any institution that is defined as an insured bank in section 3(h) of the Federal Deposit Insurance Corporation Act.

[2] Institutions that no longer meet the Regulation Y definition of a bank.

[3] Interclass changes and sales of branches.

Table 6A. Reserves of depository institutions, Federal Reserve Bank credit, and related items, year-end 1984–2017 and month-end 2017

Millions of dollars

Period	Factors supplying reserve funds								
	Federal Reserve Bank credit outstanding						Gold stock	Special drawing rights certificate account	Treasury currency outstanding[5]
	Securities held outright[1]	Repurchase agreements[2]	Loans and other credit extensions[3]	Float	Other Federal Reserve assets[4]	Total[4]			
1984	167,612	2,015	3,577	833	12,347	186,384	11,096	4,618	16,418
1985	186,025	5,223	3,060	988	15,302	210,598	11,090	4,718	17,075
1986	205,454	16,005	1,565	1,261	17,475	241,760	11,084	5,018	17,567
1987	226,459	4,961	3,815	811	15,837	251,883	11,078	5,018	18,177
1988	240,628	6,861	2,170	1,286	18,803	269,748	11,060	5,018	18,799
1989	233,300	2,117	481	1,093	39,631	276,622	11,059	8,518	19,628
1990	241,431	18,354	190	2,222	39,897	302,091	11,058	10,018	20,402
1991	272,531	15,898	218	731	34,567	323,945	11,059	10,018	21,014
1992	300,423	8,094	675	3,253	30,020	342,464	11,056	8,018	21,447
1993	336,654	13,212	94	909	33,035	383,904	11,053	8,018	22,095
1994	368,156	10,590	223	-716	33,634	411,887	11,051	8,018	22,994
1995	380,831	13,862	135	107	33,303	428,239	11,050	10,168	24,003
1996	393,132	21,583	85	4,296	32,896	451,992	11,048	9,718	24,966
1997	431,420	23,840	2,035	719	31,452	489,466	11,047	9,200	25,543
1998	452,478	30,376	17	1,636	36,966	521,475	11,046	9,200	26,270
1999	478,144	140,640	233	-237	35,321	654,100	11,048	6,200	28,013
2000	511,833	43,375	110	901	36,467	592,686	11,046	2,200	31,643
2001	551,685	50,250	34	-23	37,658	639,604	11,045	2,200	33,017
2002	629,416	39,500	40	418	39,083	708,457	11,043	2,200	34,597
2003	666,665	43,750	62	-319	40,847	751,005	11,043	2,200	35,468
2004	717,819	33,000	43	925	42,219	794,007	11,045	2,200	36,434
2005	744,215	46,750	72	885	39,611	831,532	11,043	2,200	36,540
2006	778,915	40,750	67	-333	39,895	859,294	11,041	2,200	38,206
2007	740,611	46,500	72,636	-19	41,799	901,528	11,041	2,200	38,681
2008	495,629	80,000	1,605,848	-1,494	43,553	2,223,537	11,041	2,200	38,674
2009	1,844,838	0	281,095	-2,097	92,811	2,216,647	11,041	5,200	42,691
2010	2,161,094	0	138,311	-1,421	110,255	2,408,240	11,041	5,200	43,542
2011	2,605,124	0	144,098	-631	152,568	2,901,159	11,041	5,200	44,198
2012	2,669,589	0	11,867	-486	218,296	2,899,266	11,041	5,200	44,751
2013	3,756,158	0	2,177	-962	246,947	4,004,320	11,041	5,200	45,493
2014	4,236,873	0	3,351	-555	239,238	4,478,908	11,041	5,200	46,301
2015[r]	4,241,958	0	2,830	-36	221,448	4,466,199	11,041	5,200	47,567
2016	4,221,187	0	7,325	-804	206,551	4,434,259	11,041	5,200	48,536
2017	4,223,528	0	13,914	-920	194,288	4,430,809	11,041	5,200	49,381

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Table 6A.—*continued*

Period	Factors supplying reserve funds								
	Federal Reserve Bank credit outstanding						Gold stock	Special drawing rights certificate account	Treasury currency outstanding[5]
	Securities held outright[1]	Repurchase agreements[2]	Loans and other credit extensions[3]	Float	Other Federal Reserve assets[4]	Total[4]			
2017, month-end									
Jan	4,224,236	0	2,154	-1,025	209,031	4,434,396	11,041	5,200	48,614
Feb	4,239,975	0	2,842	-866	196,779	4,438,730	11,041	5,200	48,683
Mar	4,246,840	0	6,792	-567	201,108	4,454,173	11,041	5,200	48,781
Apr	4,245,626	0	1,791	-997	205,858	4,452,278	11,041	5,200	48,848
May	4,244,487	0	1,811	-1,041	195,489	4,440,746	11,041	5,200	48,916
Jun	4,243,456	0	4,922	-636	199,299	4,447,041	11,041	5,200	48,986
Jul	4,242,302	0	1,970	-905	203,671	4,447,038	11,041	5,200	49,050
Aug	4,239,617	0	1,976	-1,255	191,748	4,432,086	11,041	5,200	49,104
Sep	4,240,335	0	5,524	-743	196,244	4,441,360	11,041	5,200	49,175
Oct	4,237,190	0	1,879	-863	198,509	4,436,715	11,041	5,200	49,248
Nov	4,225,975	0	1,806	-1,325	189,445	4,415,902	11,041	5,200	49,326
Dec	4,223,528	0	13,914	-920	194,288	4,430,809	11,041	5,200	49,381

Note: Components may not sum to totals because of rounding.

1 Includes U.S. Treasury securities, federal agency debt securities, and mortgage-backed securities. U.S. Treasury securities and federal agency debt securities include securities lent to dealers, which are fully collateralized by U.S. Treasury securities, federal agency securities, and other highly rated debt securities.

2 Cash value of agreements, which are collateralized by U.S. Treasury securities, federal agency debt securities, and agency mortgage-backed securities.

3 As of 2015, includes only central bank liquidity swaps; primary, seasonal, and secondary credit; and net portfolio holdings of Maiden Lane LLC. For disaggregated loans and other credit extensions from 1984 to 2014, refer to "Table 6B. Loans and other credit extensions, by type, year-end 1984-2014 and month-end 2014" of the *2014 Annual Report*.

4 As of 2013, unamortized discounts on securities held outright are included as a component of Other Federal Reserve assets. Previously, they were included in Other Federal Reserve liabilities and capital.

5 Includes currency and coin (other than gold) issued directly by the U.S. Treasury. The largest components are fractional and dollar coins. For details, refer to "U.S. Currency and Coin Outstanding and in Circulation," *Treasury Bulletin*.

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Table 6A. Reserves of depository institutions, Federal Reserve Bank credit, and related items, year-end 1984–2017 and month-end 2017—*continued*

Period	Factors absorbing reserve funds										Reserve balances with Federal Reserve Banks
	Currency in circulation	Reverse repurchase agreements[6]	Treasury cash holdings[7]	Deposits with Federal Reserve Banks, other than reserve balances					Required clearing balances[9]	Other Federal Reserve liabilities and capital[4,10]	
				Term deposits	Treasury general account	Treasury supplementary financing account	Foreign	Other[8]			
1984	183,796	0	513	n/a	5,316	n/a	253	867	1,126	5,952	20,693
1985	197,488	0	550	n/a	9,351	n/a	480	1,041	1,490	5,940	27,141
1986	211,995	0	447	n/a	7,588	n/a	287	917	1,812	6,088	46,295
1987	230,205	0	454	n/a	5,313	n/a	244	1,027	1,687	7,129	40,097
1988	247,649	0	395	n/a	8,656	n/a	347	548	1,605	7,683	37,742
1989	260,456	0	450	n/a	6,217	n/a	589	1,298	1,618	8,486	36,713
1990	286,963	0	561	n/a	8,960	n/a	369	528	1,960	8,147	36,081
1991	307,756	0	636	n/a	17,697	n/a	968	1,869	3,946	8,113	25,051
1992	334,701	0	508	n/a	7,492	n/a	206	653	5,897	7,984	25,544
1993	365,271	0	377	n/a	14,809	n/a	386	636	6,332	9,292	27,967
1994	403,843	0	335	n/a	7,161	n/a	250	1,143	4,196	11,959	25,061
1995	424,244	0	270	n/a	5,979	n/a	386	2,113	5,167	12,342	22,960
1996	450,648	0	249	n/a	7,742	n/a	167	1,178	6,601	13,829	17,310
1997	482,327	0	225	n/a	5,444	n/a	457	1,171	6,684	15,500	23,447
1998	517,484	0	85	n/a	6,086	n/a	167	1,869	6,780	16,354	19,164
1999	628,359	0	109	n/a	28,402	n/a	71	1,644	7,481	17,256	16,039
2000	593,694	0	450	n/a	5,149	n/a	216	2,478	6,332	17,962	11,295
2001	643,301	0	425	n/a	6,645	n/a	61	1,356	8,525	17,083	8,469
2002	687,518	21,091	367	n/a	4,420	n/a	136	1,266	10,534	18,977	11,988
2003	724,187	25,652	321	n/a	5,723	n/a	162	995	11,829	19,793	11,054
2004	754,877	30,783	270	n/a	5,912	n/a	80	1,285	9,963	26,378	14,137
2005	794,014	30,505	202	n/a	4,573	n/a	83	2,144	8,651	30,466	10,678
2006	820,176	29,615	252	n/a	4,708	n/a	98	972	6,842	36,231	11,847
2007	828,938	43,985	259	n/a	16,120	n/a	96	1,830	6,614	41,622	13,986
2008	889,898	88,352	259	n/a	106,123	259,325	1,365	21,221	4,387	48,921	855,599
2009	928,249	77,732	239	n/a	186,632	5,001	2,411	35,262	3,020	63,219	973,814
2010	982,750	59,703	177	0	140,773	199,964	3,337	13,631	2,374	99,602	965,712
2011	1,075,820	99,900	128	0	85,737	0	125	64,909	2,480	72,766	1,559,731
2012	1,169,159	107,188	150	0	92,720	0	6,427	27,476	n/a	66,093	1,491,044
2013	1,241,228	315,924	234	0	162,399	0	7,970	26,181	n/a	63,049	2,249,070
2014	1,342,957	509,837	201	0	223,452	0	5,242	20,320	n/a	61,447	2,377,995
2015[r]	1,424,967	712,401	266	0	333,447	0	5,231	31,212	n/a	45,320	1,977,163
2016	1,509,440	725,210	166	0	399,190	0	5,165	53,248	n/a	46,943	1,759,675
2017	1,618,006	563,958	214	0	228,933	0	5,257	77,762	n/a	47,876	1,954,426

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Table 6A.—*continued*

Period	Factors absorbing reserve funds										Reserve balances with Federal Reserve Banks
	Currency in circulation	Reverse repurchase agreements[6]	Treasury cash holdings[7]	Deposits with Federal Reserve Banks, other than reserve balances					Required clearing balances[9]	Other Federal Reserve liabilities and capital[4,10]	
				Term deposits	Treasury general account	Treasury supplementary financing account	Foreign	Other[8]			
2017, month-end											
Jan	1,499,197	443,462	216	0	372,728	0	5,166	46,644	n/a	47,540	2,084,299
Feb	1,518,973	468,941	252	16,625	189,287	0	5,165	51,683	n/a	48,867	2,203,862
Mar	1,535,999	600,291	267	0	92,205	0	5,165	86,456	n/a	46,831	2,151,981
Apr	1,542,296	422,650	258	0	272,585	0	5,167	90,601	n/a	47,518	2,136,292
May	1,556,524	502,159	231	0	189,831	0	5,178	75,317	n/a	47,057	2,129,606
Jun	1,561,879	649,997	187	0	181,117	0	5,166	80,560	n/a	47,478	1,985,884
Jul	1,562,548	455,830	163	0	189,023	0	5,165	75,809	n/a	48,226	2,175,565
Aug	1,572,083	459,702	168	0	55,401	0	5,168	81,173	n/a	46,580	2,277,155
Sep	1,579,267	556,792	197	0	159,322	0	5,165	86,142	n/a	47,047	2,072,844
Oct	1,587,770	415,067	215	0	176,855	0	5,169	77,467	n/a	47,860	2,191,801
Nov	1,598,801	335,820	202	0	183,157	0	5,167	80,103	n/a	47,344	2,230,874
Dec	1,618,006	563,958	214	0	228,933	0	5,257	77,762	n/a	47,876	1,954,426

[6] Cash value of agreements, which are collateralized by U.S. Treasury securities, federal agency debt securities, and agency mortgage-backed securities.

[7] Coin and paper currency held by the Treasury.

[8] As of 2014, includes desposits of designated financial market utilites.

[9] Required clearing balances were discontinued in July 2012.

[10] In 2010, includes funds from American International Group, Inc. asset dispositions, held as agent.

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n/a Not applicable.

Table 6B. Reserves of depository institutions, Federal Reserve Bank credit, and related items, year-end 1918–1983
Millions of dollars

Period	Factors supplying reserve funds									
	Federal Reserve Bank credit outstanding							Gold stock[6]	Special drawing rights certificate account	Treasury currency outstanding[7]
	Securities held outright[1]	Repurchase agreements[2]	Loans	Float[3]	All other[4]	Other Federal Reserve assets[5]	Total			
1918	239	0	1,766	199	294	0	2,498	2,873	n/a	1,795
1919	300	0	2,215	201	575	0	3,292	2,707	n/a	1,707
1920	287	0	2,687	119	262	0	3,355	2,639	n/a	1,709
1921	234	0	1,144	40	146	0	1,563	3,373	n/a	1,842
1922	436	0	618	78	273	0	1,405	3,642	n/a	1,958
1923	80	54	723	27	355	0	1,238	3,957	n/a	2,009
1924	536	4	320	52	390	0	1,302	4,212	n/a	2,025
1925	367	8	643	63	378	0	1,459	4,112	n/a	1,977
1926	312	3	637	45	384	0	1,381	4,205	n/a	1,991
1927	560	57	582	63	393	0	1,655	4,092	n/a	2,006
1928	197	31	1,056	24	500	0	1,809	3,854	n/a	2,012
1929	488	23	632	34	405	0	1,583	3,997	n/a	2,022
1930	686	43	251	21	372	0	1,373	4,306	n/a	2,027
1931	775	42	638	20	378	0	1,853	4,173	n/a	2,035
1932	1,851	4	235	14	41	0	2,145	4,226	n/a	2,204
1933	2,435	2	98	15	137	0	2,688	4,036	n/a	2,303
1934	2,430	0	7	5	21	0	2,463	8,238	n/a	2,511
1935	2,430	1	5	12	38	0	2,486	10,125	n/a	2,476
1936	2,430	0	3	39	28	0	2,500	11,258	n/a	2,532
1937	2,564	0	10	19	19	0	2,612	12,760	n/a	2,637
1938	2,564	0	4	17	16	0	2,601	14,512	n/a	2,798
1939	2,484	0	7	91	11	0	2,593	17,644	n/a	2,963
1940	2,184	0	3	80	8	0	2,274	21,995	n/a	3,087
1941	2,254	0	3	94	10	0	2,361	22,737	n/a	3,247
1942	6,189	0	6	471	14	0	6,679	22,726	n/a	3,648
1943	11,543	0	5	681	10	0	12,239	21,938	n/a	4,094
1944	18,846	0	80	815	4	0	19,745	20,619	n/a	4,131
1945	24,262	0	249	578	2	0	25,091	20,065	n/a	4,339
1946	23,350	0	163	580	1	0	24,093	20,529	n/a	4,562
1947	22,559	0	85	535	1	0	23,181	22,754	n/a	4,562
1948	23,333	0	223	541	1	0	24,097	24,244	n/a	4,589
1949	18,885	0	78	534	2	0	19,499	24,427	n/a	4,598
1950	20,725	53	67	1,368	3	0	22,216	22,706	n/a	4,636
1951	23,605	196	19	1,184	5	0	25,009	22,695	n/a	4,709
1952	24,034	663	156	967	4	0	25,825	23,187	n/a	4,812
1953	25,318	598	28	935	2	0	26,880	22,030	n/a	4,894
1954	24,888	44	143	808	1	0	25,885	21,713	n/a	4,985
1955	24,391	394	108	1,585	29	0	26,507	21,690	n/a	5,008
1956	24,610	305	50	1,665	70	0	26,699	21,949	n/a	5,066
1957	23,719	519	55	1,424	66	0	25,784	22,781	n/a	5,146
1958	26,252	95	64	1,296	49	0	27,755	20,534	n/a	5,234
1959	26,607	41	458	1,590	75	0	28,771	19,456	n/a	5,311
1960	26,984	400	33	1,847	74	0	29,338	17,767	n/a	5,398
1961	28,722	159	130	2,300	51	0	31,362	16,889	n/a	5,585
1962	30,478	342	38	2,903	110	0	33,871	15,978	n/a	5,567
1963	33,582	11	63	2,600	162	0	36,418	15,513	n/a	5,578
1964	36,506	538	186	2,606	94	0	39,930	15,388	n/a	5,405
1965	40,478	290	137	2,248	187	0	43,340	13,733	n/a	5,575
1966	43,655	661	173	2,495	193	0	47,177	13,159	n/a	6,317
1967	48,980	170	141	2,576	164	0	52,031	11,982	n/a	6,784

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Table 6B.—*continued*

Period	Factors supplying reserve funds									
	Federal Reserve Bank credit outstanding							Gold stock[6]	Special drawing rights certificate account	Treasury currency outstanding[7]
	Securities held outright[1]	Repurchase agreements[2]	Loans	Float[3]	All other[4]	Other Federal Reserve assets[5]	Total			
1968	52,937	0	186	3,443	58	0	56,624	10,367	n/a	6,795
1969	57,154	0	183	3,440	64	2,743	63,584	10,367	n/a	6,852
1970	62,142	0	335	4,261	57	1,123	67,918	10,732	400	7,147
1971	69,481	1,323	39	4,343	261	1,068	76,515	10,132	400	7,710
1972	71,119	111	1,981	3,974	106	1,260	78,551	10,410	400	8,313
1973	80,395	100	1,258	3,099	68	1,152	86,072	11,567	400	8,716
1974	84,760	954	299	2,001	999	3,195	92,208	11,652	400	9,253
1975	92,789	1,335	211	3,688	1,126	3,312	102,461	11,599	500	10,218
1976	100,062	4,031	25	2,601	991	3,182	110,892	11,598	1,200	10,810
1977	108,922	2,352	265	3,810	954	2,442	118,745	11,718	1,250	11,331
1978	117,374	1,217	1,174	6,432	587	4,543	131,327	11,671	1,300	11,831
1979	124,507	1,660	1,454	6,767	704	5,613	140,705	11,172	1,800	13,083
1980	128,038	2,554	1,809	4,467	776	8,739	146,383	11,160	2,518	13,427
1981	136,863	3,485	1,601	1,762	195	9,230	153,136	11,151	3,318	13,687
1982	144,544	4,293	717	2,735	1,480	9,890	163,659	11,148	4,618	13,786
1983	159,203	1,592	918	1,605	418	8,728	172,464	11,121	4,618	15,732

Note: For a description of figures and discussion of their significance, see *Banking and Monetary Statistics*, 1941–1970 (Board of Governors of the Federal Reserve System, 1976), pp. 507–23. Components may not sum to totals because of rounding.

[1] In 1969 and thereafter, includes securities loaned—fully guaranteed by U.S. government securities pledged with Federal Reserve Banks—and excludes securities sold and scheduled to be bought back under matched sale–purchase transactions. On September 29, 1971, and thereafter, includes federal agency issues bought outright.

[2] On December 1, 1966, and thereafter, includes federal agency obligations held under repurchase agreements.

[3] In 1960 and thereafter, figures reflect a minor change in concept; refer to *Federal Reserve Bulletin*, vol. 47 (February 1961), p. 164.

[4] Principally acceptances and, until August 21, 1959, industrial loans, the authority for which expired on that date.

[5] For the period before April 16, 1969, includes the total of Federal Reserve capital paid in, surplus, other capital accounts, and other liabilities and accrued dividends, less the sum of bank premises and other assets, and is reported as "Other Federal Reserve accounts"; thereafter, "Other Federal Reserve assets" and "Other Federal Reserve liabilities and capital" are shown separately.

[6] Before January 30, 1934, includes gold held in Federal Reserve Banks and in circulation.

[7] Includes currency and coin (other than gold) issued directly by the Treasury. The largest components are fractional and dollar coins. For details refer to "U.S. Currency and Coin Outstanding and in Circulation,'' *Treasury Bulletin*.

n/a Not applicable.

Table 6B. Reserves of depository institutions, Federal Reserve Bank credit, and related items, year-end 1918–1983—*continued*
Millions of dollars

Period	Factors absorbing reserve funds								Member bank reserves[9]			
	Currency in circulation	Treasury cash holdings[8]	Deposits with Federal Reserve Banks, other than reserve balances			Other Federal Reserve accounts[5]	Required clearing balances	Other Federal Reserve liabilities and capital[5]	With Federal Reserve Banks	Currency and coin[10]	Required[11]	Excess[11,12]
			Treasury	Foreign	Other							
1918	4,951	288	51	96	25	118	0	0	1,636	n/a	1,585	51
1919	5,091	385	31	73	28	208	0	0	1,890	n/a	1,822	68
1920	5,325	218	57	5	18	298	0	0	1,781	n/a	n/a	n/a
1921	4,403	214	96	12	15	285	0	0	1,753	n/a	1,654	99
1922	4,530	225	11	3	26	276	0	0	1,934	n/a	n/a	n/a
1923	4,757	213	38	4	19	275	0	0	1,898	n/a	1,884	14
1924	4,760	211	51	19	20	258	0	0	2,220	n/a	2,161	59
1925	4,817	203	16	8	21	272	0	0	2,212	n/a	2,256	-44
1926	4,808	201	17	46	19	293	0	0	2,194	n/a	2,250	-56
1927	4,716	208	18	5	21	301	0	0	2,487	n/a	2,424	63
1928	4,686	202	23	6	21	348	0	0	2,389	n/a	2,430	-41
1929	4,578	216	29	6	24	393	0	0	2,355	n/a	2,428	-73
1930	4,603	211	19	6	22	375	0	0	2,471	n/a	2,375	96
1931	5,360	222	54	79	31	354	0	0	1,961	n/a	1,994	-33
1932	5,388	272	8	19	24	355	0	0	2,509	n/a	1,933	576
1933	5,519	284	3	4	128	360	0	0	2,729	n/a	1,870	859
1934	5,536	3,029	121	20	169	241	0	0	4,096	n/a	2,282	1,814
1935	5,882	2,566	544	29	226	253	0	0	5,587	n/a	2,743	2,844
1936	6,543	2,376	244	99	160	261	0	0	6,606	n/a	4,622	1,984
1937	6,550	3,619	142	172	235	263	0	0	7,027	n/a	5,815	1,212
1938	6,856	2,706	923	199	242	260	0	0	8,724	n/a	5,519	3,205
1939	7,598	2,409	634	397	256	251	0	0	11,653	n/a	6,444	5,209
1940	8,732	2,213	368	1,133	599	284	0	0	14,026	n/a	7,411	6,615
1941	11,160	2,215	867	774	586	291	0	0	12,450	n/a	9,365	3,085
1942	15,410	2,193	799	793	485	256	0	0	13,117	n/a	11,129	1,988
1943	20,449	2,303	579	1,360	356	339	0	0	12,886	n/a	11,650	1,236
1944	25,307	2,375	440	1,204	394	402	0	0	14,373	n/a	12,748	1,625
1945	28,515	2,287	977	862	446	495	0	0	15,915	n/a	14,457	1,458
1946	28,952	2,272	393	508	314	607	0	0	16,139	n/a	15,577	562
1947	28,868	1,336	870	392	569	563	0	0	17,899	n/a	16,400	1,499
1948	28,224	1,325	1123	642	547	590	0	0	20,479	n/a	19,277	1,202
1949	27,600	1,312	821	767	750	706	0	0	16,568	n/a	15,550	1,018
1950	27,741	1,293	668	895	565	714	0	0	17,681	n/a	16,509	1,172
1951	29,206	1,270	247	526	363	746	0	0	20,056	n/a	19,667	389
1952	30,433	1,270	389	550	455	777	0	0	19,950	n/a	20,520	-570
1953	30,781	761	346	423	493	839	0	0	20,160	n/a	19,397	763
1954	30,509	796	563	490	441	907	0	0	18,876	n/a	18,618	258
1955	31,158	767	394	402	554	925	0	0	19,005	n/a	18,903	102
1956	31,790	775	441	322	426	901	0	0	19,059	n/a	19,089	-30
1957	31,834	761	481	356	246	998	0	0	19,034	n/a	19,091	-57
1958	32,193	683	358	272	391	1,122	0	0	18,504	n/a	18,574	-70
1959	32,591	391	504	345	694	841	0	0	18,174	310	18,619	-135
1960	32,869	377	485	217	533	941	0	0	17,081	2,544	18,988	637
1961	33,918	422	465	279	320	1,044	0	0	17,387	2,823	20,114	96
1962	35,338	380	597	247	393	1,007	0	0	17,454	3,262	20,071	645
1963	37,692	361	880	171	291	1,065	0	0	17,049	4,099	20,677	471
1964	39,619	612	820	229	321	1,036	0	0	18,086	4,151	21,663	574
1965	42,056	760	668	150	355	211	0	0	18,447	4,163	22,848	-238
1966	44,663	1,176	416	174	588	-147	0	0	19,779	4,310	24,321	-232
1967	47,226	1,344	1,123	135	653	-773	0	0	21,092	4,631	25,905	-182

(continued on next page)

Table 6B.—*continued*

Period	Factors absorbing reserve funds								Member bank reserves[9]			
	Currency in circulation	Treasury cash holdings[8]	Deposits with Federal Reserve Banks, other than reserve balances			Other Federal Reserve accounts[5]	Required clearing balances	Other Federal Reserve liabilities and capital[5]	With Federal Reserve Banks	Currency and coin[10]	Required[11]	Excess[11,12]
			Treasury	Foreign	Other							
1968	50,961	695	703	216	747	-1,353	0	0	21,818	4,921	27,439	-700
1969	53,950	596	1,312	134	807	0	0	1,919	22,085	5,187	28,173	-901
1970	57,093	431	1,156	148	1,233	0	0	1,986	24,150	5,423	30,033	-460
1971	61,068	460	2,020	294	999	0	0	2,131	27,788	5,743	32,496	1,035
1972	66,516	345	1,855	325	840	0	0	2,143	25,647	6,216	32,044	98
1973	72,497	317	2,542	251	1,149[13]	0	0	2,669	27,060	6,781	35,268	-1,360
1974	79,743	185	3,113	418	1,275[13]	0	0	2,935	25,843	7,370	37,011	-3,798
1975	86,547	483	7,285	353	1,090	0	0	2,968	26,052	8,036	35,197	-1,103[14]
1976	93,717	460	10,393	352	1,357	0	0	3,063	25,158	8,628	35,461	-1,535
1977	103,811	392	7,114	379	1,187	0	0	3,292	26,870	9,421	37,615	-1,265
1978	114,645	240	4,196	368	1,256	0	0	4,275	31,152	10,538	42,694	-893
1979	125,600	494	4,075	429	1,412	0	0	4,957	29,792	11,429	44,217	-2,835
1980	136,829	441	3,062	411	617	0	0	4,671	27,456	13,654	40,558	675
1981	144,774	443	4,301	505	781	0	117	5,261	25,111	15,576	42,145	-1,442
1982	154,908	429	5,033	328	1,033	0	436	4,990	26,053	16,666	41,391	1,328
1983	171,935	479	3,661	191	851	0	1,013	5,392	20,413	17,821	39,179	-945

[8] Coin and paper currency held by the Treasury, as well as any gold in excess of the gold certificates issued to the Reserve Bank.

[9] In November 1979 and thereafter, includes reserves of member banks, Edge Act corporations, and U.S. agencies and branches of foreign banks. On November 13, 1980, and thereafter, includes reserves of all depository institutions.

[10] Between December 1, 1959, and November 23, 1960, part was allowed as reserves; thereafter, all was allowed.

[11] Estimated through 1958. Before 1929, data were available only on call dates (in 1920 and 1922 the call date was December 29). Since September 12, 1968, the amount has been based on close-of-business figures for the reserve period two weeks before the report date.

[12] For the week ending November 15, 1972, and thereafter, includes $450 million of reserve deficiencies on which Federal Reserve Banks are allowed to waive penalties for a transition period in connection with bank adaptation to Regulation J as amended, effective November 9, 1972. Allowable deficiencies are as follows (beginning with first statement week of quarter, in millions): 1973—Q1, $279; Q2, $172; Q3, $112; Q4, $84; 1974—Q1, $67; Q2, $58. The transition period ended with the second quarter of 1974.

[13] For the period before July 1973, includes certain deposits of domestic nonmember banks and foreign-owned banking institutions held with member banks and redeposited in full with Federal Reserve Banks in connection with voluntary participation by nonmember institutions in the Federal Reserve System program of credit restraint. As of December 12, 1974, the amount of voluntary nonmember bank and foreign-agency and branch deposits at Federal Reserve Banks that are associated with marginal reserves is no longer reported. However, two amounts are reported: (1) deposits voluntarily held as reserves by agencies and branches of foreign banks operating in the United States and (2) Eurodollar liabilities.

[14] Adjusted to include waivers of penalties for reserve deficiencies, in accordance with change in Board policy, effective November 19, 1975.

n/a Not applicable.

Table 7. Principal assets and liabilities of insured commercial banks, by class of bank, June 30, 2017 and 2016
Millions of dollars, except as noted

Item	Total	Member banks			Nonmember banks
		Total	National	State	
2017					
Assets					
Loans and investments	3,209,713	2,779,238	2,200,102	579,136	430,475
Loans, gross					
Net	8,220,620	6,509,962	5,189,028	1,320,934	1,710,658
Investments	3,209,713	2,779,238	2,200,102	579,136	430,475
U.S. Treasury and federal agency securities	579,392	499,918	391,752	108,166	79,474
Other	2,630,320	2,279,320	1,808,349	470,970	351,001
Cash assets, total	1,421,976	1,269,913	1,054,249	215,665	152,062
Liabilities					
Deposits, total	10,797,646	8,872,820	7,124,247	1,748,573	1,924,826
Interbank	267,840	244,799	208,143	36,656	23,042
Other transactions	1,880,660	1,541,240	1,192,240	349,000	339,420
Other nontransactions	8,649,146	7,086,781	5,723,864	1,362,917	1,562,365
Equity capital	1,795,758	1,500,282	1,202,780	297,502	295,476
Number of banks	5,000	1,678	897	781	3,322
2016					
Assets					
Loans and investments	11,016,940	8,965,679	7,179,143	1,786,536	2,051,260
Loans, gross	7,914,571	6,284,621	5,053,240	1,231,381	1,629,950
Net	7,912,788	6,283,458	5,052,311	1,231,147	1,629,330
Investments	3,102,369	2,681,059	2,125,904	555,155	421,310
U.S. Treasury and federal agency securities	568,133	492,132	375,346	116,786	76,000
Other	2,534,236	2,188,926	1,750,557	438,369	345,310
Cash assets, total	1,412,451	1,264,391	991,940	272,451	148,059
Liabilities					
Deposits, total	10,286,774	8,443,830	6,760,175	1,683,656	1,842,943
Interbank	217,461	193,812	152,350	41,461	23,649
Other transactions	1,721,539	1,398,296	1,066,623	331,673	323,243
Other nontransactions	8,347,774	6,851,723	5,541,202	1,310,521	1,496,051
Equity capital	1,732,274	1,452,927	1,173,329	279,598	279,347
Number of banks	5,227	1,755	962	793	3,472

Note: Includes U.S.-insured commercial banks located in the United States but not U.S.-insured commercial banks operating in U.S. territories or possessions. Data are domestic assets and liabilities (except for those components reported on a consolidated basis only). Components may not sum to totals because of rounding. Data for 2016 have been revised.

Table 8. Initial margin requirements under Regulations T, U, and X
Percent of market value

Effective date	Margin stocks	Convertible bonds	Short sales, T only[1]
1934, Oct. 1	25–45	n/a	n/a
1936, Feb. 1	25–55	n/a	n/a
1936, Apr. 1	55	n/a	n/a
1937, Nov. 1	40	n/a	50
1945, Feb. 5	50	n/a	50
1945, July 5	75	n/a	75
1946, Jan. 21	100	n/a	100
1947, Feb. 1	75	n/a	75
1949, Mar. 3	50	n/a	50
1951, Jan. 17	75	n/a	75
1953, Feb. 20	50	n/a	50
1955, Jan. 4	60	n/a	60
1955, Apr. 23	70	n/a	70
1958, Jan. 16	50	n/a	50
1958, Aug. 5	70	n/a	70
1958, Oct. 16	90	n/a	90
1960, July 28	70	n/a	70
1962, July 10	50	n/a	50
1963, Nov. 6	70	n/a	70
1968, Mar. 11	70	50	70
1968, June 8	80	60	80
1970, May 6	65	50	65
1971, Dec. 6	55	50	55
1972, Nov. 24	65	50	65
1974, Jan. 3	50	50	50

Note: These regulations, adopted by the Board of Governors pursuant to the Securities Exchange Act of 1934, limit the amount of credit that may be extended for the purpose of purchasing or carrying margin securities (as defined in the regulations) when the loan is collateralized by such securities. The margin requirement, expressed as a percentage, is the difference between the market value of the securities being purchased or carried (100 percent) and the maximum loan value of the collateral as prescribed by the Board. Regulation T was adopted effective October 1, 1934; Regulation U, effective May 1, 1936; and Regulation X, effective November 1, 1971. The former Regulation G, which was adopted effective March 11, 1968, was merged into Regulation U, effective April 1, 1998.

[1] From October 1, 1934, to October 31, 1937, the requirement was the margin "customarily required" by the brokers and dealers.

n/a Not applicable.

Table 9A. Statement of condition of the Federal Reserve Banks, by Bank, December 31, 2017 and 2016
Millions of dollars

Item	Total		Boston		New York		Philadelphia		Cleveland		Richmond	
	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016
Assets												
Gold certificates	11,037	11,037	349	355	3,592	3,588	348	359	553	586	776	760
Special drawing rights certificates	5,200	5,200	196	196	1,818	1,818	210	210	237	237	412	412
Coin	1,892	1,873	47	47	47	65	187	159	145	139	270	306
Loans and securities												
Primary, secondary, and seasonal loans	134	63	-	-	70	-	-	-	-	-	-	2
Treasury securities, bought outright[1]	2,454,208	2,463,616	47,817	60,519	1,381,944	1,401,963	63,367	66,892	71,170	73,781	143,793	150,561
Government-sponsored enterprise debt securities, bought outright[1]	4,391	16,180	86	397	2,473	9,207	113	439	127	485	257	989
Federal agency and government-sponsored enterprise mortgage-backed securities, bought outright[2]	1,764,929	1,741,391	34,387	42,778	993,817	990,968	45,570	47,283	51,181	52,152	103,408	106,423
Unamortized premiums on securities held outright[3]	158,760	172,964	3,093	4,249	89,396	98,428	4,099	4,696	4,604	5,180	9,302	10,570
Unamortized discounts on securities held outright[3]	-14,103	-15,078	-275	-370	-7,941	-8,580	-364	-409	-409	-452	-826	-922
Total loans and securities	4,368,319	4,379,136	85,108	107,573	2,459,759	2,491,986	112,785	118,901	126,673	131,146	255,934	267,623
Accrued interest receivable - System Open Market Account	24,744	25,598	484	630	13,912	14,547	641	697	722	770	1,464	1,577
Net portfolio holdings of consolidated variable interest entities[4]	1,722	1,742	n/a	n/a	1,722	1,742	n/a	n/a	n/a	n/a	n/a	n/a
Foreign currency denominated investments[5]	21,316	19,442	924	859	6,825	6,413	1,146	1,070	1,736	1,481	4,607	4,336
Central bank liquidity swaps[6]	12,067	5,563	523	246	3,864	1,835	649	306	983	424	2,608	1,241
Other SOMA assets	13	8	-	-	7	5	-	-	-	-	1	1
Other assets												
Items in process of collection	81	118	-	-	-	-	-	-	-	-	-	-
Bank premises	2,217	2,213	114	118	455	443	73	72	121	108	197	203
Deferred asset (accrued liability) - remittances to the Treasury	-	-	-	-	-	-	-	-	-	-	-	-
All other assets[7]	1,369	1,407	66	68	355	413	29	44	55	49	270	251
Interdistrict settlement account	-	-	12,789	-3,195	-166,593	-135,654	5,003	-1,824	12,153	6,880	26,896	1,928
Total assets	**4,449,977**	**4,453,337**	**100,600**	**106,897**	**2,325,763**	**2,387,201**	**121,071**	**119,994**	**143,378**	**141,820**	**293,435**	**278,638**

(continued on next page)

Table 9A.—*continued*

Item	Total		Boston		New York		Philadelphia		Cleveland		Richmond	
	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016
Liabilities												
Federal Reserve notes outstanding	1,745,775	1,637,993	57,138	52,607	577,769	534,619	54,181	51,798	83,646	80,022	119,325	117,238
Less: Notes held by Federal Reserve Bank	175,048	175,054	6,032	5,499	49,106	50,774	6,451	6,254	8,699	8,332	13,343	12,549
Federal Reserve notes outstanding, net	1,570,727	1,462,939	51,106	47,108	528,663	483,845	47,730	45,544	74,947	71,690	105,982	104,689
Securities sold under agreements to repurchase[8]	563,958	725,210	10,988	17,815	317,560	412,693	14,561	19,691	16,354	21,719	33,043	44,320
Deposits												
Depository institutions	1,954,431	1,759,675	36,543	40,012	1,206,638	1,032,881	56,228	52,334	48,464	44,908	144,662	120,052
Treasury, general account	228,933	399,190	n/a	n/a	228,933	399,190	n/a	n/a	n/a	n/a	n/a	n/a
Foreign, official accounts	5,257	5,165	2	2	5,230	5,138	2	2	3	3	9	9
Other[9]	77,761	53,248	4	6	22,586	37,248	-	-	-	-	185	155
Total deposits	**2,266,382**	**2,217,278**	**36,549**	**40,020**	**1,463,387**	**1,474,457**	**56,230**	**52,336**	**48,467**	**44,911**	**144,856**	**120,216**
Other liabilities												
Accrued remittances to the Treasury[10]	2,337	1,725	42	51	1,448	832	21	75	79	23	143	236
Deferred credit items	1,001	922	-	-	0	-	-	-	-	-	-	-
Consolidated variable interest entities	9	33	n/a	n/a	9	33	n/a	n/a	n/a	n/a	n/a	n/a
All other liabilities[11]	4,174	4,788	154	150	1,650	2,391	178	173	190	182	470	437
Total liabilities	**4,408,588**	**4,412,895**	**98,839**	**105,144**	**2,312,717**	**2,374,251**	**118,720**	**117,819**	**140,037**	**138,525**	**284,494**	**269,898**
Capital accounts												
Capital paid-in	31,389	30,442	1,336	1,320	9,894	9,748	1,783	1,637	2,534	2,480	6,781	6,579
Surplus (including accumulated other comprehensive loss)	10,000	10,000	425	433	3,152	3,202	568	538	807	815	2,160	2,161
Total liabilities and capital accounts	**4,449,977**	**4,453,337**	**100,600**	**106,897**	**2,325,763**	**2,387,201**	**121,071**	**119,994**	**143,378**	**141,820**	**293,435**	**278,638**

Note: Components may not sum to totals because of rounding.

[1] Par value. Includes securities loaned—fully collateralized by U.S. Treasury securities, other investment-grade securities, and collateral eligible for tri-party repurchase agreements pledged with Federal Reserve Banks.

[2] The par amount shown is the remaining principal balance of the securities.

[3] Reflects the premium or discount, which is the difference between the purchase price and the face value of the securities that has not been amortized. For U.S. Treasury and Federal agency debt securities, amortization was on a straight-line basis prior to 2017 and is now on an effective-interest basis. For mortgage-backed securities (MBS), amortization is on an effective-interest basis for both years.

[4] The Federal Reserve Bank of New York is the primary beneficiary of Maiden Lane LLC, and, as a result, the accounts and results of operations of Maiden Lane LLC are included in the combined financial statements of the Federal Reserve Banks.

[5] Valued daily at market exchange rates.

[6] Dollar value of foreign currency held under these agreements valued at the exchange rate to be used when the foreign currency is returned to the foreign central bank. This exchange rate equals the market exchange rate used when the foreign currency was acquired from the foreign central bank.

[7] Includes furniture and equipment and depository institution overdrafts.

[8] Contract amount of agreements.

[9] Includes deposits of government-sponsored enterprises (GSEs), the Consumer Financial Protection Bureau, international organizations, and designated financial market utilities. These deposits are primarily held by the Federal Reserve Banks of New York and Chicago.

[10] Represents the estimated weekly remittances to the U.S. Treasury.

[11] Includes accrued benefit costs and cash collateral posted by counterparties under commitments to purchase and sell federal agency and GSE MBS.

n/a Not applicable.

Table 9A. Statement of condition of the Federal Reserve Banks, by Bank, December 31, 2017 and 2016—*continued*
Millions of dollars

Item	Atlanta		Chicago		St. Louis		Minneapolis		Kansas City		Dallas		San Francisco	
	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016
Assets														
Gold certificates	1,520	1,541	737	753	341	360	191	193	292	296	916	875	1,422	1,371
Special drawing rights certificates	654	654	424	424	150	150	90	90	153	153	282	282	574	574
Coin	198	186	299	279	37	29	52	51	108	113	193	190	308	310
Loans and securities														
Primary, secondary, and seasonal loans	26	2	23	44	2	-	12	9	1	5	-	-	-	-
Treasury securities, bought outright[1]	144,464	137,887	103,221	98,163	32,726	31,093	19,134	18,163	34,806	34,287	98,249	87,692	313,516	302,615
Government-sponsored enterprise debt securities, bought outright[1]	259	906	185	645	58	204	34	119	62	225	176	576	561	1,987
Federal agency and government-sponsored enterprise mortgage-backed securities, bought outright[2]	103,890	97,464	74,231	69,386	23,535	21,978	13,760	12,839	25,031	24,236	70,655	61,984	225,463	213,902
Unamortized premiums on securities held outright[3]	9,345	9,681	6,677	6,892	2,118	2,183	1,238	1,275	2,252	2,408	6,355	6,157	20,281	21,246
Unamortized discounts on securities held outright[3]	-831	-844	-593	-602	-188	-191	-110	-111	-200	-210	-564	-537	-1,802	-1,852
Total loans and securities	257,153	245,096	183,744	174,528	58,251	55,267	34,068	32,294	61,952	60,951	174,871	155,872	558,019	537,898
Accrued interest receivable - System Open Market Account	1,456	1,433	1,041	1,019	330	323	193	188	351	356	988	909	3,163	3,147
Net portfolio holdings of consolidated variable interest entities[4]	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Foreign currency denominated investments[5]	1,243	1,080	892	521	233	199	90	83	207	194	273	247	3,139	2,958
Central bank liquidity swaps[6]	704	309	505	149	132	57	51	24	117	55	154	71	1,777	846
Other SOMA assets	1	-	1	-	-	-	-	-	-	-	1	-	2	1
Other assets														
Items in process of collection	81	118	-	-	-	-	-	-	-	-	-	-	-	-
Bank premises	203	206	204	202	110	114	88	89	236	239	221	223	193	196
Deferred asset (accrued liability) - remittances to the Treasury	-	-	-	91	-	-	-	-	-	-	-	-	-	-
All other assets[7]	106	95	61	60	109	101	26	31	89	70	58	57	151	173
Interdistrict settlement account	32,445	35,779	56,756	28,502	3,353	5,681	5,162	4,507	5,258	2,811	13,909	31,215	-7,132	23,369
Total assets	**295,764**	**286,497**	**244,664**	**206,528**	**63,046**	**62,281**	**40,011**	**37,550**	**68,763**	**65,238**	**191,866**	**189,941**	**561,616**	**570,843**

(continued on next page)

Table 9A.—*continued*

Item	Atlanta		Chicago		St. Louis		Minneapolis		Kansas City		Dallas		San Francisco	
	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016
Liabilities														
Federal Reserve notes outstanding	244,418	225,352	115,902	108,782	52,041	49,409	31,010	28,238	47,902	44,307	140,794	135,738	221,648	209,882
Less: Notes held by Federal Reserve Bank	24,170	24,868	10,707	10,672	5,167	5,135	2,898	2,892	5,711	5,577	16,336	16,288	26,428	26,212
Federal Reserve notes outstanding, net	220,248	200,484	105,195	98,110	46,874	44,274	28,112	25,346	42,191	38,730	124,458	119,450	195,220	183,670
Securities sold under agreements to repurchase[8]	33,197	40,589	23,719	28,896	7,520	9,153	4,397	5,347	7,998	10,093	22,577	25,814	72,044	89,081
Deposits														
Depository institutions	38,462	41,735	58,686	61,763	7,920	8,237	7,170	6,542	18,008	15,865	44,018	43,874	287,632	291,471
Treasury, general account	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Foreign, official accounts	2	2	2	1	-	-	-	-	-	-	1	-	6	6
Other[9]	7	7	54,971	15,805	3	20	0	-	4	4	0	1	1	2
Total deposits	**38,471**	**41,744**	**113,659**	**77,569**	**7,923**	**8,257**	**7,170**	**6,542**	**18,012**	**15,869**	**44,019**	**43,875**	**287,639**	**291,479**
Other liabilities														
Acrued remittances to the Treasury[10]	173	115	51	-	5	24	11	20	25	38	88	84	252	320
Deferred credit items	1,001	921	-	-	-	-	0	-	-	-	-	-	-	-
Consolidated variable interest entities	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
All other liabilities[11]	282	285	285	260	127	131	131	124	127	115	212	201	368	338
Total liabilities	**293,372**	**284,138**	**242,909**	**204,835**	**62,449**	**61,839**	**39,821**	**37,379**	**68,353**	**64,845**	**191,354**	**189,424**	**555,524**	**564,888**
Capital accounts														
Capital paid-in	1,814	1,776	1,331	1,274	453	333	144	129	311	296	388	389	4,620	4,483
Surplus (including accumulated other comprehensive loss)	578	583	424	419	144	109	46	42	99	97	124	128	1,472	1,472
Total liabilities and capital accounts	**295,764**	**286,497**	**244,664**	**206,528**	**63,046**	**62,281**	**40,011**	**37,550**	**68,763**	**65,238**	**191,866**	**189,941**	**561,616**	**570,843**

Note: Components may not sum to totals because of rounding.

[1] Par value. Includes securities loaned—fully collateralized by U.S. Treasury securities, other investment-grade securities, and collateral eligible for tri-party repurchase agreements pledged with Federal Reserve Banks.

[2] The par amount shown is the remaining principal balance of the securities.

[3] Reflects the premium or discount, which is the difference between the purchase price and the face value of the securities that has not been amortized. For U.S. Treasury and Federal agency debt securities, amortization was on a straight-line basis prior to 2017 and is now on an effective-interest basis. For mortgage-backed securities (MBS), amortization is on an effective-interest basis for both years.

[4] The Federal Reserve Bank of New York is the primary beneficiary of Maiden Lane LLC, and, as a result, the accounts and results of operations of Maiden Lane LLC are included in the combined financial statements of the Federal Reserve Banks.

[5] Valued daily at market exchange rates.

[6] Dollar value of foreign currency held under these agreements valued at the exchange rate to be used when the foreign currency is returned to the foreign central bank. This exchange rate equals the market exchange rate used when the foreign currency was acquired from the foreign central bank.

[7] Includes furniture and equipment and depository institution overdrafts.

[8] Contract amount of agreements.

[9] Includes deposits of government-sponsored enterprises (GSEs), the Consumer Financial Protection Bureau, international organizations, and designated financial market utilities. These deposits are primarily held by the Federal Reserve Banks of New York and Chicago.

[10] Represents the estimated weekly remittances to the U.S. Treasury.

[11] Includes accrued benefit costs and cash collateral posted by counterparties under commitments to purchase and sell federal agency and GSE MBS.

n/a Not applicable.

Table 9B. Statement of condition of the Federal Reserve Banks, December 31, 2017 and 2016
Supplemental information—collateral held against Federal Reserve notes: Federal Reserve agents' accounts
Millions of dollars

Item	2017	2016
Federal Reserve notes outstanding	1,745,775	1,637,993
Less: Notes held by Federal Reserve Banks not subject to collateralization	175,048	175,054
Collateralized Federal Reserve notes	**1,570,727**	**1,462,939**
Collateral for Federal Reserve notes		
Gold certificates	11,037	11,037
Special drawing rights certificates	5,200	5,200
U.S. Treasury securities[1]	1,554,490	1,446,702
Total collateral	**1,570,727**	**1,462,939**

[1] Face value. Includes compensation to adjust for the effect of inflation on the original face value of inflation-indexed securities.

Table 10. Income and expenses of the Federal Reserve Banks, by Bank, 2017
Thousands of dollars

Item	Total	Boston	New York	Philadelphia	Cleveland	Richmond	Atlanta	Chicago	St. Louis	Minneapolis	Kansas City	Dallas	San Francisco
Current income													
Interest income													
Primary, secondary, and seasonal loans	1,194	11	26	1	4	6	41	209	203	448	113	30	101
Treasury securities	64,267,294	1,345,748	36,298,431	1,683,896	1,881,174	3,811,924	3,729,703	2,662,229	843,841	493,253	906,580	2,491,076	8,119,438
Government-sponsored enterprise debt securities, net	415,654	8,973	235,079	10,961	12,217	24,788	23,969	17,101	5,420	3,168	5,849	15,876	52,253
Federal agency and government-sponsored enterprise mortgage-backed securities, net	48,912,201	1,027,993	27,630,254	1,282,561	1,432,420	2,903,034	2,836,430	2,024,509	641,695	375,087	689,778	1,892,594	6,175,845
Foreign currency denominated investments, net	-17,036	-740	-5,476	-919	-1,376	-3,697	-988	-680	-185	-72	-166	-218	-2,519
Central bank liquidity swaps[1]	13,752	599	4,435	744	1,103	2,995	793	526	148	58	134	175	2,041
Total interest income	113,593,059	2,382,584	64,162,749	2,977,244	3,325,542	6,739,050	6,589,948	4,703,894	1,491,122	871,942	1,602,288	4,399,533	14,347,159
Income from priced services	441,588	n/a	116,507	n/a	n/a	n/a	237,224	87,857	n/a	n/a	n/a	n/a	n/a
Compensation received for services provided[2]	129,035	12,147	563	410	1,595	23,447	969	25,552	946	14,950	37,825	5,625	5,006
Securities lending fees	24,806	511	14,000	648	724	1,467	1,445	1,031	327	191	350	969	3,143
Other income	5,085	52	3,814	69	106	197	192	119	62	29	43	100	302
Total other income	600,514	12,710	134,884	1,127	2,425	25,111	239,830	114,559	1,335	15,170	38,218	6,694	8,451
Total current income	**114,193,573**	**2,395,294**	**64,297,633**	**2,978,371**	**3,327,967**	**6,764,161**	**6,829,778**	**4,818,453**	**1,492,457**	**887,112**	**1,640,506**	**4,406,227**	**14,355,610**
Net expenses													
Personnel													
Salaries and other personnel expenses	2,414,896	143,836	545,072	104,090	106,141	342,372	199,491	196,920	151,302	99,618	180,912	125,027	220,116
Retirement and other benefits	732,470	40,547	159,309	33,624	34,760	102,356	61,493	55,261	42,618	34,086	54,422	44,328	69,666
Administrative													
Fees	232,038	7,747	44,494	11,454	4,363	107,496	18,585	11,467	5,563	4,166	4,690	2,206	9,810
Travel	96,344	4,720	12,524	3,409	5,601	12,945	9,394	10,949	6,112	3,423	8,310	5,427	13,531
Postage and other shipping costs	13,613	238	1,692	160	1,331	406	2,600	172	486	249	964	2,301	3,014
Communications	39,347	892	4,815	568	561	24,993	1,340	2,085	1,034	402	785	859	1,012
Materials and supplies	76,734	4,299	24,287	10,538	3,671	6,151	5,078	6,015	2,819	1,695	3,821	3,516	4,843
Building													
Taxes on real estate	48,583	7,773	10,770	1,044	1,910	2,479	3,588	4,732	797	3,687	3,409	3,676	4,720
Property depreciation	138,083	13,041	27,115	6,672	7,343	14,027	10,809	15,716	8,152	4,236	9,155	9,126	12,692
Utilities	35,863	3,951	8,054	1,591	1,398	4,092	2,777	2,278	1,664	1,815	2,539	2,451	3,253
Rent	32,135	428	2,216	1,996	1,009	19,561	301	1,190	3,443	196	729	854	211
Other building	69,682	6,808	15,111	4,633	4,856	6,761	4,305	8,061	2,394	3,140	2,595	5,210	5,809
Equipment/software													
Purchases	33,175	3,350	5,851	1,051	1,549	5,933	2,662	2,486	1,767	1,482	2,862	2,156	2,027
Rentals	3,660	325	1,285	178	350	579	254	567	18	57	22	12	12
Depreciation	79,135	3,292	7,123	2,158	1,968	43,797	3,664	3,503	1,780	1,210	2,541	3,321	4,777
Repairs and maintenance	68,519	5,244	6,341	2,051	2,193	28,412	5,568	3,883	1,622	1,205	1,957	3,492	6,551
Software	254,084	9,321	47,376	6,866	8,375	90,649	11,308	8,383	10,307	6,049	21,468	7,187	26,795
Other expenses													
Compensation paid for service costs incurred[2]	129,035	n/a	41,601	n/a	n/a	n/a	77,234	10,199	n/a	n/a	n/a	n/a	n/a
Other expenses	90,968	19,717	114,490	18,499	16,360	-513,270	67,803	78,091	166,558	15,016	32,062	29,018	46,626
Recoveries	-186,224	-21,291	-20,820	-9,944	-5,774	-50,263	-15,255	-10,649	-4,278	-1,936	-14,009	-16,322	-15,682

(continued on next page)

Table 10.—*continued*

Item	Total	Boston	New York	Philadelphia	Cleveland	Richmond	Atlanta	Chicago	St. Louis	Minneapolis	Kansas City	Dallas	San Francisco
Expenses capitalized[3]	-65,195	-36,865	-48,932	-19,301	-8,805	185,585	-3,845	-19,968	-8,953	-17,659	-36,903	-14,203	-35,345
Total operating expenses before pension expense and reimbursements	**4,336,945**	**217,373**	**1,009,774**	**181,337**	**189,160**	**435,061**	**469,154**	**391,341**	**395,205**	**162,137**	**282,331**	**219,642**	**384,438**
Net periodic pension expense[4]	524,601	3,171	497,937	2,264	1,495	3,770	2,804	4,862	2,146	992	1,571	265	3,323
Reimbursements	-698,192	-46,799	-147,299	-16,402	-41,773	-33,253	-23,866	-5,038	-244,156	-36,093	-73,229	-18,422	-11,862
Operating expenses	4,163,354	173,745	1,360,412	167,199	148,882	405,578	448,092	391,165	153,195	127,036	210,673	201,485	375,899
Interest expense on securities sold under agreements to repurchase	3,364,580	69,131	1,898,772	87,810	98,238	198,908	196,014	139,952	44,363	25,934	47,531	131,571	426,355
Interest on reserves[5]	25,849,433	307,016	17,049,570	612,810	439,358	1,413,567	432,158	1,212,547	91,889	65,891	239,390	494,097	3,491,142
Interest on term deposits[6]	12,741	37	4,550	2,650	446	59	25	1,590	-	-	1,321	250	1,814
Other expenses	7,030	144	3,968	183	205	416	410	292	93	54	99	275	891
Net expenses	33,397,138	550,073	20,317,272	870,652	687,129	2,018,528	1,076,699	1,745,546	289,540	218,915	499,014	827,678	4,296,101
Current net income	80,796,435	1,845,221	43,980,361	2,107,719	2,640,838	4,745,633	5,753,079	3,072,907	1,202,917	668,197	1,141,492	3,578,549	10,059,509
Additions to (+) and deductions from (-) current net income													
Profit on sales of Treasury securities	28,246	550	15,905	729	819	1,655	1,663	1,188	377	220	401	1,131	3,608
Profit on sales of federal agency and government-sponsored enterprise mortgage-backed securities	8,256	152	4,639	211	238	479	491	351	111	65	118	338	1,063
Foreign currency translation gains (losses)	1,894,380	82,589	611,860	102,538	151,437	413,175	108,976	71,094	20,350	8,031	18,546	24,162	281,622
Net income from consolidated variable interest entity[7]	4,331	n/a	4,331	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Other additions	963	29	897	-	-	9	18	1	-	-	-	1	1
Other deductions	-3,597	-3	-3,103	25	-111	-264	74	-4	-113	-11	-1	31	-118
Net additions to current net income	1,932,579	83,317	634,529	103,503	152,383	415,054	111,222	72,630	20,725	8,305	19,064	25,663	286,176
Cost of unreimbursed Treasury services	-	n/a	-	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Assessments by Board													
Board expenditures[8]	740,000	31,924	236,688	39,919	60,494	160,182	42,920	31,336	8,159	3,115	7,238	9,370	108,656
Cost of currency	723,534	30,598	144,985	32,515	43,809	64,593	106,615	63,284	24,260	14,827	24,372	59,066	114,609
Consumer Financial Protection Bureau[9]	573,000	24,702	182,930	31,394	46,657	123,684	33,164	24,278	6,390	2,488	5,605	7,259	84,450
Assessments by the Board of Governors	2,036,534	87,224	564,603	103,828	150,960	348,459	182,699	118,898	38,809	20,430	37,215	75,695	307,715
Net income before providing for remittances to the Treasury	80,692,480	1,841,314	44,050,287	2,107,394	2,642,261	4,812,228	5,681,602	3,026,639	1,184,833	656,072	1,123,341	3,528,517	10,037,970
Earnings remittances to the Treasury, as required by the Federal Reserve Act	80,559,689	1,810,236	44,552,515	2,037,606	2,580,346	4,646,650	5,633,968	2,985,194	1,137,678	644,347	1,104,332	3,505,037	9,921,780
Net income after providing for remittances to the Treasury	132,791	31,078	-502,228	69,788	61,915	165,578	47,634	41,445	47,155	11,725	19,009	23,480	116,190
Other comprehensive income (loss)	650,808	-5,921	686,422	2,996	-8,616	-7,117	-2,005	1,902	1,648	-2,381	-3,451	-9,761	-2,907

(continued on next page)

Table 10.—*continued*

Item	Total	Boston	New York	Philadelphia	Cleveland	Richmond	Atlanta	Chicago	St. Louis	Minneapolis	Kansas City	Dallas	San Francisco
Comprehensive income	783,599	25,157	184,194	72,784	53,299	158,461	45,629	43,347	48,803	9,344	15,558	13,719	113,283
Distribution of comprehensive income													
Dividends on capital stock	783,599	33,153	234,152	42,439	60,740	159,198	51,093	38,003	13,858	5,691	13,578	17,777	113,916
Transferred to/from surplus and change in accumulated other comprehensive income	-	-7,992	-49,954	30,347	-7,438	-735	-5,462	5,349	34,945	3,650	1,982	-4,059	-633
Earnings remittances to the Treasury	80,559,689	1,810,236	44,552,515	2,037,606	2,580,346	4,646,650	5,633,968	2,985,194	1,137,678	644,347	1,104,332	3,505,037	9,921,780
Total distribution of net income	**81,343,288**	**1,835,397**	**44,736,713**	**2,110,392**	**2,633,648**	**4,805,113**	**5,679,599**	**3,028,546**	**1,186,481**	**653,688**	**1,119,892**	**3,518,755**	**10,035,063**

Note: Components may not sum to totals because of rounding.

1 Represents interest income recognized on swap agreements with foreign central banks.

2 The Federal Reserve Bank of Atlanta (FRBA) has overall responsibility for managing the Reserve Banks' provision of check and automated clearinghouse (ACH) services and recognizes total System revenue for these services. The Federal Reserve Bank of New York (FRBNY) has overall responsibility for managing the Reserve Banks' provision of Fedwire funds transfer and securities transfer services, and recognizes the total System revenue for these services. The Federal Reserve Bank of Chicago (FRBC) has overall responsibility for managing the Reserve Banks' provision of electronic access services to depository institutions, and recognizes the total System revenue for these services. The FRBA, the FRBNY, and the FRBC compensate the other Reserve Banks for the costs incurred in providing these services.

3 Includes expenses for labor and materials capitalized and depreciated or amortized as charges to activities in the periods benefited.

4 Reflects the effect of the Financial Accounting Standards Board's Codification Topic (ASC 715) Compensation-Retirement Benefits. Net pension expense for the System Retirement Plan of $478,589 thousand is recorded on behalf of the System in the books of the FRBNY. The Retirement Benefit Equalization Plan and the Supplemental Employee Retirement Plan are recorded by each Federal Reserve Bank.

5 In October 2008, the Reserve Banks began to pay interest to depository institutions on qualifying balances held at the Federal Reserve Banks.

6 In April 2010, the Reserve Banks began to pay interest on term deposits under the Term Deposit Facility.

7 Represents the portion of the consolidated variable interest entity's net income recorded by the FRBNY. The amount includes interest income, interest expenses, realized and unrealized gains and losses, and professional fees.

8 For additional details, see the "Board of Governors Financial Statements" in section 12.

9 The Board of Governors assesses the Reserve Banks to fund the operations of the Consumer Financial Protection Bureau. These assessments are allocated to each Reserve Bank based on each Reserve Bank's capital and surplus balances as of the most recent quarter.

n/a Not applicable.

Table 11. Income and expenses of the Federal Reserve Banks, 1914–2017
Thousands of dollars

Federal Reserve Bank and period	Current income	Net expenses	Net additions or deductions (-)[1]	Assessments by the Board of Governors			Other compre-hensive income (loss)	Dividends paid	Distributions to the U.S. Treasury		Trans-ferred to/from surplus[4]	Transferred to/from surplus and change in accu-mulated other compre-hensive income[5]
				Board expend-itures	Costs of currency	Consumer Financial Protection Bureau and Office of Financial Research[2]			Statutory transfers[3]	Interest on Federal Reserve notes		
All banks												
1914–15	2,173	2,018	6	302	n/a	n/a	n/a	217	n/a	n/a	n/a	n/a
1916	5,218	2,082	-193	192	n/a	n/a	n/a	1,743	n/a	n/a	n/a	n/a
1917	16,128	4,922	-1,387	238	n/a	n/a	n/a	6,804	1,134	n/a	n/a	1,134
1918	67,584	10,577	-3,909	383	n/a	n/a	n/a	5,541	n/a	n/a	n/a	48,334
1919	102,381	18,745	-4,673	595	n/a	n/a	n/a	5,012	2,704	n/a	n/a	70,652
1920	181,297	27,549	-3,744	710	n/a	n/a	n/a	5,654	60,725	n/a	n/a	82,916
1921	122,866	33,722	-6,315	741	n/a	n/a	n/a	6,120	59,974	n/a	n/a	15,993
1922	50,499	28,837	-4,442	723	n/a	n/a	n/a	6,307	10,851	n/a	n/a	-660
1923	50,709	29,062	-8,233	703	n/a	n/a	n/a	6,553	3,613	n/a	n/a	2,546
1924	38,340	27,768	-6,191	663	n/a	n/a	n/a	6,682	114	n/a	n/a	-3,078
1925	41,801	26,819	-4,823	709	n/a	n/a	n/a	6,916	59	n/a	n/a	2,474
1926	47,600	24,914	-3,638	722	1,714	n/a	n/a	7,329	818	n/a	n/a	8,464
1927	43,024	24,894	-2,457	779	1,845	n/a	n/a	7,755	250	n/a	n/a	5,044
1928	64,053	25,401	-5,026	698	806	n/a	n/a	8,458	2,585	n/a	n/a	21,079
1929	70,955	25,810	-4,862	782	3,099	n/a	n/a	9,584	4,283	n/a	n/a	22,536
1930	36,424	25,358	-93	810	2,176	n/a	n/a	10,269	17	n/a	n/a	-2,298
1931	29,701	24,843	311	719	1,479	n/a	n/a	10,030	n/a	n/a	n/a	-7,058
1932	50,019	24,457	-1,413	729	1,106	n/a	n/a	9,282	2,011	n/a	n/a	11,021
1933	49,487	25,918	-12,307	800	2,505	n/a	n/a	8,874	n/a	n/a	n/a	-917
1934	48,903	26,844	-4,430	1,372	1,026	n/a	n/a	8,782	n/a	n/a	-60	6,510
1935	42,752	28,695	-1,737	1,406	1,477	n/a	n/a	8,505	298	n/a	28	607
1936	37,901	26,016	486	1,680	2,178	n/a	n/a	7,830	227	n/a	103	353
1937	41,233	25,295	-1,631	1,748	1,757	n/a	n/a	7,941	177	n/a	67	2,616
1938	36,261	25,557	2,232	1,725	1,630	n/a	n/a	8,019	120	n/a	-419	1,862
1939	38,501	25,669	2,390	1,621	1,356	n/a	n/a	8,110	25	n/a	-426	4,534
1940	43,538	25,951	11,488	1,704	1,511	n/a	n/a	8,215	82	n/a	-54	17,617
1941	41,380	28,536	721	1,840	2,588	n/a	n/a	8,430	141	n/a	-4	571
1942	52,663	32,051	-1,568	1,746	4,826	n/a	n/a	8,669	198	n/a	50	3,554
1943	69,306	35,794	23,768	2,416	5,336	n/a	n/a	8,911	245	n/a	135	40,327
1944	104,392	39,659	3,222	2,296	7,220	n/a	n/a	9,500	327	n/a	201	48,410
1945	142,210	41,666	-830	2,341	4,710	n/a	n/a	10,183	248	n/a	262	81,970
1946	150,385	50,493	-626	2,260	4,482	n/a	n/a	10,962	67	n/a	28	81,467
1947	158,656	58,191	1,973	2,640	4,562	n/a	n/a	11,523	36	75,284	87	8,366
1948	304,161	64,280	-34,318	3,244	5,186	n/a	n/a	11,920	n/a	166,690	n/a	18,523
1949	316,537	67,931	-12,122	3,243	6,304	n/a	n/a	12,329	n/a	193,146	n/a	21,462
1950	275,839	69,822	36,294	3,434	7,316	n/a	n/a	13,083	n/a	196,629	n/a	21,849
1951	394,656	83,793	-2,128	4,095	7,581	n/a	n/a	13,865	n/a	254,874	n/a	28,321
1952	456,060	92,051	1,584	4,122	8,521	n/a	n/a	14,682	n/a	291,935	n/a	46,334
1953	513,037	98,493	-1,059	4,100	10,922	n/a	n/a	15,558	n/a	342,568	n/a	40,337
1954	438,486	99,068	-134	4,175	6,490	n/a	n/a	16,442	n/a	276,289	n/a	35,888
1955	412,488	101,159	-265	4,194	4,707	n/a	n/a	17,712	n/a	251,741	n/a	32,710
1956	595,649	110,240	-23	5,340	5,603	n/a	n/a	18,905	n/a	401,556	n/a	53,983
1957	763,348	117,932	-7,141	7,508	6,374	n/a	n/a	20,081	n/a	542,708	n/a	61,604
1958	742,068	125,831	124	5,917	5,973	n/a	n/a	21,197	n/a	524,059	n/a	59,215
1959	886,226	131,848	98,247	6,471	6,384	n/a	n/a	22,722	n/a	910,650	n/a	-93,601
1960	1,103,385	139,894	13,875	6,534	7,455	n/a	n/a	23,948	n/a	896,816	n/a	42,613
1961	941,648	148,254	3,482	6,265	6,756	n/a	n/a	25,570	n/a	687,393	n/a	70,892

(continued on next page)

Table 11.—*continued*

Federal Reserve Bank and period	Current income	Net expenses	Net additions or deductions (-)[1]	Assessments by the Board of Governors			Other comprehensive income (loss)	Dividends paid	Distributions to the U.S. Treasury		Transferred to/from surplus[4]	Transferred to/from surplus and change in accumulated other comprehensive income[5]
				Board expenditures	Costs of currency	Consumer Financial Protection Bureau and Office of Financial Research[2]			Statutory transfers[3]	Interest on Federal Reserve notes		
1962	1,048,508	161,451	-56	6,655	8,030	n/a	n/a	27,412	n/a	799,366	n/a	45,538
1963	1,151,120	169,638	615	7,573	10,063	n/a	n/a	28,912	n/a	879,685	n/a	55,864
1964	1,343,747	171,511	726	8,655	17,230	n/a	n/a	30,782	n/a	1,582,119	n/a	-465,823
1965	1,559,484	172,111	1,022	8,576	23,603	n/a	n/a	32,352	n/a	1,296,810	n/a	27,054
1966	1,908,500	178,212	996	9,022	20,167	n/a	n/a	33,696	n/a	1,649,455	n/a	18,944
1967	2,190,404	190,561	2,094	10,770	18,790	n/a	n/a	35,027	n/a	1,907,498	n/a	29,851
1968	2,764,446	207,678	8,520	14,198	20,474	n/a	n/a	36,959	n/a	2,463,629	n/a	30,027
1969	3,373,361	237,828	-558	15,020	22,126	n/a	n/a	39,237	n/a	3,019,161	n/a	39,432
1970	3,877,218	276,572	11,442	21,228	23,574	n/a	n/a	41,137	n/a	3,493,571	n/a	32,580
1971	3,723,370	319,608	94,266	32,634	24,943	n/a	n/a	43,488	n/a	3,356,560	n/a	40,403
1972	3,792,335	347,917	-49,616	35,234	31,455	n/a	n/a	46,184	n/a	3,231,268	n/a	50,661
1973	5,016,769	416,879	-80,653	44,412	33,826	n/a	n/a	49,140	n/a	4,340,680	n/a	51,178
1974	6,280,091	476,235	-78,487	41,117	30,190	n/a	n/a	52,580	n/a	5,549,999	n/a	51,483
1975	6,257,937	514,359	-202,370	33,577	37,130	n/a	n/a	54,610	n/a	5,382,064	n/a	33,828
1976	6,623,220	558,129	7,311	41,828	48,819	n/a	n/a	57,351	n/a	5,870,463	n/a	53,940
1977	6,891,317	568,851	-177,033	47,366	55,008	n/a	n/a	60,182	n/a	5,937,148	n/a	45,728
1978	8,455,309	592,558	-633,123	53,322	60,059	n/a	n/a	63,280	n/a	7,005,779	n/a	47,268
1979	10,310,148	625,168	-151,148	50,530	68,391	n/a	n/a	67,194	n/a	9,278,576	n/a	69,141
1980	12,802,319	718,033	-115,386	62,231	73,124	n/a	n/a	70,355	n/a	11,706,370	n/a	56,821
1981	15,508,350	814,190	-372,879	63,163	82,924	n/a	n/a	74,574	n/a	14,023,723	n/a	76,897
1982	16,517,385	926,034	-68,833	61,813	98,441	n/a	n/a	79,352	n/a	15,204,591	n/a	78,320
1983	16,068,362	1,023,678	-400,366	71,551	152,135	n/a	n/a	85,152	n/a	14,228,816	n/a	106,663
1984	18,068,821	1,102,444	-412,943	82,116	162,606	n/a	n/a	92,620	n/a	16,054,095	n/a	161,996
1985	18,131,983	1,127,744	1,301,624	77,378	173,739	n/a	n/a	103,029	n/a	17,796,464	n/a	155,253
1986	17,464,528	1,156,868	1,975,893	97,338	180,780	n/a	n/a	109,588	n/a	17,803,895	n/a	91,954
1987	17,633,012	1,146,911	1,796,594	81,870	170,675	n/a	n/a	117,499	n/a	17,738,880	n/a	173,771
1988	19,526,431	1,205,960	-516,910	84,411	164,245	n/a	n/a	125,616	n/a	17,364,319	n/a	64,971
1989	22,249,276	1,332,161	1,254,613	89,580	175,044	n/a	n/a	129,885	n/a	21,646,417	n/a	130,802
1990	23,476,604	1,349,726	2,099,328	103,752	193,007	n/a	n/a	140,758	n/a	23,608,398	n/a	180,292
1991	22,553,002	1,429,322	405,729	109,631	261,316	n/a	n/a	152,553	n/a	20,777,552	n/a	228,356
1992	20,235,028	1,474,531	-987,788	128,955	295,401	n/a	n/a	171,763	n/a	16,774,477	n/a	402,114
1993	18,914,251	1,657,800	-230,268	140,466	355,947	n/a	n/a	195,422	n/a	15,986,765	n/a	347,583
1994	20,910,742	1,795,328	2,363,862	146,866	368,187	n/a	n/a	212,090	n/a	20,470,011	n/a	282,122
1995	25,395,148	1,818,416	857,788	161,348	370,203	n/a	n/a	230,527	n/a	23,389,367	n/a	283,075
1996	25,164,303	1,947,861	-1,676,716	162,642	402,517	n/a	n/a	255,884	5,517,716	14,565,624	n/a	635,343
1997	26,917,213	1,976,453	-2,611,570	174,407	364,454	n/a	n/a	299,652	20,658,972	0	n/a	831,705
1998	28,149,477	1,833,436	1,906,037	178,009	408,544	n/a	n/a	343,014	17,785,942	8,774,994	n/a	731,575
1999	29,346,836	1,852,162	-533,557	213,790	484,959	n/a	n/a	373,579	n/a	25,409,736	n/a	479,053
2000	33,963,992	1,971,688	-1,500,027	188,067	435,838	n/a	n/a	409,614	n/a	25,343,892	n/a	4,114,865
2001	31,870,721	2,084,708	-1,117,435	295,056	338,537	n/a	n/a	428,183	n/a	27,089,222	n/a	517,580
2002	26,760,113	2,227,078	2,149,328	205,111	429,568	n/a	n/a	483,596	n/a	24,495,490	n/a	1,068,598
2003	23,792,725	2,462,658	2,481,127	297,020	508,144	n/a	n/a	517,705	n/a	22,021,528	n/a	466,796
2004	23,539,942	2,238,705	917,870	272,331	503,784	n/a	n/a	582,402	n/a	18,078,003	n/a	2,782,587
2005	30,729,357	2,889,544	-3,576,903	265,742	477,087	n/a	n/a	780,863	n/a	21,467,545	n/a	1,271,672
2006	38,410,427	3,263,844	-158,846	301,014	491,962	n/a	n/a	871,255	n/a	29,051,678	n/a	4,271,828
2007	42,576,025	3,510,206	198,417	296,125	576,306	n/a	324,481	992,353	n/a	34,598,401	n/a	3,125,533
2008	41,045,582	4,870,374	3,340,628	352,291	500,372	n/a	-3,158,808	1,189,626	n/a	31,688,688	n/a	2,626,053
2009	54,463,121	5,978,795	4,820,204	386,400	502,044	n/a	1,006,813	1,428,202	n/a	47,430,237	n/a	4,564,460
2010	79,300,937	6,270,420	9,745,562	422,200	622,846	42,286	45,881	1,582,785	n/a	79,268,124	n/a	883,724

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Table 11.—*continued*

Federal Reserve Bank and period	Current income	Net expenses	Net additions or deductions (-)[1]	Assessments by the Board of Governors			Other compre-hensive income (loss)	Dividends paid	Distributions to the U.S. Treasury		Trans-ferred to/from surplus[4]	Transferred to/from surplus and change in accu-mulated other compre-hensive income[5]
				Board expend-itures	Costs of currency	Consumer Financial Protection Bureau and Office of Financial Research[2]			Statutory transfers[3]	Interest on Federal Reserve notes		
2011	85,241,366	7,316,643	2,015,991	472,300	648,798	281,712	-1,161,848	1,577,284	n/a	75,423,597	n/a	375,175
2012	81,586,102	7,798,353	18,380,835	490,001	722,301	387,279	-52,611	1,637,934	n/a	88,417,936	n/a	460,528
2013	91,149,953	9,134,656	-1,029,750	580,000	701,522	563,200	2,288,811	1,649,277	n/a	79,633,271	n/a	147,088
2014	116,561,512	10,714,872	-2,718,283	590,000	710,807	563,000	-1,611,569	1,685,826	n/a	96,901,695	n/a	1,064,952
2015	114,233,676	11,139,956	-1,305,513	705,000	689,288	489,700	366,145	1,742,745	25,955,921	91,143,493	n/a	-18,571,798
2016	111,743,998	17,262,620	-114,255	709,000	700,728	596,200	-183,232	711,423	91,466,545	n/a	n/a	0
2017	114,193,573	33,397,138	1,932,579	740,000	723,534	573,000	650,808	783,599	80,559,689	n/a	n/a	0
Total 1914–2017	**1,642,985,487**	**170,741,289**	**39,308,211**	**10,448,117**	**15,930,557**	**3,496,377**	**-1,485,129**	**23,719,831**	**242,096,113**	**1,198,433,402**	**-4**	**15,942,389[6]**
Aggregate for each Bank, 1914–2017												
Boston	61,717,363	6,452,943	367,259	449,976	860,575	154,676	-1,147	1,039,270	7,663,721	44,842,511	135	619,672
New York	737,563,817	71,053,225[7]	26,517,458	2,929,624	4,231,195	1,120,320	-1,631,137	6,684,458	125,771,143	545,077,826	-433	5,582,777
Philadelphia	52,597,055	6,234,816	835,006	649,456	732,746	237,928	13,149	1,663,581	6,884,287	36,308,189	291	733,913
Cleveland	69,391,113	6,150,127	758,148	780,524	909,865	272,557	7,069	1,768,605	9,546,450	49,612,575	-10	1,115,636
Richmond	121,172,510	12,743,219	2,440,503	1,976,922	1,366,758	747,213	45,248	4,791,313	17,496,331	81,295,580	-72	3,241,004
Atlanta	108,458,414	14,246,158	1,773,366	700,532	1,696,744	198,946	15,701	1,546,746	15,343,503	75,616,315	5	898,534
Chicago	137,260,894	12,973,826	1,930,663	713,350	1,651,053	108,583	27,822	1,415,441	11,707,659	109,806,844	12	842,620
St. Louis	40,779,745	4,427,164	443,452	169,456	553,279	32,959	22,588	357,543	4,287,582	31,149,772	-27	268,063
Minneapolis	22,375,030	4,400,620	432,336	202,025	310,813	20,134	1,124	445,126	1,789,696	15,436,029	65	203,986
Kansas City	45,367,271	6,219,445	596,992	204,042	568,759	35,243	-8,566	407,984	3,822,047	34,476,668	-9	221,514
Dallas	66,857,756	7,060,932	1,105,884	302,747	966,961	51,753	11,168	590,977	8,819,824	49,889,286	55	291,781
San Francisco	179,444,518	18,778,818	2,107,141	1,369,469	2,081,806	516,069	11,853	3,008,787	28,963,873	124,921,807	-17	1,922,892
Total	**1,642,985,487**	**170,741,289**	**39,308,211**	**10,448,117**	**15,930,557**	**3,496,377**	**-1,485,129**	**23,719,831**	**242,096,113**	**1,198,433,402**	**-4**	**15,942,389**

Note: Components may not sum to totals because of rounding.

1 For 1987 and subsequent years, includes the cost of services provided to the Treasury by Federal Reserve Banks for which reimbursement was not received.

2 Starting in 2010, as required under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, the Board of Governors began assessing the Reserve Banks to fund the operations of the Consumer Financial Protection Bureau and, for a two-year period beginning July 21, 2010, the Office of Financial Research. These assessments are allocated to the Reserve Banks based on each Reserve Bank's capital and surplus balances as of the most recent quarter.

3 Represents transfers made as a franchise tax from 1917 through 1932; transfers made under section 13b of the Federal Reserve Act from 1935 through 1947; transfers made under section 7 of the Federal Reserve Act for 1996, 1997, and 2015–2017.

4 Transfers made under section 13b of the Federal Reserve Act.

5 Transfers made under section 7 of the Federal Reserve Act. Beginning in 2006, accumulated other comprehensive income is reported as a component of surplus.

6 The $15,942,389 thousand transferred to surplus was reduced by direct charges of $500 thousand for charge-off on Bank premises (1927); $139,300 thousand for contributions to capital of the Federal Deposit Insurance Corporation (1934); $4 thousand net upon elimination of section 13b surplus (1958); $106,000 thousand (1996), $107,000 thousand (1997), $3,752,000 thousand (2000) transferred to the Treasury as statutorily required; and $1,848,716 thousand related to the implementation of SFAS No. 158 (2006) and was increased by a transfer of $11,131 thousand from reserves for contingencies (1955), leaving a balance of $10,000,000 thousand on December 31, 2017.

7 This amount is reduced by $7,591,046 thousand for expenses of the System Retirement Plan. See note 4, "Table 10. Income and expenses of the Federal Reserve Banks, by Bank, 2017."

n/a Not applicable.

Table 12. Operations in principal departments of the Federal Reserve Banks, 2014–17

Operation	2017	2016	2015	2014
Millions of pieces				
Currency processed	32,942	31,504	32,596	33,372
Currency destroyed	4,571	4,837	5,212	5,622
Coin received	58,221	58,223	55,921	55,401
Checks handled				
U.S. government checks[1]	56	58	60	63
Postal money orders	85	88	92	95
Commercial	5,153	5,241	5,452	5,741
Securities transfers[2]	16	17	17	17
Funds transfers[3]	153	148	143	135
Automated clearinghouse transactions				
Commercial	13,749	12,960	12,298	11,620
Government	1,629	1,594	1,558	1,516
Millions of dollars				
Currency processed	644,395	596,053	604,391	638,245
Currency destroyed	112,202	118,199	139,833	198,525
Coin received	5,585	5,563	5,394	5,363
Checks handled				
U.S. government checks[1]	145,599	152,392	143,764	141,396
Postal money orders	20,682	20,672	20,761	20,902
Commercial	8,438,008	8,088,569	8,109,457	8,108,895
Securities transfers[2]	299,334,719	286,671,689	295,755,612	287,104,205
Funds transfers[3]	740,096,838	766,961,537	834,630,440	884,551,876
Automated clearinghouse transactions				
Commercial	23,398,576	21,772,168	20,564,724	19,891,274
Government	5,370,695	5,192,786	5,054,219	4,872,536

1 Includes government checks handled electronically (electronic checks).
2 Data on securities transfers do not include reversals.
3 Data on funds transfers do not include non-value transfers.

Table 13. Number and annual salaries of officers and employees of the Federal Reserve Banks, December 31, 2017

Federal Reserve Bank (including branches)	President	Other officers		Employees				Total	
	Annual salary (dollars)[1]	Number	Annual salaries (dollars)[1]	Number			Annual salaries (dollars)[1]	Number	Annual salaries (dollars)[1]
				Full time	Part time	Temporary/ Hourly[2]			
Boston	412,300	72	18,259,014	966	24	9	107,704,887	1,072	126,376,201
New York	476,100	594	149,298,166	2,479	31	1	311,289,828	3,106	461,064,094
Philadelphia	398,200	62	13,472,114	788	17	16	77,106,418	884	90,976,732
Cleveland	392,100	66	14,076,900	885	18	15	79,960,368	985	94,429,368
Richmond[3]	0	82	17,229,830	1,354	3	11	126,115,763	1,450	143,345,593
Atlanta	382,280	100	21,918,470	1,559	27	16	146,767,499	1,703	169,068,249
Chicago	412,300	128	29,695,052	1,354	41	0	145,141,480	1,524	175,248,832
St. Louis	369,900	99	21,430,100	1,239	20	14	113,567,804	1,373	135,367,804
Minneapolis	398,300	62	13,404,300	908	38	13	77,511,405	1,022	91,314,005
Kansas City	370,100	106	20,724,300	1,730	15	5	138,288,409	1,857	159,382,809
Dallas	403,300	76	16,449,047	1,132	14	5	94,713,181	1,228	111,565,528
San Francisco	476,100	99	24,127,265	1,568	19	20	170,885,539	1,707	195,488,904
Federal Reserve Information Technology	n/a	72	16,521,069	1,110	2	8	132,745,162	1,192	149,266,231
Office of Employee Benefits	n/a	12	3,347,055	43	1	2	5,555,376	58	8,902,431
Total	**4,490,980**	**1,630**	**379,952,682**	**17,115**	**270**	**135**	**1,727,353,119**	**19,161**	**2,111,796,781**

Note: Components may not sum to totals because of rounding.

[1] Annualized salary liability (excluding outside agency costs) based on salaries in effect on December 31, 2017.

[2] Temporary/hourly employees are paid by the Bank, generally work less than 780 hours, and are employed on a temporary basis (such as interns). Count previously recorded under employees.

[3] The Federal Reserve Bank of Richmond president resigned in April 2017.

n/a Not applicable.

Table 14. Acquisition costs and net book value of the premises of the Federal Reserve Banks and Branches, December 31, 2017
Thousands of dollars

Federal Reserve Bank or Branch	Acquisition costs				Net book value	Other real estate
	Land	Buildings (including vaults)[1]	Building machinery and equipment	Total[2]		
Boston	27,293	199,665	46,248	273,206	114,207	n/a
New York	68,755	596,280	126,968	792,003	454,833	n/a
Philadelphia	8,146	122,667	27,842	158,655	73,307	n/a
Cleveland	4,219	150,423	34,944	189,586	106,780	n/a
Cincinnati	3,085	30,555	15,882	49,522	14,690	n/a
Richmond	32,044	173,848	60,674	266,566	134,091	n/a
Baltimore	7,916	41,888	14,109	63,913	29,310	n/a
Charlotte	7,884	45,969	13,993	67,846	33,919	n/a
Atlanta	23,344	162,147	21,850	207,341	134,872	n/a
Birmingham	5,347	13,105	1,506	19,958	10,123	n/a
Jacksonville	1,848	25,873	9,231	36,952	19,038	n/a
New Orleans	3,785	16,298	6,870	26,953	12,130	n/a
Miami	4,509	33,972	13,419	51,900	27,197	n/a
Chicago	7,459	258,778	36,782	303,019	130,794	n/a
Detroit	13,219	74,658	13,101	100,978	73,494	n/a
St. Louis	9,377	146,650	17,021	173,048	101,023	n/a
Memphis	2,472	17,076	6,561	26,109	8,711	n/a
Minneapolis	15,084	111,278	18,825	145,187	79,611	n/a
Helena	3,316	10,327	1,609	15,252	7,970	n/a
Kansas City	38,691	212,722	25,990	277,403	220,131	n/a
Denver	3,694	11,090	6,169	20,953	7,819	n/a
Omaha	4,300	9,479	2,052	15,831	8,322	n/a
Dallas	38,100	135,798	33,176	207,074	110,649	n/a
El Paso	262	5,843	3,165	9,270	3,887	n/a
Houston	32,323	104,562	9,209	146,094	106,674	n/a
San Francisco	20,988	134,182	31,501	186,671	80,335	n/a
Los Angeles	6,306	86,266	25,629	118,201	57,243	n/a
Salt Lake City	1,294	5,576	1,855	8,725	2,421	n/a
Seattle	13,101	49,970	6,631	69,702	53,096	n/a
Total	**408,161**	**2,986,945**	**632,812**	**4,027,918**	**2,216,677**	**n/a**

1 Includes expenditures for construction at some offices, pending allocation to appropriate accounts.

2 Excludes charge-offs of $17,699 thousand before 1952.

n/a Not applicable.

12 Federal Reserve System Audits

The Board of Governors, the Federal Reserve Banks, and the Federal Reserve System as a whole are all subject to several levels of audit and review.

The Board's financial statements and internal controls over financial reporting are audited annually by an independent outside auditor retained by the Board's Office of Inspector General (OIG). The outside auditor also tests the Board's compliance with certain provisions of laws, regulations, and contracts affecting those statements.

The Reserve Banks' financial statements are audited annually by an independent outside auditor retained by the Board of Governors. In addition, the Reserve Banks are subject to annual examination by the Board. As discussed in section 6, "Federal Reserve Banks," the Board's examination includes a wide range of ongoing oversight activities conducted on site and off site by staff of the Board's Division of Reserve Bank Operations and Payment Systems.

In addition, the OIG conducts audits, evaluations, investigations, and other reviews relating to the Board's programs and operations as well as to Board functions delegated to the Reserve Banks. Certain aspects of Federal Reserve operations are also subject to review by the Government Accountability Office.

Board of Governors Financial Statements

The financial statements of the Board of Governors were audited by KPMG LLP, independent auditors, for the years ended December 31, 2017 and 2016.

BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM
WASHINGTON, D.C. 20551

March 5, 2018

Management's Report on Internal Control over Financial Reporting

To the Committee on Board Affairs:

The management of the Board of Governors of the Federal Reserve System (the Board) is responsible for the preparation and fair presentation of the balance sheet as of December 31, 2017 and 2016, and the statement of operations and cash flows for the years then ended (the financial statements). The financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America, and, as such, include some amounts that are based on management judgments and estimates. To our knowledge, the financial statements are, in all material respects, fairly presented in conformity with generally accepted accounting principles and include all disclosures necessary for such fair presentation.

The management of the Board is responsible for establishing and maintaining effective internal control over financial reporting as it relates to the financial statements. The Board's internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external reporting purposes in accordance with accounting principles generally accepted in the United States of America. The Board's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the Board's assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that the Board's receipts and expenditures are being made only in accordance with authorizations of its management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Board's assets that could have a material effect on its financial statements.

Even effective internal control, no matter how well designed, has inherent limitations, including the possibility of human error, and therefore can provide only reasonable assurance with respect to the preparation of reliable financial statements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

The management of the Board assessed its internal control over financial reporting based upon the criteria established in the *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, we believe that the Board maintained effective internal control over financial reporting.

Donald V. Hammond
Chief Operating Officer

Ricardo A. Aguilera
Chief Financial Officer

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Governors of the Federal Reserve System:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying balance sheets of the Board of Governors of the Federal Reserve System (the Board) as of December 31, 2017 and 2016, the related statements of operations and cash flows for the years then ended, and the related notes (collectively, the financial statements). We also have audited the Board's internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Board as of December 31, 2017 and 2016, and the results of its operations and its cash flows for the years then ended, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the Board maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Basis for Opinions

The Board's management is responsible for these financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control and Financial Reporting. Our responsibility is to express an opinion on the Board's financial statements and an opinion on the Board's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Board in accordance with the relevant requirements relating to our audit.

We conducted our audits in accordance with the standards of the PCAOB, in accordance with auditing standards generally accepted in the United States of America, and in accordance with the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the financial statements included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

An entity's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. An entity's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the entity; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the entity are being made only in accordance with authorizations of management and directors of the entity; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the entity's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards,* we have also issued a report dated March 5, 2018 on our tests of the Board's compliance with certain provisions of laws, regulations, and contracts and other matters. The purpose of that report is solely to describe the scope of our testing of compliance and the results of that testing, and not to provide an opinion on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Board's compliance.

KPMG LLP

We have served as the Board's auditor since 2015.

Washington, District of Columbia
March 5, 2018

Board of Governors of the Federal Reserve System Balance Sheets

	As of December 31,	
	2017	2016
Assets		
Current assets:		
Cash	$177,529,448	$148,254,554
Accounts receivable – net	2,183,803	3,668,675
Prepaid expenses and other assets	7,335,702	6,439,080
Total current assets	187,048,953	158,362,309
Noncurrent assets:		
Property, equipment, and software – net	266,484,427	249,778,925
Other assets	941,190	886,914
Total noncurrent assets	267,425,617	250,665,839
Total	$454,474,570	$409,028,148
Liabilities and cumulative results of operations		
Current liabilities:		
Accounts payable and accrued liabilities	$ 27,203,026	$ 16,758,668
Accrued payroll and related taxes	37,953,047	34,327,731
Accrued annual leave	40,857,846	39,291,409
Capital lease payable	77,744	53,892
Unearned revenues and other liabilities	4,455,970	3,047,005
Total current liabilities	110,547,633	93,478,705
Long-term liabilities:		
Capital lease payable	140,342	114,041
Retirement benefit obligation	102,881,136	73,943,482
Postretirement benefit obligation	15,915,271	14,202,446
Postemployment benefit obligation	7,055,281	7,215,147
Deferred rent	45,418,714	39,311,002
Other liabilities	–	688,047
Total long-term liabilities	171,410,744	135,474,165
Total liabilities	281,958,377	228,952,870
Cumulative results of operations:		
Fund balance	222,621,531	211,493,395
Accumulated other comprehensive loss	(50,105,338)	(31,418,117)
Total cumulative results of operations	172,516,193	180,075,278
Total	$454,474,570	$409,028,148

See notes to financial statements.

Board of Governors of the Federal Reserve System Statements of Operations

	For the years ended December 31,	
	2017	2016
Board operating revenues:		
Assessments levied on Federal Reserve Banks for Board operating expenses and capital expenditures	$740,000,000	$709,000,000
Assessments levied on Federal Reserve Banks for currency-related operating expenses and capital expenditures	44,008,726	–
Other revenues	17,141,918	18,468,177
Total operating revenues	801,150,644	727,468,177
Board operating expenses:		
Salaries	437,179,633	416,636,315
Retirement, insurance, and benefits	97,442,384	88,804,438
Other components of net periodic pension and postretirement costs	7,330,010	6,022,057
Contractual services and professional fees	55,430,150	49,176,932
Depreciation, amortization, and net gains or losses on disposals	40,023,558	39,487,196
Travel	14,020,574	15,338,072
Non-capital furniture, equipment, postage, and supplies	34,372,697	7,268,471
Data, news, and research	13,372,175	30,607,031
Utilities	8,353,654	9,174,260
Software	16,010,063	14,838,146
Rentals of space	31,325,898	28,852,005
Repairs and maintenance	8,304,501	8,100,370
Other expenses	26,857,211	11,022,788
Total operating expenses	790,022,508	725,328,081
Net income	11,128,136	2,140,096
Currency costs:		
Assessments levied or to be levied on Federal Reserve Banks for currency costs	679,613,935	700,713,295
Expenses for costs related to currency	679,613,935	700,713,295
Currency assessments over (under) expenses	–	–
Bureau of Consumer Financial Protection (Bureau):		
Assessments levied on the Federal Reserve Banks for the Bureau	573,000,000	596,200,000
Transfers to the Bureau	573,000,000	596,200,000
Bureau assessments over (under) transfers	–	–
Total net income	$ 11,128,136	$ 2,140,096
Other comprehensive income:		
Pension and other postretirement benefit plans:		
Amortization of prior service cost	$ 138,609	605,483
Amortization of net actuarial loss	2,856,656	1,832,267
Net actuarial loss arising during the year	(21,682,486)	(13,262,638)
Total other comprehensive loss	(18,687,221)	(10,824,888)
Comprehensive income (loss)	(7,559,085)	(8,684,792)
Cumulative results of operations – beginning of year	180,075,278	188,760,070
Cumulative results of operations – end of year	$172,516,193	$180,075,278

See notes to financial statements.

Board of Governors of the Federal Reserve System Statements of Cash Flows

	For the years ended December 31,	
	2017	2016
Cash flows from operating activities:		
Net income	$ 11,128,136	$ 2,140,096
Adjustments to reconcile results of operations to net cash provided by (used in) operating activities:		
Depreciation and amortization	38,904,644	38,082,839
Net loss on disposal of property and equipment	1,118,914	1,404,357
Other additional noncash adjustments to results of operations	324,078	(207,215)
(Increase) decrease in assets:		
Accounts receivable	1,484,872	(635,836)
Prepaid expenses	(896,622)	(1,177,486)
Other assets	(54,276)	297,222
Increase (decrease) in liabilities:		
Accounts payable and accrued liabilities	4,498,215	1,788,402
Accrued payroll and related taxes	3,625,316	5,326,995
Accrued annual leave	1,566,437	2,494,932
Unearned revenues and other liabilities	(360,536)	40,574
Net retirement benefit obligation	11,398,148	8,799,235
Net postretirement benefit obligation	565,113	538,831
Net postemployment benefit obligation	(159,866)	(1,405,061)
Deferred rent	(1,625,988)	(2,013,269)
Other long-term liabilities	–	–
Net cash provided by operating activities	71,516,585	55,474,616
Cash flows from investing activities:		
Capital expenditures	(42,195,544)	(28,723,996)
Net cash used in investing activities	(42,195,544)	(28,723,996)
Cash flows from financing activities:		
Capital lease payments	(46,147)	(174,308)
Net cash used in financing activities	(46,147)	(174,308)
Net increase (decrease) in cash	29,274,894	26,576,312
Cash balance – beginning of year	148,254,554	121,678,242
Cash balance – end of year	$177,529,448	$148,254,554

See notes to financial statements.

Board of Governors of the Federal Reserve System Notes to Financial Statements as of and for the Years Ended December 31, 2017 and 2016

(1) Structure

The Federal Reserve System (the System) was established by Congress in 1913 and consists of the Board of Governors (the Board), the Federal Open Market Committee (FOMC), the twelve regional Federal Reserve Banks (Reserve Banks), the Federal Advisory Council, and the private commercial banks that are members of the System. The Board, unlike the Reserve Banks, was established as a federal government agency and is located in Washington, D.C. The Board has established two other committees that directly provide perspectives and input from various sectors of the economy: the Community Advisory Council and the Community Depository Institutions Advisory Council.

The Board is required by the Federal Reserve Act (the Act) to report its operations to the Speaker of the House of Representatives. The Act also requires the Board, each year, to order a financial audit of each Reserve Bank and to publish each week a statement of the financial condition of each Reserve Bank and a combined statement for all of the Reserve Banks. Accordingly, the Board believes that the best financial disclosure consistent with law is achieved by issuing separate financial statements for the Board and for the Reserve Banks. Therefore, the accompanying financial statements include only the results of operations and activities of the Board. Combined financial statements for the Reserve Banks are included in the Board's annual report to the Speaker of the House of Representatives and weekly statements are available on the Board's public website.

The Dodd-Frank Wall Street Reform and Consumer Financial Protection Act of 2010 (Dodd-Frank Act) established the Bureau of Consumer Financial Protection (Bureau) as an independent bureau within the System and designated the Board's Office of Inspector General (OIG) as the OIG for the Bureau. As required by the Dodd-Frank Act, the Board transferred certain responsibilities to the Bureau. The Dodd-Frank Act requires the Board to fund the Bureau from the combined earnings of the System. Section 1017 of the Dodd-Frank Act provides that the financial statements of the Bureau are not to be consolidated with those of the Board or the System. Accordingly, the Board's financial statements do not include financial data of the Bureau other than the funding that the Board is required by the Dodd-Frank Act to provide.

(2) Operations and Services

The Board's responsibilities require thorough analysis of domestic and international financial and economic developments. The Board carries out those responsibilities in conjunction with the Reserve Banks and the FOMC. The Board also exercises general oversight of the operations of the Reserve Banks and exercises broad responsibility in the nation's payments system. Policy regarding open market operations is established by the FOMC. However, the Board has sole authority over changes in reserve requirements, and it must approve any change in the discount rate initiated by a Reserve Bank. The Board also plays a major role in the supervision and regulation of the U.S. financial system. It has supervisory responsibilities for state-chartered banks that are members of the System, bank holding companies, savings and loan holding companies, foreign activities of member banks, U.S. activities of foreign banks, and any nonbank financial companies the Financial Stability Oversight Council (FSOC) has determined should be super-

vised by the Board. Although the Dodd-Frank Act gave the Bureau general rule-writing responsibility for federal consumer financial laws, the Board retains rule-writing responsibility under the Community Reinvestment Act and other specific statutory provisions. The Board also enforces the requirements of federal consumer financial laws for state member banks with assets of $10 billion or less. In addition, the Board enforces certain other consumer laws at all state member banks, regardless of size.

The Dodd-Frank Act directs the Board to collect assessments, fees, or other charges equal to the total expenses the Board estimates are necessary or appropriate to carry out the supervisory and regulatory responsibilities of the Board for bank holding companies and savings and loan holding companies with total consolidated assets of $50 billion or more and nonbank financial companies designated for Board supervision by the FSOC. As an agent, the Board does not recognize the supervision and regulation assessments as revenue nor does the Board use the collections to fund Board expenses; the funds are transferred to the United States Treasury (Treasury).

Beginning in December 2015, the Fixing America's Surface Transportation Act (FAST Act) requires that any amount of surplus funds of the Reserve Banks that exceed or would exceed $10 billion be transferred to the Treasury via the Board. Subsequent to the balance sheet date the Bipartisan Budget Act of 2018 was signed into law, effective February 9, 2018, reducing the statutory limit on aggregate Reserve Bank surplus from $10 billion to $7.5 billion. As an intermediary transfer agent, the Board does not recognize the remittances as revenue nor does the Board use the remittances to fund Board expenses. Additional information and disclosures regarding these remittances to the Treasury can be found in the combined financial statements of the Federal Reserve Banks.

(3) Significant Accounting Policies

Basis of Accounting — The Board prepares its financial statements in accordance with accounting principles generally accepted in the United States (GAAP) on an accrual basis of accounting.

Assessments to Fund the Board — The Federal Reserve Act authorizes the Board to levy an assessment on the Reserve Banks to fund its operations. The Board allocates the assessment to each Reserve Bank based on the Reserve Bank's capital and surplus balances. The Board recognizes the assessment in the period in which it is assessed.

Assessments to Fund the Bureau — The Board assesses the Reserve Banks for the funds transferred to the Bureau based on each Reserve Bank's capital and surplus balances. The Board recognizes the assessment in the period in which it is assessed. These assessments and transfers are reported separately from the Board's operating activities in the Board's Statements of Operations.

Assessments for Currency Costs — The Board issues the nation's currency (in the form of Federal Reserve notes), and the Reserve Banks distribute currency through depository institutions. The Board incurs costs and assesses the Reserve Banks for these costs related to producing, issuing, and retiring Federal Reserve notes as well as providing other services. The assessment is allocated based on each Reserve Bank's share of the number of notes comprising the System's net liability for Federal Reserve notes on December 31 of the prior year. The Board recognizes the assessment in the year in which the associated costs are incurred. In 2017, the

Board has started undertaking a greater role in the currency program including the areas of research and development, and quality assurance. This expanded role is reflected in the reclassification of certain revenue and expense transactions when compared to prior years. The Board's Statements of Operations include costs and assessments reported within Board operating activities, as it relates to the 2017 activity, and certain costs and assessments are reported separately from the Board's operating activities. See the currency footnote disclosures for more detail on these costs.

Civil Money Penalties — The Board has enforcement authority over the financial institutions it supervises and their affiliated parties, including the authority to assess civil money penalties. As directed by statute, all civil money penalties that are assessed and collected by the Board are remitted to either the Treasury or the Federal Emergency Management Agency (FEMA). As an agent, the Board does not recognize civil money penalties as revenue nor does the Board use civil money penalties to fund Board expenses. Civil money penalties whose collection is contingent upon fulfillment of certain conditions in the enforcement action are not recorded in the Board's financial records.

Accounts Receivable and Allowance for Doubtful Accounts — Accounts receivable are recorded when amounts are billed but not yet received and are shown net of the allowance for doubtful accounts. Accounts receivable considered uncollectible are charged against the allowance account in the year they are deemed uncollectible. The allowance for doubtful accounts is adjusted monthly, based upon a review of outstanding receivables.

Prepaid Expenses — The Board recognizes expenses as prepaid for costs paid in advance that will be expensed with the passage of time or upon the occurrence of a triggering event in future periods.

Property, Equipment, and Software — The Board's property, equipment, and software are stated at cost less accumulated depreciation and amortization. Depreciation and amortization are calculated on a straight-line basis over the estimated useful lives of the assets, which range from three to ten years for furniture and equipment, ten to fifty years for building equipment and structures, and two to five years for software. Upon the sale or other disposition of a depreciable asset, the cost and related accumulated depreciation or amortization are removed and any gain or loss is recognized. Construction in process includes costs incurred for short-term and long-term projects that have not been placed into service; the majority of the balance represents long-term building enhancement projects.

Capitalized assets, including software, buildings, leasehold improvements, furniture, and equipment, are impaired and an adjustment is recorded when events or changes in circumstances indicate that the carrying amount of assets or asset groups is not recoverable and significantly exceeds the assets' fair value.

Art Collections — The Board has collections of works of art, historical treasures, and similar assets. These collections are maintained and held for public exhibition in furtherance of public service. Proceeds from any sales of collections are used to acquire other items for collections. The cost of collections purchased by the Board is charged to expense in the year purchased and donated collection items are not recorded. The value of the Board's collections has not been determined.

Operating Leases and Deferred Rent — Leases for certain space contain scheduled rent increases over the term of the lease. Along with rent abatements and lease incentives, the scheduled rent increases are spread on a straight-line basis over the term of the lease in determining the annual rent expense to be recognized. The deferred rent represents the difference between the actual lease payments and the rent expense recognized. Lease incentives impact deferred rent and are noncash transactions.

Benefit Obligations — The Board records annual amounts relating to its nonqualified retirement, postretirement, and postemployment plans based on calculations that incorporate various actuarial and other assumptions, including discount rates, mortality, compensation increases, and health-care cost trends. The Board reviews the assumptions on an annual basis and makes modifications to the assumptions based on a variety of factors. The effect of the modifications is recorded in accumulated other comprehensive income and amortized to net periodic cost over future periods, which is presented in the accumulated other comprehensive income (loss) footnote.

Estimates — The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. Significant items subject to such estimates include useful lives of property, equipment, and software; allowance for doubtful accounts receivable; accounts payable; benefit obligations; and commitments and contingencies.

Commitments and Contingencies — Liabilities for loss contingencies arising from claims, assessments, litigation, and other sources are recorded when it is probable that a liability has been incurred and the amount can be reasonably estimated. Legal costs incurred in connection with loss contingencies are expensed as incurred.

Tax Exempt Status — The Board, as a federal government entity, is not subject to state or local income taxes. Federal income tax on corporations does not apply to the Board.

Recently Issued Accounting Standards — In February 2016, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2016-02, *Leases* (Topic 842). This update revises the model to assess how a lease should be classified and provides guidance for lessees, requiring lessees to present right-of-use assets and lease liabilities on the balance sheet. The update is effective no later than the year ended December 31, 2020, although earlier adoption is permitted. The Board will evaluate the effect of this new guidance on its financial statements.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers* (Topic 606). This update was issued to create common revenue recognition guidance for U.S. GAAP and International Financial Reporting Standards. The guidance is applicable to all contracts for the transfer of goods or services regardless of industry or type of transaction. This update requires recognition of revenue in a manner that reflects the consideration that the entity expects to receive in return for the transfer of goods or services to customers. Subsequently, the FASB issued a number of related ASUs, including ASU 2015-14, *Revenue from Contracts with Customers* (Topic 606): *Deferral of the Effective Date*; ASU 2016-08, *Revenue*

from Contracts with Customers (Topic 606): *Principal versus Agent Considerations (Reporting Revenue Gross versus Net)*; ASU 2016-10, *Revenue from Contracts with Customers* (Topic 606): *Identifying Performance Obligations and Licensing*; ASU 2016-12, *Revenue from Contracts with Customers* (Topic 606): *Narrow-Scope Improvements and Practical Expedients*; and ASU 2016-20, *Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers.* This revenue recognition accounting guidance is effective for the Board for the year ending December 31, 2019, and is not expected to have a material effect on the Board's financial statements since the Board reports annually and satisfies all material performance obligations prior to year-end.

In March 2017, the FASB issued ASU 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost* (Topic 715). This update requires an employer to disaggregate the service cost component from the other components of net benefit cost. It also provides explicit guidance on how to present the service cost component and the other components of net benefit cost in the income statement and allows only the service cost component of net benefit cost to be eligible for capitalization. This update is effective for the Board for the year ended December 31, 2019, although early adoption is permitted. The Board has decided to adopt this guidance in 2017. See changes reflected in the Statements of Operations.

(4) Property, Equipment, and Software

The following is a summary of the components of the Board's property, equipment, and software, at cost, less accumulated depreciation and amortization as of December 31, 2017 and 2016:

	As of December 31,	
	2017	2016
Land	$ 18,640,314	$ 18,640,314
Buildings and improvements	310,235,261	309,910,316
Construction in process	31,670,962	12,106,227
Furniture and equipment	77,682,539	76,548,612
Software in use	59,373,571	47,862,713
Software in process	3,462,045	6,686,732
Vehicles	2,297,985	2,337,638
Lease – office equipment	283,300	187,000
Subtotal	503,645,977	474,279,552
Less accumulated depreciation and amortization	(237,161,550)	(224,500,627)
Property, equipment, and software – net	$ 266,484,427	$ 249,778,925

Construction in process include costs incurred in the current or prior years for long-term projects and building enhancements. The Board recorded noncash capital assets of goods received or services performed of $5,946,000 for the year ended December 31, 2017.

(5) Leases

Capital Leases — The Board entered into capital leases for copier equipment in 2012 that terminated in May 2016. The Board entered into new capital leases in 2016 with lease terms that extend through 2020. Furniture and equipment includes capitalized leases of $283,000 and $187,000 as of 2017 and 2016, respectively. Accumulated depreciation includes $77,000 and $27,000 related to assets under capital leases as of 2017 and 2016, respectively. The depreciation expense for leased equipment is $50,000 and $116,000 for 2017 and 2016, respectively.

The future minimum lease payments required under the capital leases and the present value of the net minimum lease payments as of December 31, 2017, are as follows:

Years Ended December 31,	Amount
2018	$ 72,389
2019	77,636
2020	49,698
2021	29,742
2022	22,306
Total minimum lease payments	251,771
Less amount representing maintenance	(39,957)
Net minimum lease payments	211,814
Less amount representing interest	(6,069)
Present value of net minimum lease payments	205,745
Less current maturities of capital lease payments	(65,403)
Long-term capital lease obligations	$140,342

Operating Leases — The Board has entered into operating leases for copier equipment and to secure office, training, data center, and warehouse space. Several of the leases are with other governmental agencies and Reserve Banks. Minimum annual payments under the multiyear operating leases having an initial or remaining noncancelable lease term in excess of one year at December 31, 2017, are as follows:

Years Ended December 31,	
2018	$ 33,654,956
2019	37,173,221
2020	36,187,966
2021	36,697,577
After 2021	94,424,344
	$238,138,064

Deferred Rent — The Board recorded noncash lease incentives of $7,734,000 and $1,009,000 for the years ended December 31, 2017 and 2016, respectively.

(6) Retirement Benefits

Substantially all of the Board's employees participate in the Retirement Plan for Employees of the Federal Reserve System (the System Plan). The System Plan provides retirement benefits to employees of the Board, the Reserve Banks, the Office of Employee Benefits of the Federal Reserve System (OEB), and certain employees of the Bureau. The Federal Reserve Bank of New York (FRBNY), on behalf of the System, recognizes the net assets and costs associated with the System Plan in its financial statements; costs associated with the System Plan are not redistributed to the Board.

Employees of the Board who became employed prior to 1984 are covered by a contributory defined benefits program under the System Plan. Employees of the Board who became employed after 1983 are covered by a non-contributory defined benefits program under the System Plan. FRBNY, on behalf of the System, funded $720 million and $580 million during each of the years ended December 31, 2017 and 2016, respectively. The Board was not assessed a contribution for 2017 or 2016.

In October 2017, the Society of Actuaries released new mortality tables (RP-2017) and mortality projection scales (MP-2017). The System analyzed each of these updates to the mortality tables and compared them to the System's actual retiree mortality experience. Based on these analyses, the System adopted modified RP-2017 mortality tables and adjusted MP-2017 projection scales reflecting the System's recent mortality experience of System retirees through 2016. The adjusted tables and scales included the Board and resulted in an estimated gain of the BEP and PEP (see below) projected benefit obligations of approximately $250,000 and $140,000, respectively in 2017 and with no adjustments made in 2016.

Benefits Equalization Plan — Board employees covered under the System Plan are also covered under a Benefits Equalization Plan (BEP). Benefits paid under the BEP are limited to those benefits that cannot be paid from the System Plan due to

limitations imposed by the Internal Revenue Code. Activity for the BEP as of December 31, 2017 and 2016, is summarized in the following tables:

	2017	2016
Change in projected benefit obligation:		
Benefit obligation – beginning of year	$ 41,832,904	$ 27,995,628
Service cost	4,359,375	2,844,118
Interest cost	2,365,386	1,652,323
Plan participants' contributions	–	–
Actuarial loss	18,158,332	9,371,473
Gross benefits paid	(61,229)	(30,638)
Benefit obligation – end of year	$ 66,654,768	$ 41,832,904
Accumulated benefit obligation – end of year	$ 11,854,561	$ 6,436,909
Weighted-average assumptions used to determine benefit obligation as of December 31:		
Discount rate	3.75 %	4.32 %
Rate of compensation increase	4.00 %	4.00 %
Change in plan assets:		
Fair value of plan assets – beginning of year	$ –	$ –
Employer contributions	61,229	30,638
Plan participants' contributions	–	–
Gross benefits paid	(61,229)	(30,638)
Fair value of plan assets – end of year	$ –	$ –
Funded status:		
Reconciliation of funded status – end of year:		
Fair value of plan assets	$ –	$ –
Benefit obligation (current)	145,694	114,021
Benefit obligation (noncurrent)	66,509,074	41,718,883
Funded status	(66,654,768)	(41,832,904)
Amount recognized – end of year	$(66,654,768)	$(41,832,904)
Amounts recognized in the balance sheets consist of:		
Asset	$ –	$ –
Liability – current	(145,694)	(114,021)
Liability – noncurrent	(66,509,074)	(41,718,883)
Net amount recognized	$(66,654,768)	$(41,832,904)
Amounts recognized in accumulated other comprehensive income consist of:		
Net actuarial loss	$ 32,673,765	$ 16,312,103
Prior service cost	122,876	222,454
Net amount recognized	$ 32,796,641	$ 16,534,557

Expected cash flows:	
Expected employer contributions – 2018	$ 145,694
Expected benefit payments:*	
2018	$ 145,694
2019	$ 203,527
2020	$ 266,382
2021	$ 365,449
2022	$ 456,336
2023–2027	$4,621,973

* Expected benefit payments to be made by the Board.

	2017	2016
Components of net periodic benefit cost:		
Service cost	$ 4,359,375	$ 2,844,118
Interest cost	2,365,386	1,652,323
Expected return on plan assets	–	–
Amortization:		
Actuarial (gain) loss	$ 1,796,670	$ 787,148
Prior service cost	99,578	99,578
Net periodic benefit cost	$ 8,621,009	$ 5,383,167
Weighted-average assumptions used to determine net periodic benefit cost:		
Discount rate	4.32 %	4.67 %
Rate of compensation increase	4.00 %	4.00 %
Other changes in plan assets and benefit obligations recognized in other comprehensive income:		
Current year actuarial loss	$18,158,332	$ 9,371,473
Amortization of prior service cost	(99,578)	(99,578)
Amortization of actuarial gain (loss)	(1,796,670)	(787,148)
Total recognized in other comprehensive loss	$16,262,084	$ 8,484,747
Total recognized in net periodic benefit cost and other comprehensive income	$24,883,093	$13,867,914

Estimated amounts that will be amortized from accumulated other comprehensive income into net periodic benefit cost (credit) in 2018 are shown below:

Net actuarial loss	$2,352,810
Prior service cost	83,187
Total	$2,435,997

Pension Enhancement Plan — The Board also provides another non-qualified plan for officers of the Board. The retirement benefits covered under the Pension Enhancement Plan (PEP) increase the pension benefit calculation from 1.8 percent

above the Social Security integration level to 2.0 percent. Activity for the PEP as of December 31, 2017 and 2016, is summarized in the following tables:

	2017	2016
Change in projected benefit obligation:		
Benefit obligation – beginning of year	$ 32,378,804	$ 26,876,261
Service cost	1,094,459	1,063,168
Interest cost	1,358,925	1,326,009
Plan participants' contributions	–	–
Actuarial loss	2,164,636	3,371,408
Gross benefits paid	(406,149)	(258,042)
Benefit obligation – end of year	$ 36,590,675	$ 32,378,804
Accumulated benefit obligation – end of year	$ 31,462,483	$ 25,242,076
Weighted-average assumptions used to determine benefit obligation as of December 31:		
Discount rate	3.69 %	4.22 %
Rate of compensation increase	4.00 %	4.00 %
Change in plan assets:		
Fair value of plan assets – beginning of year	$ –	$ –
Employer contributions	406,149	258,042
Plan participants' contributions	–	–
Gross benefits paid	(406,149)	(258,042)
Fair value of plan assets – end of year	$ –	$ –
Funded status:		
Reconciliation of funded status – end of year:		
Fair value of plan assets	$ –	$ –
Benefit obligation – current	456,157	363,216
Benefit obligation – noncurrent	36,134,518	32,015,588
Funded status	(36,590,675)	(32,378,804)
Amount recognized – end of year	$(36,590,675)	$(32,378,804)
Amounts recognized in the balance sheets consist of:		
Asset	$ –	$ –
Liability – current	(456,157)	(363,216)
Liability – noncurrent	(36,134,518)	(32,015,588)
Net amount recognized	$(36,590,675)	$(32,378,804)
Amounts recognized in accumulated other comprehensive income consist of:		
Net actuarial loss	$ 13,350,579	$ 12,018,247
Prior service cost	–	54,908
Net amount recognized	$ 13,350,579	$ 12,073,155

Expected cash flows:	
Expected employer contributions – 2018	$ 456,157
Expected benefit payments:*	
2018	$ 456,157
2019	$ 599,410
2020	$ 742,705
2021	$ 894,316
2022	$1,060,766
2023–2027	$7,969,124

* Expected benefit payments to be made by the Board.

	2017	2016
Components of net periodic benefit cost:		
Service cost	$1,094,459	$1,063,168
Interest cost	1,358,925	1,326,009
Expected return on plan assets	–	–
Amortization:		
Actuarial loss	832,304	872,453
Prior service cost	54,908	531,395
Net periodic benefit cost	$3,340,596	$3,793,025
Weighted-average assumptions used to determine net periodic benefit cost:		
Discount rate	4.22 %	4.52 %
Rate of compensation increase	4.00 %	4.00 %
Other changes in plan assets and benefit obligations recognized in other comprehensive income:		
Current year actuarial loss	$2,164,636	$3,371,408
Amortization of prior service cost	(54,908)	(531,395)
Amortization of actuarial loss	(832,304)	(872,453)
Total recognized in other comprehensive (income) loss	$1,277,424	$1,967,560
Total recognized in net periodic benefit cost and other comprehensive income	$4,618,020	$5,760,585

Estimated amounts that will be amortized from accumulated other comprehensive income into net periodic benefit cost (credit) in 2018 are shown below:

Net actuarial loss	$1,065,514
Prior service cost	–
Total	$1,065,514

The total accumulated retirement benefit obligation includes a liability for a supplemental retirement agreement and a benefits equalization plan under the System's Thrift Plan. The total obligation as of December 31, 2017 and 2016, is summarized in the following table:

	2017	2016
Retirement benefit obligation:		
Benefit obligation – BEP	$ 66,654,768	$41,832,904
Benefit obligation – PEP	36,590,675	32,378,804
Additional benefit obligations	237,544	209,011
Total accumulated retirement benefit obligation	$103,482,987	$74,420,719

A relatively small number of Board employees participate in the Civil Service Retirement System or the Federal Employees' Retirement System. These defined benefit plans are administered by the U.S. Office of Personnel Management, which determines the required employer contribution levels. The Board's contributions to these plans totaled $1,080,000 and $939,000 in 2017 and 2016, respectively. The Board has no liability for future payments to retirees under these programs and is not accountable for the assets of the plans.

Employees of the Board may also participate in the System's Thrift Plan or Roth 401(k). Board contributions to members' accounts were $27,320,000 and $25,985,000 in 2017 and 2016, respectively.

(7) Postretirement Benefits

The Board provides certain life insurance programs for its active employees and retirees. Activity as of December 31, 2017 and 2016, is summarized in the following tables:

	2017	2016
Change in benefit obligation:		
Benefit obligation – beginning of year	$ 14,710,985	$ 13,777,546
Service cost	164,069	167,045
Interest cost	610,434	605,975
Plan participants' contributions	–	–
Actuarial loss	1,359,518	519,758
Gross benefits paid	(377,971)	(359,339)
Benefit obligation – end of year	$ 16,467,035	$ 14,710,985
Weighted-average assumptions used to determine benefit obligation as of December 31 – discount rate	3.64 %	4.14 %
Change in plan assets:		
Fair value of plan assets – beginning of year	$ –	$ –
Employer contributions	377,971	359,339
Gross benefits paid	(377,971)	(359,339)
Fair value of plan assets – end of year	$ –	$ –
Funded status:		
Reconciliation of funded status – end of year:		
Fair value of plan assets	$ –	$ –
Benefit obligation – current	551,764	508,539
Benefit obligation – noncurrent	15,915,271	14,202,446
Funded status	(16,467,035)	(14,710,985)
Amount recognized – end of year	$(16,467,035)	$(14,710,985)
Amounts recognized in the balance sheets consist of:		
Asset	$ –	$ –
Liability – current	(551,764)	(508,539)
Liability – noncurrent	(15,915,271)	(14,202,446)
Net amount recognized	$(16,467,035)	$(14,710,985)
Amounts recognized in accumulated other comprehensive income consist of:		
Net actuarial loss	$ 4,065,836	$ 2,934,000
Prior service credit	(107,717)	(123,594)
Net amount recognized	$ 3,958,119	$ 2,810,406

Expected cash flows:	
Expected employer contributions – 2018	$ 551,764
Expected benefit payments:*	
2018	$ 551,764
2019	$ 579,169
2020	$ 607,237
2021	$ 649,663
2022	$ 674,285
2023–2027	$3,787,242

* Expected benefit payments to be made by the Board.

	2017	2016
Components of net periodic benefit cost:		
Service cost	$ 164,069	$ 167,045
Interest cost	610,434	605,975
Expected return on plan assets	–	–
Amortization:		
Actuarial loss	227,682	172,666
Prior service credit	(15,877)	(25,490)
Net periodic benefit cost	$ 986,308	$ 920,196
Weighted-average assumptions used to determine net periodic benefit cost – discount rate	4.14 %	4.41 %
Other changes in plan assets and benefit obligations recognized in other comprehensive income:		
Current year actuarial loss	$1,359,518	$ 519,758
Amortization of prior service credit	15,877	25,490
Amortization of actuarial loss	(227,682)	(172,666)
Total recognized in other comprehensive (income) loss	$1,147,713	$ 372,582
Total recognized in net periodic benefit cost and other comprehensive income	$2,134,021	$1,292,778

Estimated amounts that will be amortized from accumulated other comprehensive income into net periodic benefit cost (credit) in 2018 are shown below:

Net actuarial loss	$348,950
Prior service credit	(9,599)
Total	$339,351

(8) Postemployment Benefits

The Board provides certain postemployment benefits to eligible former or inactive employees and their dependents. Postemployment costs were actuarially determined using a December 31 measurement date and discount rates of 2.59 percent and 2.78 percent as of December 31, 2017 and 2016, respectively. The net periodic postemployment benefit cost (credit) recognized by the Board as of December 31, 2017 and 2016, was $1,017,000 and ($569,000), respectively.

(9) Accumulated Other Comprehensive Income (Loss)

A reconciliation of beginning and ending balances of accumulated other comprehensive income (loss) for the years ended December 31, 2017 and 2016, is as follows:

	Amount Related to Defined Benefit Retirement Plans	Amount Related to Postretirement Benefits Other Than Pensions	Total Accumulated Other Comprehensive Income (Loss)
Balance – January 1, 2016	$(18,155,405)	$(2,437,824)	$(20,593,229)
Change in accumulated other comprehensive income (loss):			
Net actuarial loss arising during the year	(12,742,881)	(519,757)	(13,262,638)
Other comprehensive income before reclassifications	(12,742,881)	(519,757)	(13,262,638)
Amortization of prior service (credit) costs[a][b]	630,973	(25,490)	605,483
Amortization of net actuarial loss[a][b]	1,659,601	172,666	1,832,267
Amounts reclassified from accumulated other comprehensive income	2,290,574	147,176	2,437,750
Change in accumulated other comprehensive loss	(10,452,307)	(372,581)	(10,824,888)
Balance – December 31, 2016	(28,607,712)	(2,810,405)	(31,418,117)
Change in accumulated other comprehensive income (loss):			
Net actuarial loss arising during the year[a]	(20,322,968)	(1,359,518)	(21,682,486)
Other comprehensive income before reclassifications	(20,322,968)	(1,359,518)	(21,682,486)
Amortization of prior service (credit) costs[a][b]	154,486	(15,877)	138,609
Amortization of net actuarial loss[a][b]	2,628,974	227,682	2,856,656
Amounts reclassified from accumulated other comprehensive income	2,783,460	211,805	2,995,265
Change in accumulated other comprehensive income (loss)	(17,539,508)	(1,147,713)	(18,687,221)
Balance – December 31, 2017	$(46,147,220)	$(3,958,118)	$(50,105,338)

[a] These components of accumulated other comprehensive income are included in the computation of net periodic pension cost (see Notes 6 and 7 for additional details).

[b] These components of accumulated other comprehensive income are reflected in the “Retirement, insurance, and benefits” line on the Statements of Operations.

(10) Selected Transactions with the Reserve Banks

The Board performs certain functions for the Reserve Banks in conjunction with its responsibilities for the System, and the Reserve Banks provide certain administrative functions for the Board. The Board assesses the Reserve Banks for its operations, to include expenses related to its currency responsibilities, as well as for the funding the Board is required to provide to the Bureau. Activity related to the Board and Reserve Banks is summarized in the following table:

	2017	2016
For the years ended December 31:		
Assessments levied or to be levied on Reserve Banks for:		
Currency expenses	$ 723,622,661	$ 700,713,295
Board operations	740,000,000	709,000,000
Transfers of funds to the Bureau	573,000,000	596,200,000
Total assessments levied or to be levied on Reserve Banks	$2,036,622,661	$2,005,913,295
Reserve Bank costs charged to the Board:		
Data processing and communication	$ 442,644	$ 643,975
Data center	1,009,016	841,574
Office space	405,680	1,348,018
Contingency site	1,387,850	1,475,701
Total Reserve Bank costs charged to the Board	$ 3,245,190	$ 4,309,268
As of December 31:		
Accounts receivable due from the Reserve Banks	$ 451,615	$ 343,483
Accounts payable due to the Reserve Banks	$ 250,896	$ 1,169,205

The Board contracted for audit services on behalf of entities that are included in the combined financial statements of the Reserve Banks. The entities reimburse the Board for the cost of the audit services.

The OEB administers certain System benefit plans on behalf of the Board and the Reserve Banks, and costs associated with the OEB's activities are assessed to the Board and Reserve Banks. The Board was assessed $2,733,000 and $2,471,000 for the years ended December 31, 2017 and 2016, respectively. Activity related to the Board and the OEB is summarized in the following table:

	2017	2016
As of December 31:		
Accounts receivable due from the Office of Employee Benefits	$603,452	$897,363
Accounts payable due to the Office of Employee Benefits	$121,184	$ –

(11) Federal Financial Institutions Examination Council

The Board is one of the five member agencies of the Federal Financial Institutions Examination Council (the Council), and performs certain administrative functions for the Council. The five agencies that are represented on the Council are the Board, the Federal Deposit Insurance Corporation, the National Credit Union Administration, the Office of the Comptroller of the Currency, and the Bureau.

The Board's financial statements do not include financial data for the Council. Activity related to the Board and Council is summarized in the following table:

	2017	2016
For the years ended December 31:		
Council expenses charged to the Board:		
Assessments for operating expenses	$ 227,699	$ 212,600
Examiner education expenses	1,498,404	1,466,842
Central Data Repository	1,026,645	1,028,560
Home Mortgage Disclosure Act/Community Reinvestment Act	1,214,328	613,524
Uniform Bank Performance Report	212,501	177,662
Total Council expenses charged to the Board	$4,179,577	$3,499,188
Board expenses charged to the Council:		
Data processing related services	$2,383,378	$3,249,186
Other administrative services	607,200	552,000
Total Board expenses charged to the Council	$2,990,578	$3,801,186
As of December 31:		
Accounts receivable due from the Council	$ 499,302	$ 185,341
Accounts payable due to the Council	$ 184,197	$ 98,233

(12) The Bureau of Consumer Financial Protection

Beginning July 2011, section 1017 of the Dodd-Frank Act requires the Board to fund the Bureau from the combined earnings of the System, in an amount determined by the Director of the Bureau to be reasonably necessary to carry out the authorities of the Bureau under federal consumer financial law, taking into account such other sums made available to the Bureau from the preceding year (or quarter of such year). The Dodd-Frank Act limits the amount to be transferred each fiscal year to a fixed percentage of the System's total operating expenses. The Bureau transfers funds to the Board to fund their share of OIG operations. The Board recorded revenue of $12,500,000 and $12,900,000 during calendar years 2017 and 2016 related to OIG funding.

(13) Currency Costs

The Bureau of Engraving and Printing (BEP) is the sole supplier for currency printing and also provides currency retirement, new BEP facility, and meaningful access services. The Board contracts for other services associated with currency, such as shipping, education, and quality assurance.

The currency costs incurred by the Board for the years ended December 31, 2017 and 2016, are reflected in the following table:

	2017	2016
Costs related to BEP:		
Printing	$673,936,234	$659,958,550
Retirement	3,568,867	3,819,263
Meaningful access program	1,425,853	1,685,269
New facility	682,981	63,025
Subtotal related to BEP	$679,613,935	$665,526,107
Other currency costs:		
Shipping	$ 21,710,886	$ 20,404,946
Research and development	6,831,283	5,215,244
Quality assurance services	13,117,081	8,630,562
Education services	2,349,476	936,436
Subtotal of other currency costs	$ 44,008,726	$ 35,187,188
Total currency costs	$723,622,661	$700,713,295

(14) Commitments and Contingencies

Commitments — The Board has entered into an agreement with the Federal Deposit Insurance Corporation and the Office of the Comptroller of the Currency, through the Council, to fund a portion of the enhancements and maintenance fees for a central data repository project that requires maintenance through 2020 which includes option periods.

In late 2015, the Board entered into an agreement with the other Council members to fund the development of a new Home Mortgage Disclosure Act processing system by the Bureau.

Litigation and Contingent Liabilities — The Board is subject to contingent liabilities which arise from litigation cases and various business contracts. These contingent liabilities arise in the normal course of operations and their ultimate disposition is unknown. Based on information currently available to management, it is management's opinion that the expected outcome of these matters, in the aggregate, will not have a material adverse effect on the financial statements.

(15) Subsequent Events

There were no subsequent events that require adjustments to or disclosures in the financial statements as of December 31, 2017. Subsequent events were evaluated through March 5, 2018, which is the date the financial statements were available to be issued.

INDEPENDENT AUDITORS' REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH *GOVERNMENT AUDITING STANDARDS*

To the Board of Governors of the Federal Reserve System:

We have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), auditing standards generally accepted in the United States of America, and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the Board of Governors of the Federal Reserve System (the "Board"), which comprise the balance sheet as of December 31, 2017, and the related statements of operations and cash flows for the year then ended, and the related notes to the financial statements. We have issued our report thereon dated March 5, 2018.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Board's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, and contracts, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Board's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Board's internal control and compliance. Accordingly, this communication is not suitable for any other purpose. This report is intended solely for the information and use of the Board of Governors of the Federal Reserve System and is not intended to be and should not be used by anyone other than this specified party.

KPMG LLP

Washington, District of Columbia
March 5, 2018

Federal Reserve Banks Combined Financial Statements

The combined financial statements of the Federal Reserve Banks were audited by KPMG LLP, independent auditors, for the years ended December 31, 2017 and 2016.

Independent Auditors' Report

To the Board of Governors of the Federal Reserve System and the Boards of Directors of the Federal Reserve Banks:

We have audited the accompanying combined statements of condition of the Federal Reserve Banks (the "Reserve Banks") as of December 31, 2017 and 2016, and the related combined statements of operations and changes in capital for the years then ended. These combined financial statements are the responsibility of the Division of Reserve Bank Operations and Payment Systems' management. Our responsibility is to express an opinion on these combined financial statements based on our audits.

We conducted our audits in accordance with the auditing standards of the Public Company Accounting Oversight Board (United States) and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

As described in Note 3 to the combined financial statements, the Division of Reserve Bank Operations and Payment Systems has prepared these combined financial statements in conformity with the accounting principles established by the Board of Governors of the Federal Reserve System (the "Board"), as set forth in the *Financial Accounting Manual for Federal Reserve Banks*, which is a basis of accounting other than U.S. generally accepted accounting principles.

In our opinion, the combined financial statements referred to above present fairly, in all material respects, the financial position of the Reserve Banks as of December 31, 2017 and 2016, and the results of its operations for the years then ended, on the basis of accounting described in Note 3.

KPMG LLP

Washington, DC
March 8, 2018

Federal Reserve Banks

Abbreviations

ASC	Accounting Standards Codification
ASU	Accounting Standards Update
BEP	Benefit Equalization Retirement Plan
Bureau	Bureau of Consumer Financial Protection
CDS	Credit default swaps
CIP	Committee on Investment Performance (related to System Retirement Plan)
DFMU	Designated financial market utility
FAM	*Financial Accounting Manual for Federal Reserve Banks*
FASB	Financial Accounting Standards Board
FOMC	Federal Open Market Committee
FRBNY	Federal Reserve Bank of New York
GAAP	Accounting principles generally accepted in the United States of America
GSE	Government-sponsored enterprise
IMF	International Monetary Fund
JPMC	JPMorgan Chase & Co.
LLC	Limited liability company
MAPD	Medicare Advantage and Prescription Drug
MBS	Mortgage-backed securities
ML	Maiden Lane LLC
MTM	Mark-to-market
RMBS	Residential mortgage-backed securities
OEB	Office of Employee Benefits of the Federal Reserve System
SDR	Special drawing rights
SERP	Supplemental Retirement Plan for Select Officers of the Federal Reserve Banks
SOMA	System Open Market Account
STRIPS	Separate Trading of Registered Interest and Principal of Securities
TBA	To be announced
TDF	Term Deposit Facility
TRS	Total return swap
VIE	Variable interest entity

Combined Statements of Condition
As of December 31, 2017 and December 31, 2016
(in millions)

		2017	2016
ASSETS			
Gold certificates		$ 11,037	$ 11,037
Special drawing rights certificates		5,200	5,200
Coin		1,892	1,873
Loans	Note 4	134	63
System Open Market Account:	Note 5		
Treasury securities, net (of which $28,053 and $25,195 is lent as of December 31, 2017 and 2016, respectively)		2,545,733	2,567,422
Government-sponsored enterprise debt securities, net (of which $0 and $44 is lent as of December 31, 2017 and 2016, respectively)		4,752	16,648
Federal agency and government-sponsored enterprise mortgage-backed securities, net		1,817,700	1,795,003
Foreign currency denominated investments, net		21,316	19,442
Central bank liquidity swaps		12,067	5,563
Accrued interest receivable		24,744	25,598
Other assets		13	8
Investments held by consolidated variable interest entity (of which $1,720 and $1,742 is measured at fair value as of December 31, 2017 and 2016, respectively)	Note 6	1,722	1,742
Prepaid pension benefit costs	Note 9	14	-
Bank premises and equipment, net	Note 7	2,571	2,564
Items in process of collection		81	118
Other assets		1,001	1,056
Total assets		$4,449,977	$4,453,337
LIABILITIES AND CAPITAL			
Federal Reserve notes outstanding, net		$1,570,727	$1,462,939
System Open Market Account:	Note 5		
Securities sold under agreements to repurchase		563,958	725,210
Other liabilities		558	1,012
Liabilities of consolidated variable interest entity (of which $8 and $32 is measured at fair value as of December 31, 2017 and 2016, respectively)	Note 6	9	33
Deposits:			
Depository institutions		1,954,431	1,759,675
Treasury, general account		228,933	399,190
Other deposits		83,018	58,413
Interest payable to depository institutions and others		1,006	403
Accrued benefit costs	Notes 9 and 10	2,332	3,118
Deferred credit items		1,001	922
Accrued remittances to the Treasury		2,337	1,725
Other liabilities		278	255
Total liabilities		4,408,588	4,412,895
Capital paid-in		31,389	30,442
Surplus (including accumulated other comprehensive loss of $3,334 and $3,985 at December 31, 2017 and 2016, respectively)		10,000	10,000
Total capital		41,389	40,442
Total liabilities and capital		$4,449,977	$4,453,337

The accompanying notes are an integral part of these combined financial statements.

Combined Statements of Operations
For the years ended December 31, 2017 and December 31, 2016
(in millions)

		2017	2016
INTEREST INCOME			
Loans	Note 4	$ 1	$ 1
System Open Market Account:	Note 5		
Treasury securities, net		64,267	63,845
Government-sponsored enterprise debt securities, net		416	959
Federal agency and government-sponsored enterprise mortgage-backed securities, net		48,912	46,299
Foreign currency denominated investments, net		(17)	(7)
Central bank liquidity swaps		14	9
Investments held by consolidated variable interest entity	Note 6	15	9
Total interest income		113,608	111,115
INTEREST EXPENSE			
System Open Market Account:	Note 5		
Securities sold under agreements to repurchase		3,365	1,122
Other		7	4
Deposits:			
Depository institutions and others		25,849	12,020
Term Deposit Facility		13	24
Total interest expense		29,234	13,170
Net interest income		84,374	97,945
NON-INTEREST INCOME			
System Open Market Account:	Note 5		
Treasury securities gains (losses), net		28	(15)
Federal agency and government-sponsored enterprise mortgage-backed securities gains, net		8	19
Foreign currency translation gains (losses), net		1,894	(103)
Other		27	35
Investments held by consolidated variable interest entity losses, net	Note 6	(9)	(19)
Income from services		442	434
Reimbursable services to government agencies		698	677
Other		68	64
Total non-interest income		3,156	1,092
OPERATING EXPENSES			
Salaries and benefits		3,085	2,979
Occupancy		325	327
Equipment		184	175
Net periodic pension expense	Note 9	525	565
Other		682	624
Assessments:			
Board of Governors operating expenses and currency costs		1,464	1,410
Bureau of Consumer Financial Protection		573	596
Total operating expenses		6,838	6,676
Net income before providing for remittances to the Treasury		80,692	92,361
Earnings remittances to the Treasury:	Note 3o	80,559	91,467
Net income after providing for remittances to the Treasury		133	894
Change in prior service costs related to benefit plans	Note 9 and 10	59	231
Change in actuarial gains (losses) related to benefit plans	Note 9 and 10	592	(414)
Total other comprehensive income (loss)		651	(183)
Comprehensive income		$ 784	$ 711

The accompanying notes are an integral part of these combined financial statements.

Combined Statements of Changes in Capital
For the years ended December 31, 2017 and December 31, 2016
(in millions, except share data)

	Capital paid-in	Surplus			Total capital
		Net income retained	Accumulated other comprehensive income (loss)	Total surplus	
Balance at December 31, 2015 (590,166,055 shares)	$29,508	$13,802	$(3,802)	$10,000	$39,508
Net change in capital stock issued (redeemed) (18,682,206 shares)	934	-	-	-	934
Comprehensive income:					
Net income	-	894	-	894	894
Other comprehensive loss	-	-	(183)	(183)	(183)
Dividends on capital stock	-	(711)	-	(711)	(711)
Net change in capital	934	183	(183)	-	934
Balance at December 31, 2016 (608,848,261 shares)	$30,442	$13,985	$(3,985)	$10,000	$40,442
Net change in capital stock issued (redeemed) (18,923,950 shares)	947	-	-	-	947
Comprehensive income:					
Net income	-	133	-	133	133
Other comprehensive loss	-	-	651	651	651
Dividends on capital stock	-	(784)	-	(784)	(784)
Net change in capital	947	(651)	651	-	947
Balance at December 31, 2017 (627,772,211 shares)	$31,389	$13,334	$(3,334)	$10,000	$41,389

The accompanying notes are an integral part of these combined financial statements.

(1) Structure

The Federal Reserve Banks (Reserve Banks) are part of the Federal Reserve System (System) created by Congress under the Federal Reserve Act of 1913 (Federal Reserve Act), which established the central bank of the United States. The Reserve Banks are chartered by the federal government and possess a unique set of governmental, corporate, and central bank characteristics.

In accordance with the Federal Reserve Act, supervision and control of each Reserve Bank is exercised by a board of directors. The Federal Reserve Act specifies the composition of the board of directors for each of the Reserve Banks. Each board is composed of nine members serving three-year terms: three directors, including those designated as chairman and deputy chairman, are appointed by the Board of Governors of the Federal Reserve System (Board of Governors) to represent the public, and six directors are elected by member banks. Banks that are members of the System include all nationally-chartered banks and any state-chartered banks that apply and are approved for membership. Member banks are divided into three classes according to size. Member banks in each class elect one director representing member banks and one director representing the public. In any election of directors, each member bank receives one vote, regardless of the number of shares of Reserve Bank stock it holds.

In addition to the 12 Reserve Banks, the System also consists, in part, of the Board of Governors and the Federal Open Market Committee (FOMC). The Board of Governors, an independent federal agency, is charged by the Federal Reserve Act with a number of specific duties, including general supervision over the Reserve Banks. The FOMC is composed of members of the Board of Governors, the president of the Federal Reserve Bank of New York (FRBNY), and, on a rotating basis, four other Reserve Bank presidents.

(2) Operations and Services

The Reserve Banks perform a variety of services and operations. These functions include participating in formulating and conducting monetary policy; participating in the payment system, including transfers of funds, automated clearinghouse (ACH) operations, and check collection; distributing coin and currency; performing fiscal agency functions for the U.S. Department of the Treasury (Treasury), certain federal agencies, and other entities; serving as the federal government's bank; providing short-term loans to depository institutions; providing loans to participants in programs or facilities with broad-based eligibility in unusual and exigent circumstances; serving consumers and communities by providing educational materials and information regarding financial consumer protection rights and laws and information on community development programs and activities; and supervising bank holding companies, state member banks, savings and loan holding companies, U.S. offices of foreign banking organizations, edge and agreement corporations, and certain financial market utilities that have been designated as systemically important. Certain services are provided to foreign official and international account holders, primarily by the FRBNY.

The FOMC, in conducting monetary policy, establishes policy regarding domestic open market operations and oversees these operations. The FOMC has selected the FRBNY to execute open market transactions for the System Open Market Account (SOMA) as provided in its annual authorization. The FOMC authorizes and directs the FRBNY to conduct operations in domestic markets, including the direct purchase and sale of Treasury securities, government-sponsored enterprise

(GSE) debt securities, and federal agency and GSE mortgage-backed securities (MBS); the purchase of these securities under agreements to resell; and the sale of these securities under agreements to repurchase. The FRBNY holds the resulting securities and agreements in a portfolio known as the SOMA. The FRBNY is authorized and directed to lend the Treasury securities and GSE debt securities that are held in the SOMA.

To be prepared to meet the needs specified by the FOMC to carry out the System's central bank responsibilities, the FOMC authorized and directed the FRBNY to execute standalone spot and forward foreign exchange transactions in the resultant foreign currencies, to hold balances in those currencies, and to invest such foreign currency holdings, while maintaining adequate liquidity. The FRBNY holds these securities and agreements in the SOMA. The FOMC also authorized and directed the FRBNY to maintain reciprocal currency arrangements with the Bank of Canada and the Bank of Mexico in the maximum amounts of $2 billion and $3 billion, respectively, and at the request of the Treasury to conduct swap transactions with the United States Exchange Stabilization Fund in the maximum amount of $5 billion, also known as warehousing.

Because of the global character of bank funding markets, the System has, at times, coordinated with other central banks to provide liquidity. The FOMC authorized and directed the FRBNY to maintain standing U.S. dollar liquidity swap arrangements and standing foreign currency liquidity swap arrangements with the Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank, and the Swiss National Bank. The FRBNY holds amounts outstanding under these liquidity swap lines in the SOMA. These liquidity swap lines, which were originally established as temporary arrangements, were converted to standing arrangements on October 31, 2013, and are subject to annual review and approval by the FOMC.

The FOMC has authorized and directed the FRBNY to conduct small-value exercises periodically for the purpose of testing operational readiness.

Although the Reserve Banks are separate legal entities, they collaborate on the delivery of certain services to achieve greater efficiency and effectiveness. This collaboration takes the form of centralized operations and product or function offices that have responsibility for the delivery of certain services on behalf of the Reserve Banks. Various operational and management models are used and are supported by service agreements among the Reserve Banks. In some cases, costs incurred by a Reserve Bank for services provided to other Reserve Banks are not shared; in other cases, the Reserve Banks are reimbursed for costs incurred in providing services to other Reserve Banks.

(3) Significant Accounting Policies

Accounting principles for entities with the unique powers and responsibilities of the nation's central bank have not been formulated by accounting standard-setting bodies. The Board of Governors has developed specialized accounting principles and practices that it considers to be appropriate for the nature and function of a central bank. These accounting principles and practices are documented in the *Financial Accounting Manual for Federal Reserve Banks* (FAM), which is issued by the Board of Governors. The Reserve Banks are required to adopt and apply accounting policies and practices that are consistent with the FAM. The combined financial statements and associated disclosures have been prepared in accordance with the FAM.

Due to the unique nature of the Reserve Banks' powers and responsibilities as part of the nation's central bank and given the System's unique responsibility to conduct monetary policy, the Board has adopted accounting principles and practices in the FAM that differ from accounting principles generally accepted in the United States of America (GAAP). The more significant differences are the presentation of all SOMA securities holdings at amortized cost, adjusted for credit impairment, if any, and the recording of all SOMA securities on a settlement-date basis. Amortized cost, rather than the fair value presentation, more appropriately reflects the financial position associated with the Reserve Banks' securities holdings given the System's unique responsibility to conduct monetary policy. Although the application of fair value measurements to the securities holdings may result in values substantially greater or less than their carrying values, these unrealized changes in value have no direct effect on the quantity of reserves available to the banking system or on the ability of the Reserve Banks, as the central bank, to meet their financial obligations and responsibilities. Both the domestic and foreign components of the SOMA portfolio may involve transactions that result in gains or losses when holdings are sold before maturity. Decisions regarding securities and foreign currency transactions, including their purchase and sale, are primarily motivated by monetary policy and financial stability objectives rather than profit. Accordingly, fair values, earnings, and gains or losses resulting from the sale of such securities and currencies are incidental to open market operations and do not motivate decisions related to policy or open market activities. Accounting for these securities on a settlement-date basis, rather than the trade-date basis required by GAAP, better reflects the timing of the transaction's effect on the quantity of reserves in the banking system.

In addition, the Reserve Banks do not present a Combined Statement of Cash Flows as required by GAAP because the liquidity and cash position of the Reserve Banks are not a primary concern given the Reserve Banks' unique powers and responsibilities as a central bank. Other information regarding the Reserve Banks' activities is provided in, or may be derived from, the Combined Statements of Condition, Operations, and Changes in Capital, and the accompanying notes to the combined financial statements. Other than those described above, the accounting policies described in FAM are generally consistent with those in GAAP and the references to GAAP in the notes to the combined financial statements highlight those areas where FAM is consistent with GAAP.

Preparing the combined financial statements in conformity with the FAM requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the combined financial statements, and the reported amounts of income and expenses during the reporting period. Actual results could differ from those estimates.

Significant accounts and accounting policies are explained below.

a. Consolidation

The consolidated financial statements include the accounts and results of operations of the Reserve Banks as well as a variable interest entity (VIE), Maiden Lane Limited Liability Company (LLC) (ML). The consolidation of the VIE was assessed in accordance with Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 810 (ASC 810), *Consolidation*, which requires a VIE to be consolidated by its controlling financial interest holder. Intercompany balances and transactions have been eliminated in consolidation.

See Note 6 for additional information on the VIE. The consolidated financial statements of the Reserve Banks also include accounts and results of operations of Maiden and Nassau LLC, a Delaware LLC wholly-owned by the FRBNY, which was formed to own and operate the FRBNY-owned 33 Maiden Lane building.

A Reserve Bank consolidates a VIE if it has a controlling financial interest, which is defined as the power to direct the significant economic activities of the entity and the obligation to absorb losses or the right to receive benefits of the entity that could potentially be significant to the VIE. To determine whether it is the controlling financial interest holder of a VIE, the Reserve Bank evaluates the VIE's design, capital structure, and relationships with the variable interest holders. The Reserve Bank reconsiders whether it has a controlling financial interest in a VIE, as required by ASC 810, at each reporting date or if there is an event that requires consideration.

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act) established the Bureau of Consumer Financial Protection (Bureau) as an independent bureau within the System that has supervisory authority over some institutions previously supervised by the Reserve Banks in connection with those institutions' compliance with consumer protection statutes. Section 1017 of the Dodd-Frank Act provides that the financial statements of the Bureau are not to be consolidated with those of the Board of Governors or the System. The Board of Governors funds the Bureau through assessments on the Reserve Banks as required by the Dodd-Frank Act. The Reserve Banks reviewed the law and evaluated the design of and their relationship to the Bureau and determined that it should not be consolidated in the Reserve Banks' combined financial statements.

b. Gold and Special Drawing Rights Certificates

The Secretary of the Treasury is authorized to issue gold certificates to the Reserve Banks. Upon authorization, the Reserve Banks acquire gold certificates by crediting equivalent amounts in dollars to the account established for the Treasury. The gold certificates held by the Reserve Banks are required to be backed by the gold owned by the Treasury. The Treasury may reacquire the gold certificates at any time, and the Reserve Banks must deliver them to the Treasury. At such time, the Treasury's account is charged, and the Reserve Banks' gold certificate accounts are reduced. The value of gold for purposes of backing the gold certificates is set by law at $42 2/9 per fine troy ounce. Gold certificates are recorded by the Reserve Banks at original cost. The Board of Governors allocates the gold certificates among the Reserve Banks once a year based on each Reserve Bank's average Federal Reserve notes outstanding during the preceding 12 months.

Special drawing rights (SDR) are issued by the International Monetary Fund (IMF) to its members in proportion to each member's quota in the IMF at the time of issuance. SDRs serve as a supplement to international monetary reserves and may be transferred from one national monetary authority to another. Under the law providing for U.S. participation in the SDR system, the Secretary of the Treasury is authorized to issue SDR certificates to the Reserve Banks. When SDR certificates are issued to the Reserve Banks, equivalent amounts in U.S. dollars are credited to the account established for the Treasury and the Reserve Banks' SDR certificate accounts are increased. The Reserve Banks are required to purchase SDR certificates, at the direction of the Treasury, for the purpose of financing SDR acquisitions or for financing exchange-stabilization operations. At the time SDR certificate transactions occur, the Board of Governors allocates the SDR cer-

tificates among the Reserve Banks based upon each Reserve Bank's Federal Reserve notes outstanding at the end of the preceding calendar year. SDR certificates are recorded by the Reserve Banks at original cost.

c. Coin

The amount reported as coin in the Combined Statements of Condition represents the face value of all United States coin held by the Reserve Banks. The Reserve Banks buy coin at face value from the U.S. Mint in order to fill depository institution orders.

d. Loans

Loans to depository institutions are reported at their outstanding principal balances and interest income is recognized on an accrual basis.

Loans are impaired when current information and events indicate that it is probable that the Reserve Bank will not receive the principal and interest that are due in accordance with the contractual terms of the loan agreement. Impaired loans are evaluated to determine whether an allowance for loan loss is required. The Reserve Banks have developed procedures for assessing the adequacy of any allowance for loan losses using all available information to identify incurred losses. This assessment includes monitoring information obtained from banking supervisors, borrowers, and other sources to assess the credit condition of the borrowers and, as appropriate, evaluating collateral values. Generally, the Reserve Banks would discontinue recognizing interest income on impaired loans until the borrower's repayment performance demonstrates principal and interest would be received in accordance with the terms of the loan agreement. If the Reserve Banks discontinue recording interest on an impaired loan, cash payments are first applied to principal until the loan balance is reduced to zero; subsequent payments are applied as recoveries of amounts previously deemed uncollectible, if any, and then as interest income.

e. Securities Purchased Under Agreements to Resell, Securities Sold Under Agreements to Repurchase, and Securities Lending

The FRBNY may engage in purchases of securities under agreements to resell (repurchase agreements) with primary dealers. Transactions under these repurchase agreements are typically settled through a tri-party arrangement. In the United States, there are currently two commercial custodial banks that provide these services. In a tri-party arrangement, a commercial custodial bank manages the collateral clearing, settlement, pricing, and pledging, and provides cash and securities custodial services for and on behalf of the FRBNY and counterparty. The collateral pledged must exceed the principal amount of the transaction by a margin determined by the FRBNY for each class and maturity of acceptable collateral. Collateral designated by the FRBNY as acceptable under repurchase agreements primarily includes Treasury securities (including Treasury Inflation-Protected Securities, Separate Trading of Registered Interest and Principal of Securities (STRIPS) Treasury securities, and Treasury Floating Rate Notes); direct obligations of several federal and GSE-related agencies, including Federal National Mortgage Association, Federal Home Loan Mortgage Corporation, and Federal Home Loan Banks; and pass-through federal agency and GSE MBS. The repurchase agreements are accounted for as financing transactions with the associated interest income recognized over the life of the transaction. These repurchase agreements are reported at their contractual amounts as "System Open Market Account: Securities purchased under agreements to resell" and the related accrued interest receivable is reported as a component of "System Open Market Account:

Accrued interest receivable" in the Combined Statements of Condition. Interest income is reported as a component of "System Open Market Account: Securities purchased under agreements to resell" in the Combined Statements of Operations.

The FRBNY may engage in sales of securities under agreements to repurchase (reverse repurchase agreements) with primary dealers and with a set of expanded counterparties that includes banks, savings associations, GSEs, and domestic money market funds. Transactions under these reverse repurchase agreements are designed to have a margin of zero and are settled through a tri-party arrangement, similar to repurchase agreements. Reverse repurchase agreements may also be executed with foreign official and international account holders as part of a service offering. Reverse repurchase agreements are collateralized by a pledge of an amount of Treasury securities, GSE debt securities, or federal agency and GSE MBS that are held in the SOMA. Reverse repurchase agreements are accounted for as financing transactions, and the associated interest expense is recognized over the life of the transaction. These reverse repurchase agreements are reported at their contractual amounts as "System Open Market Account: Securities sold under agreements to repurchase" and the related accrued interest payable is reported as a component of "System Open Market Account: Other liabilities" in the Combined Statements of Condition. Interest expense is reported as a component of "System Open Market Account: Securities sold under agreements to repurchase" in the Combined Statements of Operations.

Treasury securities and GSE debt securities held in the SOMA may be lent to primary dealers, typically overnight, to facilitate the effective functioning of the domestic securities markets. The amortized cost basis of securities lent continues to be reported as "System Open Market Account: Treasury securities, net" and "System Open Market Account: Government-sponsored enterprise debt securities, net," as appropriate, in the Combined Statements of Condition. Securities lending transactions are fully collateralized by Treasury securities based on the fair values of the securities lent increased by a margin determined by the FRBNY. The FRBNY charges the primary dealer a fee for borrowing securities, and these fees are reported as a component of "Non-interest income: System Open Market Account: Other" in the Combined Statements of Operations.

Activity related to repurchase agreements, reverse repurchase agreements, and securities lending is allocated to each of the Reserve Banks on a percentage basis derived from an annual settlement of the interdistrict settlement account that occurs in the second quarter of each year.

f. Treasury Securities, Government-Sponsored Enterprise Debt Securities, Federal Agency and Government-Sponsored Enterprise Mortgage-Backed Securities, and Foreign Currency Denominated Investments

Interest income on Treasury securities, GSE debt securities, and foreign currency denominated investments included in the SOMA is recorded when earned and includes amortization of premiums and accretion of discounts. The Board of Governors approved, effective January 1, 2017, accounting for Treasury securities, GSE debt securities, and foreign government debt instruments held in the SOMA using the effective interest method. Previously, the cost bases of these securities were adjusted for amortization of premiums or accretion of discounts on a straight-line basis. This change was applied prospectively and did not have a material effect on the combined financial statements for the year ended December 31, 2017.

Interest income on federal agency and GSE MBS is accrued using the effective interest method and includes amortization of premiums, accretion of discounts, and gains or losses associated with principal paydowns. Premiums and discounts related to federal agency and GSE MBS are amortized or accreted over the term of the security to stated maturity, and the amortization of premiums and accretion of discounts are accelerated when principal payments are received.

Gains and losses resulting from sales of securities are determined by specific issue based on average cost. Treasury securities, GSE debt securities, and federal agency and GSE MBS are reported net of premiums and discounts in the Combined Statements of Condition and interest income on those securities is reported net of the amortization of premiums and accretion of discounts in the Combined Statements of Operations.

In addition to outright purchases of federal agency and GSE MBS that are held in the SOMA, the FRBNY enters into dollar roll transactions (dollar rolls), which primarily involve an initial transaction to purchase or sell "to be announced" (TBA) MBS for delivery in the current month combined with a simultaneous agreement to sell or purchase TBA MBS on a specified future date. During the years ended December 31, 2017 and 2016, the FRBNY executed dollar rolls to facilitate settlement of outstanding purchases of federal agency and GSE MBS. The FRBNY accounts for dollar rolls as individual purchases and sales, on a settlement-date basis. Accounting for these transactions as purchases and sales, rather than as financing transactions, is appropriate because the purchase or sale component of the MBS TBA dollar roll is paired off or assigned prior to settlement and, as a result, there is no transfer and return of securities. Net gains (losses) resulting from MBS transactions are reported as a component of "Non-interest income: System Open Market Account: Federal agency and government-sponsored enterprise mortgage-backed securities gains (losses), net" in the Combined Statements of Operations.

Foreign currency denominated investments, which can include foreign currency deposits, repurchase agreements, and government debt instruments, are revalued daily at current foreign currency market exchange rates in order to report these assets in U.S. dollars. Any negative interest associated with these foreign currency denominated investments is included as a component of "Interest income: System Open Market Account: Foreign currency denominated investments, net" in the Combined Statements of Operations. Foreign currency translation gains and losses that result from the daily revaluation of foreign currency denominated investments are reported as "Non-interest income: System Open Market Account: Foreign currency translation gains (losses), net" in the Combined Statements of Operations.

Because the FRBNY enters into commitments to buy Treasury securities, federal agency and GSE MBS, and foreign government debt instruments and records the related securities on a settlement-date basis in accordance with the FAM, the related outstanding commitments are not reflected in the Combined Statements of Condition.

Activity related to Treasury securities, GSE debt securities, and federal agency and GSE MBS, including the premiums, discounts, and realized gains and losses, is allocated to each Reserve Bank on a percentage basis derived from an annual settlement of the interdistrict settlement account that occurs in the second quarter of each year. Activity related to foreign currency denominated investments, including the premiums, discounts, and realized and unrealized gains and losses, is allo-

cated to each Reserve Bank on a percentage basis, adjusted annually in the second quarter of each year, calculated as the ratio of each Reserve Bank's capital and surplus to the Reserve Banks' aggregate capital and surplus at the preceding December 31.

The FRBNY is authorized to hold foreign currency working balances and execute foreign exchange contracts to facilitate international payments and currency transactions it makes on behalf of foreign central bank and U.S. official institution customers. These foreign currency working balances and contracts are not related to the FRBNY's monetary policy operations. Foreign currency working balances are reported as a component of "Other assets" in the Combined Statements of Condition and the related foreign currency translation gains and losses that result from the daily revaluation of the foreign currency working balances and contracts are reported as a component of "Non-interest income: Other" in the Combined Statements of Operations.

g. Central Bank Liquidity Swaps

Central bank liquidity swaps, which are transacted between the FRBNY and a foreign central bank, can be structured as either U.S. dollar or foreign currency liquidity swap arrangements.

Central bank liquidity swaps activity, including the related income and expense, is allocated to each Reserve Bank based on a percentage basis, adjusted annually in the second quarter of each year, calculated as the ratio of each Reserve Bank's capital and surplus to the Reserve Banks' aggregate capital and surplus at the preceding December 31.

U.S. dollar liquidity swaps

At the initiation of each U.S. dollar liquidity swap transaction, the foreign central bank transfers a specified amount of its currency to a restricted account for the FRBNY in exchange for U.S. dollars at the prevailing market exchange rate. Concurrent with this transaction, the FRBNY and the foreign central bank agree to a second transaction that obligates the foreign central bank to return the U.S. dollars and the FRBNY to return the foreign currency on a specified future date at the same exchange rate as the initial transaction. The foreign currency amounts that the FRBNY acquires are reported as "System Open Market Account: Central bank liquidity swaps" in the Combined Statements of Condition. Because the swap transaction will be unwound at the same U.S. dollar amount and exchange rate that were used in the initial transaction, the recorded value of the foreign currency amounts is not affected by changes in the market exchange rate.

The foreign central bank compensates the FRBNY based on the amount outstanding and the rate under the swap agreement. The Reserve Banks recognize compensation received during the term of the swap transaction, which is reported as "Interest income: System Open Market Account: Central bank liquidity swaps" in the Combined Statements of Operations.

Foreign currency liquidity swaps

Foreign currency liquidity swap transactions involve the transfer by the FRBNY, at the prevailing market exchange rate, of a specified amount of U.S. dollars to an account for the foreign central bank in exchange for its currency. The foreign currency amounts that the FRBNY receives are recorded as a liability.

h. Consolidated VIE – Investments and Liabilities

The investments held by the consolidated VIE consist primarily of short-term investments with maturities of greater than three months and less than one year, cash and cash equivalents, and swap contracts. Swap contracts consist of credit default swaps (CDS). Investments are reported as “Investments held by consolidated variable interest entity” in the Combined Statements of Condition. Changes in fair value of the investments are recorded in “Non-interest income: Investments held by consolidated variable interest entity gains (losses), net” in the Combined Statements of Operations.

Investments in debt securities are accounted for in accordance with FASB ASC Topic 320, *Investments – Debt and Equity Securities*, and the VIE elected the fair value option for all eligible assets and liabilities in accordance with FASB ASC Topic 825 (ASC 825), *Financial Instruments*. Other financial instruments, including swap contracts, are recorded at fair value in accordance with FASB ASC Topic 815 (ASC 815), *Derivatives and Hedging*.

The liabilities of the consolidated VIE consist primarily of swap contracts, cash collateral on swap contracts, and accruals for operating expenses. Swap contracts are recorded at fair value in accordance with ASC 815. Liabilities are reported as “Liabilities of consolidated variable interest entity” in the Combined Statements of Condition. Changes in fair value of the liabilities are recorded in “Non-interest income: Investments held by consolidated variable interest entity losses, net” in the Combined Statements of Operations.

i. Bank Premises, Equipment, and Software

Reserve Bank premises and equipment are stated at cost less accumulated depreciation. Depreciation is calculated on a straight-line basis over the estimated useful lives of the assets, which range from 2 to 50 years. Major alterations, renovations, and improvements are capitalized at cost as additions to the asset accounts and are depreciated over the remaining useful life of the asset or, if appropriate, over the unique useful life of the alteration, renovation, or improvement. Maintenance, repairs, and minor replacements are charged to operating expense in the year incurred. Reserve Banks may transfer assets to other Reserve Banks or may lease property of other Reserve Banks.

Costs incurred to acquire software are capitalized based on the purchase price. Costs incurred during the application development stage to develop internal-use software are capitalized based on the cost of direct services and materials associated with designing, coding, installing, and testing the software. Capitalized software costs are amortized on a straight-line basis over the estimated useful lives of the software applications, which generally range from two to five years. Maintenance costs and minor replacements related to software are charged to operating expense in the year incurred. Leased assets that meet the criteria of FASB ASC Topic 840, *Leases,* are capitalized and amortized over the shorter of the useful life of the asset or the term of the lease.

Capitalized assets, including software, buildings, leasehold improvements, furniture, and equipment, are impaired and an adjustment is recorded when events or changes in circumstances indicate that the carrying amount of assets or asset groups is not recoverable and significantly exceeds the assets’ fair value.

j. Federal Reserve Notes

Federal Reserve notes are the circulating currency of the United States. These notes, which are identified as issued to a specific Reserve Bank, must be fully collateralized. All of the Reserve Banks' assets are eligible to be pledged as collateral. The collateral value is equal to the book value of the collateral tendered with the exception of securities, for which the collateral value is equal to the par value of the securities tendered. The par value of reverse repurchase agreements is deducted from the eligible collateral value.

The Board of Governors may, at any time, call upon a Reserve Bank for additional security to adequately collateralize outstanding Federal Reserve notes. To satisfy the obligation to provide sufficient collateral for outstanding Federal Reserve notes, the Reserve Banks have entered into an agreement that provides for certain assets of the Reserve Banks to be jointly pledged as collateral for the Federal Reserve notes issued to all Reserve Banks. In the event that this collateral is insufficient, the Federal Reserve Act provides that Federal Reserve notes become a first and paramount lien on all the assets of the Reserve Banks. Finally, Federal Reserve notes are obligations of the United States government.

"Federal Reserve notes outstanding, net" in the Combined Statements of Condition represents the Reserve Banks' Federal Reserve notes outstanding, reduced by the Reserve Banks' currency holdings of $175 billion for both years ended December 31, 2017 and 2016, respectively.

At December 31, 2017 and 2016, all Federal Reserve notes outstanding, net, were fully collateralized. At December 31, 2017, all gold certificates, all SDR certificates, and $1,554 billion of domestic securities held in the SOMA were pledged as collateral. At December 31, 2017, no investments denominated in foreign currencies were pledged as collateral.

k. Deposits

Depository Institutions

Depository institutions' deposits represent the reserve and service-related balances in the accounts that depository institutions hold at the Reserve Banks. Required reserve balances are those that a depository institution must hold to satisfy its reserve requirement. Reserve requirements are the amount of funds that a depository institution must hold in reserve against specified deposit liabilities. Excess reserves are those held by the depository institutions in excess of their required reserve balances. The interest rates paid on required reserve balances and excess balances are determined by the Board of Governors, based on an FOMC-established target range for the federal funds rate. Interest expense on depository institutions' deposits is accrued daily at the appropriate rate. Interest payable is reported as a component of "Interest payable to depository institutions and others" in the Combined Statements of Condition.

The Term Deposit Facility (TDF) consists of deposits with specific maturities held by eligible institutions at the Reserve Banks. The Reserve Banks pay interest on these deposits at interest rates determined by auction. Interest expense on depository institutions' deposits is accrued daily at the appropriate rate. Interest payable is reported as a component of "Interest payable to depository institutions and others" in the Combined Statements of Condition. There were no deposits held by the Reserve Banks under the TDF at December 31, 2017 and 2016.

Treasury

The Treasury general account is the primary operational account of the Treasury and is held at the FRBNY.

Other

Other deposits include foreign central bank and foreign government deposits held at the FRBNY. Other deposits also include cash collateral, deposits of designated financial market utilities (DFMUs), and GSE deposits held by the Reserve Banks. The Reserve Banks pay interest on deposits held by DFMUs at the rate paid on balances maintained by depository institutions or another rate determined by the Board from time to time, not to exceed the general level of short term interest rates. Interest payable is reported as a component of "Interest payable to depository institutions and others" in the Combined Statements of Condition.

l. Items in Process of Collection and Deferred Credit Items

Items in process of collection primarily represents amounts attributable to checks that have been deposited for collection and that, as of the balance sheet date, have not yet been presented to the paying bank. Deferred credit items represents the counterpart liability to items in process of collection. The amounts in this account arise from deferring credit for deposited items until the amounts are collected.

m. Capital Paid-in

The Federal Reserve Act requires that each member bank subscribe to the capital stock of the Reserve Bank in an amount equal to 6 percent of the capital and surplus of the member bank. These shares are nonvoting, with a par value of $100, and may not be transferred or hypothecated. As a member bank's capital and surplus changes, its holdings of Reserve Bank stock must be adjusted. Currently, only one-half of the subscription is paid in, and the remainder is subject to call. A member bank is liable for Reserve Bank liabilities up to twice the par value of stock subscribed by it.

The Federal Reserve Act requires each Reserve Bank to pay each member bank an annual dividend based on the amount of the member bank's paid-in capital stock and a rate determined by the member bank's total consolidated assets. Member banks with total consolidated assets in excess of a threshold established in the Federal Reserve Act receive a dividend equal to the smaller of 6 percent or the rate equal to the high yield of the 10-year Treasury note auctioned at the last auction held prior to the payment of the dividend. Member banks with total consolidated assets equal to or less than the threshold receive a dividend of 6 percent. The threshold for total consolidated assets was $10.1 billion and $10.0 billion for the years ended December 31, 2017 and 2016, respectively. This threshold is adjusted annually based on the Gross Domestic Product Price Index, which is published by the Bureau of Economic Analysis. The dividend is paid semiannually and is cumulative.

n. Surplus

The Federal Reserve Act limits aggregate Reserve Bank surplus to $10 billion, which is allocated among the Reserve Banks based on the ratio of each Reserve Bank's capital paid-in to total Reserve Bank capital paid-in as of December 31 of each year.

Accumulated other comprehensive loss is reported as a component of "Surplus" in the Combined Statements of Condition and the Combined Statements of Changes

in Capital. Additional information regarding the classifications of accumulated other comprehensive loss is provided in Notes 9, 10, and 11.

o. Earnings Remittances to the Treasury

The Federal Reserve Act requires that any amounts of the surplus funds of the Reserve Banks that exceed, or would exceed, the aggregate surplus limitation of $10 billion shall be transferred to the Board of Governors for transfer to the Treasury. The Reserve Banks remit excess earnings to the Treasury after providing for the cost of operations, payment of dividends, and reservation of an amount necessary to maintain surplus at the Reserve Bank's allocated portion of the $10 billion aggregate surplus limitation. Remittances to the Treasury are made on a weekly basis. The amount of the remittances to the Treasury is reported as "Earnings remittances to the Treasury" in the Combined Statements of Operations. The amount due to the Treasury is reported as "Accrued remittances to the Treasury" in the Combined Statements of Condition. See Note 12 for additional information on earnings remittances to the Treasury.

If earnings during the year are not sufficient to provide for the costs of operations, payment of dividends, and maintaining surplus at an amount equal to the Reserve Bank's allocated portion of the $10 billion aggregate surplus limitation, remittances to the Treasury are suspended. This decrease in earnings remittances to the Treasury results in a deferred asset that represents the amount of net earnings a Reserve Bank will need to realize before remittances to the Treasury resume.

p. Income and Costs Related to Treasury Services.

When directed by the Secretary of the Treasury, the Reserve Banks are required by the Federal Reserve Act to serve as fiscal agent and depositary of the United States Government. By statute, the Treasury has appropriations to pay for these services. During the years ended December 31, 2017 and 2016, the Reserve Banks were reimbursed for all services provided to the Treasury as its fiscal agent.

q. Assessments

The Board of Governors assesses the Reserve Banks to fund its operations and the operations of the Bureau. These assessments are allocated to each Reserve Bank based on each Reserve Bank's capital and surplus balances. The Board of Governors also assesses each Reserve Bank for expenses related to producing, issuing, and retiring Federal Reserve notes based on each Reserve Bank's share of the number of notes comprising the System's net liability for Federal Reserve notes on December 31 of the prior year.

The Dodd-Frank Act requires that, after the transfer of its responsibilities to the Bureau on July 21, 2011, the Board of Governors fund the Bureau in an amount not to exceed a fixed percentage of the total operating expenses of the System as reported in the Board of Governor's 2009 annual report, which totaled $4.98 billion. After 2013, the amount will be adjusted annually in accordance with the provisions of the Dodd-Frank Act. The percentage of total operating expenses of the System for the years ended December 31, 2017 and 2016 was 12.98 percent ($646.2 million) and 12.68 percent ($631.7 million), respectively. The Reserve Banks' assessment for Bureau funding is reported as "Operating expenses: Assessments: Bureau of Consumer Financial Protection" in the Combined Statements of Operations.

r. Fair Value

Investments and liabilities of the consolidated VIE and assets of the Retirement Plan for Employees of the System are measured at fair value in accordance with FASB ASC Topic 820 (ASC 820), *Fair Value Measurement*. ASC 820 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. ASC 820 establishes a three-level fair value hierarchy that distinguishes between assumptions developed using market data obtained from independent sources (observable inputs) and the Reserve Banks' assumptions developed using the best information available in the circumstances (unobservable inputs). The three levels established by ASC 820 are described as follows:

- Level 1 – Valuation is based on quoted prices for identical instruments traded in active markets.
- Level 2 – Valuation is based on quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-based valuation techniques for which all significant assumptions are observable in the market.
- Level 3 – Valuation is based on model-based techniques that use significant inputs and assumptions not observable in the market. These unobservable inputs and assumptions reflect the Reserve Banks' estimates of inputs and assumptions that market participants would use in pricing the assets and liabilities. Valuation techniques include the use of option pricing models, discounted cash flow models, and similar techniques.

The inputs or methodology used for valuing assets and liabilities are not necessarily an indication of the risk associated with those assets and liabilities.

s. Taxes

The Reserve Banks are exempt from federal, state, and local taxes, except for taxes on real property. The Reserve Banks' real property taxes were $49 million and $51 million for the years ended December 31, 2017 and 2016, respectively, and are reported as a component of "Operating expenses: Occupancy" in the Combined Statements of Operations.

t. Restructuring Charges

The Reserve Banks recognize restructuring charges for exit or disposal costs incurred as part of the closure of business activities in a particular location, the relocation of business activities from one location to another, or a fundamental reorganization that affects the nature of operations. Restructuring charges may include costs associated with employee separations, contract terminations, and asset impairments. Expenses are recognized in the period in which the Reserve Banks commit to a formalized restructuring plan or executes the specific actions contemplated in the plan and all criteria for financial statement recognition have been met.

In 2014, the Treasury announced plans to consolidate the provision of substantially all fiscal agent services for the U.S. Treasury at the Federal Reserve Bank of Cleveland, the Federal Reserve Bank of Kansas City, the FRBNY, and the Federal Reserve Bank of St. Louis. The consolidation is expected to be completed in future years.

The Reserve Banks had no significant restructuring activities in 2017 and 2016.

u. Recently Issued Accounting Standards

Other than the significant differences described in Note 3, the accounting policies described in the FAM are generally consistent with those in GAAP. The following items represent recent GAAP accounting standards and describe how the FAM was or will be revised to be consistent with these standards.

In May 2014, the FASB issued Accounting Standards Update (ASU) 2014-09, *Revenue from Contracts with Customers (Topic 606)*. This update was issued to create common revenue recognition guidance for U.S. GAAP and International Financial Reporting Standards. The guidance is applicable to all contracts for the transfer of goods or services regardless of industry or type of transaction. This update requires recognition of revenue in a manner that reflects the consideration that the entity expects to receive in return for the transfer of goods or services to customers. Subsequently, the FASB issued a number of related ASUs including ASU 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date;* ASU 2016-08, *Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross versus Net);* ASU 2016-10, *Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing;* ASU 2016-12, *Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients*; and ASU 2016-20, *Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers*. This revenue recognition accounting guidance is effective for the Reserve Banks for the year ending December 31, 2019, although the Reserve Banks may elect to adopt the guidance earlier. The Reserve Banks are continuing to evaluate the effect of this new guidance on the Reserve Banks' combined financial statements.

In January 2016, the FASB issued ASU 2016-01, *Financial Instruments – Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities*. The amendments in this update eliminate the requirement to disclose methods and significant assumptions used to estimate the fair value for financial instruments measured at amortized cost on the balance sheet. This update is effective for the Reserve Banks for the year ending December 31, 2019 and is not expected to have a material effect on the Reserve Banks' combined financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. This update revises the model to assess how a lease should be classified and provides guidance for lessees, requiring lessees to present right-of-use assets and lease liabilities on the balance sheet. The update is effective for the Reserve Banks for the year ending December 31, 2020, although earlier adoption is permitted. The Reserve Banks are continuing to evaluate the effect of this new guidance on the Reserve Banks' combined financial statements.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*. This update revises the methodology for assessing expected credit losses and requires consideration of reasonable and supportable information to inform credit loss estimates. The update is effective for the Reserve Banks for the year ending December 31, 2021, although earlier adoption is permitted. The Reserve Banks are continuing to evaluate the effect of this new guidance on the Reserve Banks' combined financial statements.

In October 2016, the FASB issued ASU 2016-17, *Consolidation (Topic 810): Interest Held through Related Parties That Are under Common Control*. This update clarifies the revised consolidation model from ASU 2015-02 for a reporting entity that is a single decision maker and primary beneficiary of a VIE. The reporting entity should consolidate all direct variable interests and a proportional share of indirect variable interests in the entity held through related parties. This update was effective for the Reserve Banks for the year ended December 31, 2017 and did not have an effect on the Reserve Banks' combined financial statements.

In December 2016, the FASB issued ASU 2016-19, *Technical Corrections and Improvements*. This update covers a wide range of topics in the accounting standard codification and addresses differences between original guidance and the codification. It provides clarification of certain guidance including reference corrections and makes minor improvements to accounting standards. This update was effective for the Reserve Banks for the year ended December 31, 2016 and did not have an effect on the Reserve Banks' combined financial statements.

In March 2017, the FASB issued ASU 2017-07, *Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost*. This update requires an employer to disaggregate the service cost component from the other components of net benefit cost. It also provides explicit guidance on how to present the service cost component and the other components of net benefit cost in the income statement and allows only the service cost component of net benefit cost to be eligible for capitalization. This update is effective for the Reserve Banks for the year ending December 31, 2019, and the Reserve Banks are continuing to evaluate the effect of this new guidance on the Reserve Banks' combined financial statements.

In March 2017, the FASB issued ASU 2017-08, *Receivables—Nonrefundable Fees and Other Costs (Subtopic 310-20) –Premium Amortization on Purchased Callable Debt Securities*. This update shortens the amortization period for certain callable debt securities held at a premium. Specifically, the amendments require the premium to be amortized to the earliest call date. The amendments do not require an accounting change for securities held at a discount; the discount continues to be amortized to maturity. This update is effective for the Reserve Banks for the year ending December 31, 2019. The Reserve Banks are continuing to evaluate the effect of this new guidance on the Reserve Banks' combined financial statements.

(4) Loans

Loans to Depository Institutions

The Reserve Banks offers primary, secondary, and seasonal loans to eligible borrowers (depository institutions that maintain reservable transaction accounts or nonpersonal time deposits and have established discount window borrowing privileges). Each program has its own interest rate and interest is accrued using the applicable interest rate established at least every 14 days by the Reserve Banks' board of directors, subject to review and determination by the Board of Governors. Primary and secondary loans are extended on a short-term basis, typically overnight, whereas seasonal loans may be extended for a period of up to nine months.

Primary, secondary, and seasonal loans are collateralized to the satisfaction of each Reserve Bank to reduce credit risk. Assets eligible to collateralize these loans include consumer, business, and real estate loans; Treasury securities; GSE debt

securities; foreign sovereign debt; municipal, corporate, and state and local government obligations; asset-backed securities; corporate bonds; commercial paper; and bank-issued assets, such as certificates of deposit, bank notes, and deposit notes. Collateral is assigned a lending value that is deemed appropriate by the Reserve Bank, which is typically fair value reduced by a margin. Loans to depository institutions are monitored daily to ensure that borrowers continue to meet eligibility requirements for these programs. If a borrower no longer qualifies for these programs, the Reserve Bank will generally request full repayment of the outstanding loan or, for primary or seasonal loans, may convert the loan to a secondary credit loan. Collateral levels are reviewed daily against outstanding obligations, and borrowers that no longer have sufficient collateral to support outstanding loans are required to provide additional collateral or to make partial or full repayment.

The remaining maturity distribution of loans to depository institutions outstanding as of December 31, 2017 and 2016 was as follows (in millions):

	Within 15 days	16 days to 90 days	Total
December 31, 2017	$133	$1	$134
December 31, 2016	$ 58	$5	$ 63

At December 31, 2017 and 2016, the Reserve Banks did not have any loans that were impaired, restructured, past due, or on non-accrual status, and no allowance for loan losses was required. There were no impaired loans during the years ended December 31, 2017 and 2016. Interest income attributable to loans to depository institutions was immaterial during the years ended December 31, 2017 and 2016.

(5) System Open Market Account

a. Domestic Securities Holdings

The FRBNY executes domestic open market operations and, on behalf of the Reserve Banks, holds the resulting securities in the SOMA.

Pursuant to FOMC directives, during the year ended December 31, 2016 and through September 30, 2017, the FRBNY continued to reinvest all principal payments from the SOMA's holdings of GSE debt securities and federal agency and GSE MBS in federal agency and GSE MBS and to roll over maturing Treasury securities at auction. In October 2017, the FOMC initiated a balance sheet normalization program intended to reduce gradually the SOMA holdings by decreasing reinvestment of the principal payments received from securities held in the SOMA through the implementation of monthly caps. Effective from October 2017 and through December 2017, the FOMC directed the FRBNY to roll over principal payments from the SOMA holdings of Treasury securities maturing during each calendar month that exceeded a $6 billion cap, and to reinvest in federal agency and GSE MBS the amount of principal payments from the SOMA holdings of GSE debt securities and federal agency and GSE MBS received during each calendar month that exceeded a $4 billion cap. According to the balance sheet normalization plan, the FOMC anticipates that it will increase the monthly cap on Treasury redemptions in steps of $6 billion at three-month intervals over 12 months until it reaches $30 billion per month, and that it will increase the monthly cap on GSE debt securities and federal agency and GSE MBS paydowns in steps of $4 billion at three-month intervals over 12 months until it reaches $20 billion per month. The FOMC also anticipates that the caps will remain in place once they reach their respective maximums so that the SOMA holdings will

continue to decline in a gradual and predictable manner until the FOMC judges that the SOMA is holding no more securities than necessary to implement monetary policy efficiently and effectively.

The total of Treasury securities, GSE debt securities, and federal agency and GSE MBS, net, excluding accrued interest, held in the SOMA at December 31, 2017 and 2016 was as follows (in millions):

	2017			
	Par	Unamortized premiums	Unaccreted discounts	Total amortized cost
Treasury securities				
Notes	$1,624,620	$ 9,665	$ (4,714)	$1,629,571
Bonds	829,588	95,574	(9,000)	916,162
Total Treasury securities	$2,454,208	$105,239	$(13,714)	$2,545,733
GSE debt securities	$ 4,391	$ 361	$ -	$ 4,752
Federal agency and GSE MBS	$1,764,929	$ 53,160	$ (389)	$1,817,700

	2016			
	Par	Unamortized premiums	Unaccreted discounts	Total amortized cost
Treasury securities				
Notes	$1,638,172	$ 14,782	$ (5,615)	$1,647,339
Bonds	825,444	103,708	(9,069)	920,083
Total Treasury securities	$2,463,616	$118,490	$(14,684)	$2,567,422
GSE debt securities	$ 16,180	$ 468	$ -	$ 16,648
Federal agency and GSE MBS	$1,741,391	$ 54,006	$ (394)	$1,795,003

There were no material transactions related to repurchase agreements during the years ended December 31, 2017 and 2016.

During the years ended December 31, 2017 and 2016, the FRBNY entered into reverse repurchase agreements as part of its monetary policy activities. These operations have been undertaken as necessary to maintain the federal funds rate in a target range. In addition, reverse repurchase agreements are entered into as part of a service offering to foreign official and international account holders. Financial

information related to reverse repurchase agreements for the years ended December 31, 2017 and 2016 was as follows (in millions):

	2017	2016
Primary dealers and expanded counterparties:		
Contract amount outstanding, end of year	$319,595	$468,355
Average daily amount outstanding, during the year	145,959	105,648
Maximum balance outstanding, during the year	468,355	474,592
Securities pledged (par value), end of year	302,690	443,799
Securities pledged (fair value), end of year	320,048	469,282
Foreign official and international accounts:		
Contract amount outstanding, end of year	$244,363	$256,855
Average daily amount outstanding, during the year	241,581	241,848
Maximum balance outstanding, during the year	264,290	265,041
Securities pledged (par value), end of year	240,660	249,417
Securities pledged (fair value), end of year	244,417	256,897
Total contract amount outstanding, end of year	$563,958	$725,210
Supplemental information - interest expense:		
Primary dealers and expanded counterparties	$ 1,224	$ 303
Foreign official and international accounts	2,141	819
Total interest expense - securities sold under agreements to repurchase	$ 3,365	$ 1,122

Securities pledged as collateral, at December 31, 2017 and 2016, consisted solely of Treasury securities. The contract amount outstanding as of December 31, 2017 of reverse repurchase agreements that were transacted with primary dealers and expanded counterparties had a term of one business day and matured on January 2, 2018. The contract amount outstanding as of December 31, 2017 of reverse repurchase agreements that were transacted with foreign official and international account holders had a term of one business day and matured on January 2, 2018.

The remaining maturity distribution of Treasury securities, GSE debt securities, federal agency and GSE MBS bought outright, and reverse repurchase agreements at December 31, 2017 and 2016 was as follows (in millions):

	Within 15 days	16 days to 90 days	91 days to 1 year	Over 1 year to 5 years	Over 5 years to 10 years	Over 10 years	Total
December 31, 2017:							
Treasury securities (par value)	$ 20,601	$107,658	$315,420	$1,077,270	$310,375	$ 622,884	$2,454,208
GSE debt securities (par value)	-	-	1,982	62	-	2,347	4,391
Federal agency and GSE MBS (par value)[1]	-	-	1	173	20,013	1,744,742	1,764,929
Securities sold under agreements to repurchase (contract amount)	563,958	-	-	-	-	-	563,958
December 31, 2016:							
Treasury securities (par value)	$ 14,807	$ 41,249	$150,766	$1,224,348	$399,277	$ 633,169	$2,463,616
GSE debt securities (par value)	-	2,851	8,938	2,044	-	2,347	16,180
Federal agency and GSE MBS (par value)[1]	-	-	-	77	10,584	1,730,730	1,741,391
Securities sold under agreements to repurchase (contract amount)	725,210	-	-	-	-	-	725,210

[1] The par amount shown for federal agency and GSE MBS is the remaining principal balance of the securities.

Federal agency and GSE MBS are reported at stated maturity in the table above. The estimated weighted-average life of these securities, which differs from the stated maturity primarily because it factors in scheduled payments and prepayment assumptions, was approximately 6.9 and 7.2 years as of December 31, 2017 and 2016, respectively.

The amortized cost and par value of Treasury securities and GSE debt securities that were loaned from the SOMA under securities lending agreements at December 31, 2017 and 2016 were as follows (in millions):

	2017	2016
Treasury securities (amortized cost)	$28,053	$25,195
Treasury securities (par value)	26,990	24,698
GSE debt securities (amortized cost)	-	44
GSE debt securities (par value)	-	44

Securities pledged as collateral by the counterparties in the securities lending arrangements at December 31, 2017 and 2016 consisted solely of Treasury securities. The securities lending agreements outstanding as of December 31, 2017 had a term of one business day and matured on January 2, 2018.

The FRBNY enters into commitments to buy and sell Treasury securities and records the related securities on a settlement-date basis. As of December 31, 2017, the total purchase price of the Treasury securities under outstanding commitments was $11,447 million. These commitments had contractual settlement dates extending through January 2, 2018.

The FRBNY enters into commitments to buy and sell federal agency and GSE MBS and records the related securities on a settlement-date basis. As of December 31, 2017, the total purchase price of the federal agency and GSE MBS under outstanding purchase commitments was $19,257 million, none of which was related to dollar rolls. These commitments, which had contractual settlement dates extending through January 2018, are for the purchase of TBA MBS for which the number and identity of the pools that will be delivered to fulfill the commitment are unknown at the time of the trade. As of December 31, 2017, there were no outstanding sales commitments for federal agency and GSE MBS. MBS commitments are subject to varying degrees of off-balance-sheet market risk and counterparty credit risk that result from their future settlement. The FRBNY requires the posting of cash collateral for MBS commitments as part of its risk management practices used to mitigate the counterparty credit risk.

Other assets consist primarily of cash and short-term investments related to the federal agency and GSE MBS portfolio. Other liabilities, which are primarily related to federal agency and GSE MBS purchases and sales, include the FRBNY's obligation to return cash margin posted by counterparties as collateral under commitments to purchase and sell federal agency and GSE MBS. In addition, other liabilities include obligations that arise from the failure of a seller to deliver MBS to the FRBNY on the settlement date. Although the FRBNY has ownership of and records its investments in the MBS as of the contractual settlement date, it is not obligated to make payment until the securities are delivered, and the amount included in other liabilities represents the FRBNY's obligation to pay for the securities when delivered. The amount of other assets and other liabilities held in the SOMA at December 31, 2017 and 2016 was as follows (in millions):

	2017	2016
Other assets:		
MBS portfolio related cash and short term investments	$ 13	$ 7
Other	-	1
Total other assets	$ 13	$ 8
Other liabilities:		
Cash margin	$481	$ 983
Obligations from MBS transaction fails	14	9
Other	63	20
Total other liabilities	$558	$1,012

Accrued interest receivable on domestic securities holdings held in the SOMA was $24,655 million and $25,517 million as of December 31, 2017 and 2016, respectively. These amounts are reported as a component of "System Open Market Account: Accrued interest receivable" in the Combined Statements of Condition.

Information about transactions related to Treasury securities, GSE debt securities, and federal agency and GSE MBS held in the SOMA during the years ended December 31, 2017 and 2016, is summarized as follows (in millions):

	Notes	Bonds	Total Treasury securities	GSE debt securities	Federal agency and GSE MBS
Balance at December 31, 2015	$1,649,228	$931,448	$2,580,676	$ 33,748	$1,800,449
Purchases[1]	190,992	13,882	204,874	-	387,210
Sales[1]	(534)	(62)	(596)	-	(213)
Realized gains (losses), net[2]	(22)	7	(15)	-	6
Principal payments and maturities	(187,843)	(16,597)	(204,440)	(16,764)	(379,065)
Amortization of premiums and accretion of discounts, net	(5,049)	(10,033)	(15,082)	(336)	(13,384)
Inflation adjustment on inflation-indexed securities	567	1,438	2,005	-	-
Balance at December 31, 2016	$1,647,339	$920,083	$2,567,422	$ 16,648	$1,795,003
Purchases[1]	161,378	15,849	177,227	-	324,524
Sales[1]	(124)	(326)	(450)	-	(331)
Realized gains (losses), net[2]	(2)	30	28	-	2
Principal payments and maturities	(175,933)	(13,402)	(189,335)	(11,789)	(290,939)
Amortization of premiums and accretion of discounts, net	(3,796)	(7,917)	(11,713)	(107)	(10,559)
Inflation adjustment on inflation-indexed securities	709	1,845	2,554	-	-
Balance at December 31, 2017	$1,629,571	$916,162	$2,545,733	$ 4,752	$1,817,700
Year-ended December 31, 2016					
Supplemental information - par value of transactions:					
Purchases[3]	$ 191,231	$ 13,868	$ 205,099	$ -	$ 373,197
Sales	(555)	(45)	(600)	-	(203)
Year-ended December 31, 2017					
Supplemental information - par value of transactions:					
Purchases[3]	$ 61,796	$ 5,976	$ 177,772	$ -	$ 314,797
Sales	(125)	(275)	(400)	-	(320)

[1] Purchases and sales may include payments and receipts related to principal, premiums, discounts, and inflation compensation adjustments to the basis of inflation-indexed securities. The amount reported as sales includes the realized gains and losses on such transactions. Purchases and sales exclude MBS TBA transactions that are settled on a net basis.

[2] Realized gains (losses), net is the offset of the amount of realized gains and losses included in the reported sales amount.

[3] Includes inflation compensation.

b. Foreign Currency Denominated Investments

The FRBNY conducts foreign currency operations and, on behalf of the Reserve Banks, holds the resulting foreign currency denominated investments in the SOMA.

The FRBNY holds foreign currency deposits with foreign central banks and the Bank for International Settlements and invests in foreign government debt instruments of France, Germany, the Netherlands, and Japan. These foreign government debt instruments are backed by the full faith and credit of the issuing foreign governments. In addition, the FRBNY may enter into repurchase agreements to purchase government debt securities for which the accepted collateral is the debt instruments issued by a foreign government.

At December 31, 2017 and 2016, there were no repurchase agreements outstanding and, consequently, no related foreign securities held as collateral.

Information about foreign currency denominated investments recorded at amortized cost and valued at foreign currency market exchange rates held in the SOMA at December 31, 2017 and 2016 was as follows (in millions):

	2017	2016
Euro:		
Foreign currency deposits	$ 6,070	$ 4,205
French government debt instruments	3,089	3,892
German government debt instruments	2,239	1,884
Dutch government debt instruments	1,626	1,462
Japanese yen:		
Foreign currency deposits	6,765	4,668
Japanese government debt instruments	1,527	3,331
Total	$21,316	$19,442

Net interest income earned on foreign currency denominated investments for the years ended December 31, 2017 and 2016 held in the SOMA as follows (in millions):

	2017	2016
Net interest income:[1]		
Euro	$(19)	$(11)
Japanese yen	2	4
Total net interest income	$(17)	$ (7)

[1] As a result of negative interest rates in certain foreign currency denominated investments held in the SOMA, interest income on foreign currency denominated investments, net contains negative interest of $36 million and $32 million for the years ended December 31, 2017 and 2016, respectively.

Accrued interest receivable on foreign currency denominated investments, net was $82 million and $79 million as of December 31, 2017 and 2016, respectively. These amounts are reported as a component of "System Open Market Account: Accrued interest receivable" in the Combined Statements of Condition.

The remaining maturity distribution of foreign currency denominated investments at December 31, 2017 and 2016 was as follows (in millions):

	Within 15 days	16 days to 90 days	91 days to 1 year	Over 1 year to 5 years	Over 5 years to 10 years	Total
December 31, 2017:						
Euro	$ 6,162	$102	$1,228	$3,134	$2,398	$13,024
Japanese yen	6,765	62	263	1,202	-	8,292
Total	$12,927	$164	$1,491	$4,336	$2,398	$21,316
December 31, 2016:						
Euro	$ 4,253	$334	$1,170	$3,174	$2,512	$11,443
Japanese yen	4,840	342	1,341	1,476	-	7,999
Total	$ 9,093	$676	$2,511	$4,650	$2,512	$19,442

There were no foreign exchange contracts related to foreign currency operations outstanding as of December 31, 2017.

The FRBNY enters into commitments to buy foreign government debt instruments and records the related securities on a settlement-date basis. As of December 31, 2017, there were no outstanding commitments to purchase foreign government debt instruments. During 2017, there were purchases and maturities of for-

eign government debt instruments of $576 million and $3,567 million, respectively. There were immaterial sales of foreign government debt instruments in 2017.

In connection with its foreign currency activities, the FRBNY may enter into transactions that are subject to varying degrees of off-balance-sheet market risk and counterparty credit risk that result from their future settlement. The FRBNY controls these risks by obtaining credit approvals, establishing transaction limits, receiving collateral in some cases, and performing monitoring procedures.

Foreign currency working balances held and foreign exchange contracts executed by the FRBNY to facilitate international payments and currency transactions made on behalf of foreign central banks and U.S. official institution customers were immaterial as of December 31, 2017 and 2016.

c. Central Bank Liquidity Swaps

U.S. Dollar Liquidity Swaps

The total foreign currency held in the SOMA under U.S. dollar liquidity swaps at December 31, 2017 and 2016 was $12,067 million and $5,563 million, respectively.

The remaining maturity distribution of U.S. dollar liquidity swaps at December 31, 2017 and 2016 was as follows (in millions):

	2017	2016
	Within 15 days	Within 15 days
Euro	$11,907	$4,340
Japanese yen	160	1,223
Total	$12,067	$5,563

Foreign Currency Liquidity Swaps

At December 31, 2017 and 2016, there was no balance outstanding related to foreign currency liquidity swaps.

d. Fair Value of SOMA Assets and Liabilities

The fair value amounts below are presented solely for informational purposes and are not intended to comply with the fair value disclosures required by ASC 820. Although the fair value of SOMA security holdings can be substantially greater than or less than the recorded value at any point in time, these unrealized gains or losses have no effect on the ability of the Reserve Banks, as the central bank, to meet their financial obligations and responsibilities. Because SOMA securities are recorded at amortized cost, cumulative unrealized gains or losses are not recognized in the Combined Statements of Condition and the changes in cumulative unrealized gains or losses are not recognized in the Combined Statements of Operations.

The fair value of the Treasury securities, GSE debt securities, federal agency and GSE MBS, and foreign government debt instruments held in the SOMA is subject to market risk, arising from movements in market variables such as interest rates and credit risk. The fair value of federal agency and GSE MBS is also affected by the expected rate of prepayments of mortgage loans underlying the securities. The fair value of foreign government debt instruments is also affected by currency risk. Based on evaluations performed as of December 31, 2017 and 2016, there are no credit impairments of SOMA securities holdings.

The following table presents the amortized cost, fair value, and cumulative unrealized gains (losses) on the Treasury securities, GSE debt securities, and federal agency and GSE MBS held in the SOMA at December 31, 2017 and 2016 (in millions):

	2017			2016		
	Amortized cost	Fair value	Cumulative unrealized gains (losses), net	Amortized cost	Fair value	Cumulative unrealized gains (losses), net
Treasury securities:						
Notes	$1,629,571	$1,624,540	$ (5,031)	$1,647,339	$1,657,026	$ 9,687
Bonds	916,162	1,008,468	92,306	920,083	983,680	63,597
Total Treasury securities	2,545,733	2,633,008	87,275	2,567,422	2,640,706	73,284
GSE debt securities	4,752	5,383	631	16,648	17,442	794
Federal agency and GSE MBS	1,817,700	1,809,918	(7,782)	1,795,003	1,787,484	(7,519)
Total domestic SOMA portfolio securities holdings	$4,368,185	$4,448,309	$80,124	$4,379,073	$4,445,632	$66,559
Memorandum - Commitments for:						
Purchases of Treasury securities	$ 11,447	$ 11,467	$ 20	$ 11,679	$ 11,719	$ 40
Purchases of Federal agency and GSE MBS	19,257	19,285	28	35,787	35,974	187

The fair value of Treasury securities and GSE debt securities was determined using pricing services that provide market consensus prices based on indicative quotes from various market participants. The fair value of federal agency and GSE MBS was determined using a pricing service that utilizes a model-based approach that considers observable inputs for similar securities.

The cost bases of repurchase agreements, reverse repurchase agreements, central bank liquidity swaps, and other investments held in the SOMA portfolio approximate fair value. Due to the short-term nature of these agreements and the defined amount that will be received upon settlement, the cost basis is estimated to approximate fair value.

At December 31, 2017 and 2016, the fair value of foreign currency denominated investments held in the SOMA was $21,348 million and $19,510 million, respectively. The fair value of foreign government debt instruments was determined using pricing services that provide market consensus prices based on indicative quotes from various market participants. The fair value of foreign currency deposits was determined by reference to market interest rates.

The following table provides additional information on the amortized cost and fair value of the federal agency and GSE MBS portfolio held in the SOMA at December 31, 2017 and 2016 (in millions):

Distribution of MBS holdings by coupon rate	2017		2016	
	Amortized cost	Fair value	Amortized cost	Fair value
Total SOMA:				
2.0%	$ 8,968	$ 8,739	$ 10,556	$ 10,243
2.5%	110,452	108,371	121,326	118,641
3.0%	674,138	660,939	693,524	676,572
3.5%	630,590	630,245	561,271	560,510
4.0%	289,819	291,868	275,650	279,877
4.5%	68,069	71,896	86,351	92,111
5.0%	28,352	30,048	36,708	39,159
5.5%	6,318	6,739	8,298	8,939
6.0%	870	939	1,155	1,253
6.5%	124	134	164	179
Total	$1,817,700	$1,809,918	$1,795,003	$1,787,484

The following tables present the realized gains (losses) and the change in the cumulative unrealized gains (losses) related to SOMA domestic securities holdings held in the SOMA during the years ended December 31, 2017 and 2016 (in millions):

	2017		2016	
	Realized gains (losses), net[1, 2]	Change in cumulative unrealized gains (losses)[3]	Realized gains (losses), net[1, 2]	Change in cumulative unrealized gains (losses)[3]
Treasury securities	$28	$13,991	$(15)	$(21,949)
GSE debt securities	-	(163)	-	(623)
Federal agency and GSE MBS	8	(263)	19	(17,326)
Total	$36	$13,565	$ 4	$(39,898)

1 Realized losses for Treasury securities are reported in "Non-interest income: System Open Market Account: Treasury securities gains (losses), net" in the Combined Statements of Operations.

2 Realized gains (losses) for federal agency and GSE MBS are reported in "Non-interest income: System Open Market Account: Federal agency and government-sponsored enterprise mortgage-backed securities gains, net" in the Combined Statements of Operations.

3 Because SOMA securities are recorded at amortized cost, the change in the cumulative unrealized gains (losses) is not reported in the Combined Statements of Operations.

The amount of change in cumulative unrealized gains (losses) position, net, related to foreign currency denominated investments was a loss of $36 million and a gain of $5 million for the years ended December 31, 2017 and 2016, respectively. Realized gains, net related to foreign currency denominated investments was immaterial at December 31, 2017 and zero at December 31, 2016, respectively.

Treasury securities, GSE debt securities, federal agency and GSE MBS, and foreign government debt instruments are classified as Level 2 within the ASC 820 hierarchy because the fair values are based on indicative quotes and other observable inputs obtained from independent pricing services. The fair value hierarchy level of SOMA financial assets is not necessarily an indication of the risk associated with those assets.

(6) Consolidated Variable Interest Entity

a. Description of Consolidated VIE

To facilitate the merger of The Bear Stearns Companies, Inc. (Bear Stearns) and JPMorgan Chase & Co. (JPMC), the FRBNY extended credit to ML in June 2008. ML is a Delaware LLC formed by the FRBNY to acquire certain assets of Bear Stearns and to manage those assets. The assets acquired by ML were valued at $29.9 billion as of March 14, 2008, the date that the FRBNY committed to the transaction, and largely consisted of federal agency and GSE MBS, non-agency residential mortgage-back securities (RMBS), commercial and residential mortgage loans, and derivatives and associated hedges.

The FRBNY extended a senior loan of approximately $28.8 billion and JPMC extended a subordinated loan of $1.15 billion to finance the acquisition of the assets, both of which were repaid in full plus interest in 2012. The FRBNY has continued and will continue to sell the remaining assets from the ML portfolio as market conditions warrant and if the sales represent good value for the public. In accordance with the ML agreements, proceeds from future asset sales will be distributed to the FRBNY as contingent interest after all derivative instruments in ML have been terminated and paid or sold from the portfolio.

b. Summary Information for Consolidated VIE

The classification of significant assets and liabilities of ML at December 31, 2017 and 2016 is summarized in the following table (in millions):

	2017	2016
Assets:		
Short-term investments	$ 998	$1,618
Swap contracts	5	28
Other investments	1	17
Subtotal	1,004	1,663
Cash, cash equivalents, accrued interest receivable, and other receivables	716	79
Cash collateral on swap contracts	2	-
Total investments held by consolidated VIE	$1,722	$1,742
Liabilities:		
Swap contracts	$ 8	$ 32
Cash collateral on swap contracts	-	1
Other liabilities	1	-
Total liabilities of consolidated VIE	$ 9	$ 33

The FRBNY's approximate maximum exposure to loss at December 31, 2017 and 2016 was $1,004 million and $1,663 million, respectively. These estimates incorporate potential losses associated with the investments recorded on the FRBNY's balance sheet. Additionally, information concerning the notional exposure on swap contracts is contained in the derivative instruments section of this Note.

The net income (loss) attributable to ML for the year ended December 31, 2017 and 2016 was as follows (in millions):

	2017	2016
Interest income: Investments held by consolidated VIE	$15	$ 9
Non-interest loss:		
Realized portfolio holdings gains (losses), net	(6)	13
Unrealized portfolio holdings losses, net	(3)	(32)
Non-interest loss: Consolidated VIE losses, net	(9)	(19)
Total net interest income and non-interest loss	6	(10)
Less: Professional fees	2	2
Net income (loss) attributable to consolidated VIE	$ 4	$(12)

i. Debt Securities

ML has investments in short-term instruments with maturities of greater than three months and less than one year when acquired. As of December 31, 2017 and 2016, ML's short-term instruments consisted of U.S. Treasury bills. Other investments primarily consist of non-agency RMBS.

ii. Derivative Instruments

Derivative contracts are instruments, such as swap contracts, that derive their value from underlying assets, indexes, reference rates, or a combination of these factors. The ML portfolio is composed of derivative financial instruments included in a total return swap (TRS) agreement with JPMC. ML and JPMC entered into the TRS with reference obligations representing CDS primarily on commercial mortgage-backed securities and RMBS, with various market participants, including JPMC.

On an ongoing basis, ML pledges collateral for credit or liquidity related shortfalls. Separately, ML and JPMC engage in bilateral posting of collateral to cover the net mark-to-market (MTM) variations in the swap portfolio. ML only nets the collateral posted to or received from JPMC from the bilateral MTM posting for the reference obligations for which JPMC is the counterparty.

As of December 31, 2017, ML has posted cash collateral associated with the TRS of $7 million. As of December 31, 2016, ML has received cash collateral associated with the TRS of $12 million, which is recorded a component of ML's cash and cash equivalents. In addition, ML has pledged $10 million and $46 million of U.S. Treasury bills to JPMC as of December 31, 2017 and 2016, respectively.

ML has entered into an International Swaps and Derivatives Association, Inc. master netting agreement with JPMC in connection with the TRS. This agreement provides ML with the right to liquidate securities held as collateral and to offset receivables and payables with JPMC in the event of default. This agreement also establishes the method for determining the net amount of receivables and payables that ML is entitled to receive from and required to pay to the counterparties of the swaps that underlie the TRS based upon the fair value of the relevant CDS.

For the derivative balances reported in the Combined Statements of Condition, ML offsets its asset and liability positions held with the same counterparty. In addition, ML offsets the cash collateral posted to or received from JPMC against any net assets or liabilities of JPMC with ML under the TRS. As of December 31,

2017 and 2016, there were no amounts subject to an enforceable master netting agreement that were not offset in the Combined Statements of Condition.

The maximum potential amount of future payments the seller of credit protection could be required to make to the buyer of credit protection under a CDS is equal to the notional amount of the contract. For ML, the maximum potential payout (notional) associated with credit protection sold was $37 million and $143 million as of December 31, 2017 and 2016, respectively, and the maximum potential recovery (notional) associated with credit protection bought was $15 million and $124 million as of December 31, 2017 and 2016, respectively. The change in notional amounts is representative of the volume of activity for the year ended December 31, 2017.

There were 27 and 98 CDS contracts outstanding in the ML portfolio as of December 31, 2017 and 2016, respectively. Substantially all of the CDS held by ML had remaining maturities of greater than five years and reference obligations with non-investment grade (BB+ or lower) credit ratings as of December 31, 2017 and 2016.

c. Fair Value Measurement

ML has adopted ASC 820 and ASC 825 and has elected the fair value option for all holdings. The accounting and classification of these investments appropriately reflect ML's and the FRBNY's intent with respect to the purpose of the investments and most closely reflect the amount of the assets available to liquidate the entity's obligations.

Determination of Fair Value

ML values its investments and cash equivalents on the basis of last available bid prices or current market quotations provided by dealers or pricing services selected under the supervision of the FRBNY's designated investment manager. To determine the value of a particular investment, pricing services may use certain information with respect to market transactions in such investments or comparable investments, various relationships observed in the market between investments, quotations from dealers, and pricing metrics and calculated yield measures based on valuation methodologies commonly employed in the market for such investments. The fair value of swap contracts is provided by JPMC as calculation agent and is reviewed by the investment manager.

Market quotations may not represent fair value in certain instances in which the investment manager and the VIE believe that facts and circumstances applicable to an issuer, a seller, a purchaser, or the market for a particular investment cause such market quotations to not reflect the fair value of an investment. In such cases or when market quotations are unavailable, the investment manager applies proprietary valuation models that use collateral performance scenarios and pricing metrics derived from the reported performance of investments with similar characteristics as well as available market data to determine fair value.

Due to the uncertainty inherent in determining the fair value of investments that do not have a readily available fair value, the fair value of these investments may differ from the values that may ultimately be realized and paid.

The following tables present the financial instruments recorded in the VIE at fair value as of December 31, 2017 by ASC 820 hierarchy (in millions):

	Level 1[1]	Level 2[1]	Level 3[1]	Netting[2]	Total fair value
Assets:					
Short-term investments	$ 716	$ -	$ -	$ -	$ 716
Cash equivalents[3]	998	-	-	-	998
Swap contracts	-	-	6	(1)	5
Other investments	-	1	-	-	1
Total assets	$1,714	$1	$ 6	$(1)	$1,720
Liabilities:					
Swap contracts	$ -	$ -	$14	$(6)	$ 8

[1] There were no transfers between Levels during the year ended December 31, 2017.

[2] Derivative receivables and payables and the related cash collateral received and paid are shown net when a master netting agreement exists.

[3] Cash equivalents consist primarily of money market funds.

The following tables present the financial instruments recorded in the VIE at fair value as of December 31, 2016 by ASC 820 hierarchy (in millions):

	Level 1[1]	Level 2[1]	Level 3[1]	Netting[2]	Total fair value
Assets:					
Short-term investments	$1,618	$ -	$ -	$ -	$1,618
Cash equivalents[3]	79	-	-	-	79
Swap contracts	-	-	72	(44)	28
Other investments	-	11	6	-	17
Total assets	$1,697	$11	$78	$(44)	$1,742
Liabilities:					
Swap contracts	$ -	$ -	$64	$(32)	$ 32

[1] There were no transfers between Level 1 and Level 2 and no material transfers between Level 2 and Level 3 during the year ended December 31, 2016.

[2] Derivative receivables and payables and the related cash collateral received and paid are shown net when a master netting agreement exists.

[3] Cash equivalents consist primarily of money market funds.

As of December 31, 2017 and 2016, both the Level 3 assets and liabilities held in the Combined Statements of Condition as "Investments held by consolidated variable interest entity" and "Liabilities of consolidated variable interest entity," respectively, and the associated unrealized gains and losses related to those assets and liabilities were immaterial.

(7) Bank Premises, Equipment, and Software

Reserve Bank premises and equipment at December 31, 2017 and 2016 were as follows (in millions):

	2017	2016
Bank premises and equipment:		
Land and land improvements	$ 408	$ 405
Buildings	2,923	2,861
Building machinery and equipment	633	609
Construction in progress	64	37
Furniture and equipment	1,077	1,053
Subtotal	5,105	4,965
Accumulated depreciation	(2,534)	(2,401)
Bank premises and equipment, net	$ 2,571	$ 2,564
Depreciation expense, for the years ended December 31	$ 217	$ 220

Reserve Bank premises and equipment at December 31, 2017 and 2016 included the following amounts for capitalized leases (in millions):

	2017	2016
Leased premises and equipment under capital leases	$ 29	$ 31
Accumulated depreciation	(23)	(24)
Leased premises and equipment under capital leases, net	$ 6	$ 7
Depreciation expense related to leased premises and equipment under capital leases, for the years ended December 31	$ 3	$ 3

The Reserve Banks leases space to outside tenants with remaining lease terms ranging from 1 to 10 years. Rental income from such leases was $40 million for the years ended December 31, 2017 and 2016, and is reported as a component of "Non-interest income: Other" in the Combined Statements of Operations. Future minimum lease payments that the Reserve Banks will receive under non-cancelable lease agreements in existence at December 31, 2017, are as follows (in millions):

2018	$ 36
2019	33
2020	30
2021	26
2022	23
Thereafter	54
Total	$202

The Reserve Banks had capitalized software assets, net of amortization, of $438 million and $440 million at December 31, 2017 and 2016, respectively. Amortization expense was $122 million and $110 million for the years ended December 31, 2017 and 2016, respectively. Capitalized software assets are reported as a component of "Other assets" in the Combined Statements of Condition and the related amortization is reported as a component of "Operating expenses: Other" in the Combined Statements of Operations.

(8) Commitments and Contingencies

In conducting its operations, the Reserve Banks enters into contractual commitments, normally with fixed expiration dates or termination provisions, at specific rates and for specific purposes.

At December 31, 2017, the Reserve Banks were obligated under non-cancelable leases for premises and equipment with remaining terms ranging from 1 to approximately 12 years. These leases provide for increased lease payments based upon increases in real estate taxes, operating costs, or selected price indexes.

Rental expense under operating leases for certain operating facilities, warehouses, and data processing and office equipment (including taxes, insurance, and maintenance when included in rent), net of sublease rentals, was $16 million and $14 million for the years ended December 31, 2017 and 2016, respectively.

Future minimum lease payments under non-cancelable operating leases, net of sublease rentals, with remaining terms of one year or more, at December 31, 2017, are as follows (in millions):

	Operating leases
2018	$ 6
2019	5
2020	3
2021	3
2022	3
Thereafter	8
Future minimum lease payments	$28

At December 31, 2017, the Reserve Banks had unrecorded unconditional purchase commitments and long-term obligations extending through the year 2022 with a remaining fixed commitment of $143 million. Purchases of $37 million and $26 million were made against these commitments during 2017 and 2016, respectively. These commitments represent maintenance of currency processing machines and have variable and/or fixed components. The variable portion of the commitments is for additional services above the fixed contractual service limits. The fixed payments for the next five years under these commitments are as follows (in millions):

2018	$ 6
2019	43
2020	40
2021	27
2022	27

The Reserve Banks are involved in certain legal actions and claims arising in the ordinary course of business. Although it is difficult to predict the ultimate outcome of these actions, in management's opinion, based on discussions with counsel, the legal actions and claims will be resolved without material adverse effect on the financial position or results of operations of the Reserve Banks.

(9) Retirement and Thrift Plans

Retirement Plans

The Reserve Banks currently offers three defined benefit retirement plans to its employees, based on length of service and level of compensation. Substantially all of the employees of the Reserve Banks, Board of Governors, and Office of Employee Benefits of the Federal Reserve System (OEB) participate in the Retirement Plan for Employees of the Federal Reserve System (System Plan).[1] Under the

[1] The OEB was established by the System to administer selected System benefit plans.

Dodd-Frank Act, newly hired Bureau employees are eligible to participate in the System Plan and, during the years ended December 31, 2017 and 2016, certain costs associated with the System Plan were reimbursed by the Bureau. In addition, employees at certain compensation levels participate in the Benefit Equalization Retirement Plan (BEP) and certain Reserve Bank officers participate in the Supplemental Retirement Plan for Select Officers of the Federal Reserve Banks (SERP).

The FRBNY, on behalf of the System, recognizes the net asset or net liability and costs associated with the System Plan in its consolidated financial statements. The net costs related to the System Plan, as well as the costs related to the BEP and SERP, are reported as a component of "Operating expenses: Net periodic pension expense" in the Combined Statements of Operations. Accrued pension benefit costs are reported as a component of "Prepaid pension benefit costs" if the funded status is a net asset or "Accrued benefit costs" if the funded status is a net liability in the Combined Statements of Condition.

Following is a reconciliation of the beginning and ending balances of the System Plan benefit obligation for the years ended December 31, 2017 and 2016 (in millions):

	2017	2016
Estimated actuarial present value of projected benefit obligation at January 1	$14,642	$13,270
Service cost-benefits earned during the period	486	475
Interest cost on projected benefit obligation	614	604
Actuarial loss	1,179	698
Contributions by plan participants	4	3
Special termination benefits	11	4
Benefits paid	(435)	(412)
Estimated actuarial present value of projected benefit obligation at December 31	$16,501	$14,642

In October 2017, the Society of Actuaries released new mortality tables (RP-2017), and mortality projection scales (MP-2017). The System analyzed each of these updates to the mortality tables and compared them to the System's actual retiree mortality experience. Based on these analyses, the System adopted modified RP-2017 mortality tables and adjusted MP-2017 projection scales reflecting the System's recent mortality experience of System retirees through 2016. The adjusted tables and scales resulted in an estimated net decrease of the System Plan projected benefit obligation of approximately $70 million in 2017 and no mortality assumptions adjustments were made in 2016.

Following is a reconciliation showing the beginning and ending balance of the System Plan assets, the funded status, and the accrued pension benefit costs for the years ended December 31, 2017 and 2016 (in millions):

	2017	2016
Estimated plan assets at January 1 (of which $13,671 and $12,477 is measured at fair value as of January 1, 2017 and 2016, respectively)	$13,699	$12,500
Actual return on plan assets	2,497	992
Contributions by the employer	750	616
Contributions by plan participants	4	3
Benefits paid	(435)	(412)
Estimated plan assets at December 31 (of which $16,454 and $13,671 is measured at fair value as of December 31, 2017 and 2016, respectively)	$16,515	$13,699
Funded status and accrued pension benefit costs	$ 14	$ (943)
Amounts included in accumulated other comprehensive loss are shown below:		
Prior service cost	$ (82)	$ (170)
Net actuarial loss	(3,045)	(3,674)
Total accumulated other comprehensive loss	$ (3,127)	$ (3,844)

The FRBNY, on behalf of the System, funded $720 million and $580 million during the years ended December 31, 2017 and 2016, respectively. The Bureau is required by the Dodd-Frank Act to fund the System plan for each Bureau employee based on an established formula. During the years ended December 31, 2017 and 2016, the FRBNY received contributions from the Bureau of $30 million and $36 million, respectively.

The accumulated benefit obligation for the System Plan, which differs from the estimated actuarial present value of projected benefit obligation because it is based on current rather than future compensation levels, was $14,376 million and $12,869 million at December 31, 2017 and 2016, respectively.

The weighted-average assumptions used in developing the accumulated pension benefit obligation for the System Plan as of December 31 were as follows:

	2017	2016
Discount rate	3.65%	4.15%
Rate of compensation increase	4.00%	4.00%

Net periodic benefit expenses for the years ended December 31, 2017 and 2016 were actuarially determined using a January 1 measurement date. The weighted-average assumptions used in developing net periodic benefit expenses for the System Plan for the years were as follows:

	2017	2016
Discount rate	4.15%	4.42%
Expected asset return	6.50%	6.75%
Rate of compensation increase	4.00%	4.00%

Discount rates reflect yields available on high-quality corporate bonds that would generate the cash flows necessary to pay the System Plan's benefits when due. The expected long-term rate of return on assets is an estimate that is based on a combination of factors, including the System Plan's asset allocation strategy and historical returns; surveys of expected rates of return for various asset classes; and a pro-

jected return for equities and fixed income investments based on real interest rates, inflation expectations, and equity risk premiums.

The components of net periodic pension benefit expense (credit) for the System Plan for the years ended December 31, 2017 and 2016 are shown below (in millions):

	2017	2016
Service cost - benefits earned during the period	$ 486	$ 475
Interest cost on projected benefit obligation	614	604
Amortization of prior service cost	88	93
Amortization of net loss	209	211
Expected return on plan assets	(899)	(847)
Net periodic pension benefit expense	498	536
Special termination benefits	11	4
Bureau of Consumer Financial Protection contributions	(30)	(36)
Total periodic pension benefit expense	$ 479	$ 504

Estimated amounts that will be amortized from accumulated other comprehensive loss into net periodic pension benefit expense in 2018 are shown below (in millions):

Prior service cost	$ 62
Net actuarial loss	138
Total	$200

The recognition of special termination benefits is primarily the result of enhanced retirement benefits provided to employees in the normal course of business. Following is a summary of expected benefit payments, excluding enhanced retirement benefits (in millions):

2018	$ 504
2019	538
2020	576
2021	612
2022	651
2023 - 2027	3,831
Total	$6,712

The System's Committee on Plan Administration is responsible for oversight of the operations of the Retirement Plan, which includes the Retirement Plan trust and for determining the amounts necessary to maintain the Retirement Plan on an actuarially sound basis and the amounts that employers must contribute to pay the expenses of OEB and the Retirement Plan.

The System's Committee on Investment Performance (CIP) is responsible for establishing investment policies, selecting investment managers, and monitoring the investment managers' compliance with its policies. At December 31, 2017, the System Plan's assets were held in 25 investment vehicles: 5 actively-managed long-duration fixed income portfolios, a passively-managed long-duration fixed income portfolio, an indexed U.S. equity fund, an indexed non-U.S. developed-markets equity fund, an indexed emerging-markets equity fund, 4 private equity limited partnerships, a private equity separate account, 4 core real estate funds, 6 real estate limited partnerships, and a money market fund.

The diversification of the System Plan's investments is designed to limit concentration of risk and the risk of loss related to an individual asset class. The three actively-managed long-duration fixed income portfolios are separate accounts benchmarked to a custom benchmark of 55 percent Barclays Long Credit Index and 45 percent of either Bloomberg, Barclays, or Citigroup 15+ years U.S. Treasury STRIPS Index. This custom benchmark was selected as a proxy to match the liabilities of the Plan and the guidelines for these portfolios are designed to limit portfolio deviations from the benchmark. The passively-managed long-duration fixed-income portfolio is invested in 2 commingled funds and is benchmarked to 55 percent Barclays Long Credit Index and 45 percent Barclays 20+ STRIPS Index. The indexed U.S. equity fund is intended to track the overall U.S. equity market across market capitalizations and is benchmarked to the CRSP U.S. Total Market Index. The indexed non-U.S. developed-markets equity fund is intended to track the Morgan Stanley Capital International (MSCI) World ex-US Investible Markets Index (IMI), which includes stocks from 22 markets deemed by MSCI to be "developed markets." The indexed emerging-markets equity fund is intended to track the MSCI Emerging Markets IMI Index, which includes stocks from 24 markets deemed by MSCI to be "emerging markets." The 3 indexed equity funds include stocks from across the market capitalization spectrum (i.e., large-, mid- and small-cap stocks). The 4 private equity limited partnerships invest globally across various private equity strategies and the private equity separate account invests in various private equity investments globally across various strategies. The private equity separate account invests in various private equity funds (both primary and secondary interests) and coinvestment opportunities globally in private companies and targets returns in excess of public markets over a complete market cycle. The 4 core real estate funds invest in high quality, well leased, low leverage commercial real estate throughout the U.S. The 6 real estate limited partnerships invest in non-core U.S. and international commercial real estate including development and repositioning of assets. Finally, the money market fund, which invests in short term Treasury and agency debt and repurchase agreements backed by Treasury and agency debt, is the repository for cash balances and adheres to a constant dollar methodology.

Permitted and prohibited investments, including the use of derivatives, are defined in either the trust agreement (for the passively-managed long-duration fixed income portfolio) or the investment guidelines (for the remaining investments). The CIP reviews the trust agreement and approves all investment guidelines as part of the selection of each investment to ensure that they are consistent with the CIP's investment objectives for the System Plan's assets.

The System Plan's policy weight and actual asset allocations at December 31, 2017 and 2016 by asset category, are as follows:

	2017 Policy weight	Actual asset allocations	
		2017	2016
Fixed income	50.0%	48.6%	48.9%
U.S. equities	22.0%	22.8%	24.6%
International equities	15.6%	16.0%	16.3%
Emerging markets equities	5.0%	5.1%	4.7%
Private equity	3.7%	3.6%	2.4%
Real estate	3.7%	2.9%	2.6%
Cash	0.0%	1.0%	0.5%
Total	100.0%	100.0%	100.0%

Employer contributions to the System Plan may be determined using different assumptions than those required for financial reporting. The System Plan's anticipated funding level for 2018 is $240 million. In 2018, the FRBNY plans to make monthly contributions of $20 million and will reevaluate the monthly contributions upon completion of the 2018 actuarial valuation. The Reserve Banks' projected benefit obligation, funded status, and net pension expenses for the BEP and the SERP at December 31, 2017 and 2016, and for the years then ended, were immaterial.

Determination of Fair Value

The System Plan's publicly available investments are valued on the basis of the last available bid prices or current market quotations provided by dealers, or pricing services. To determine the value of a particular investment, pricing services may use information on transactions in such investments, quotations from dealers, pricing metrics, market transactions in comparable investments, relationships observed in the market between investments, and calculated yield measures based on valuation methodologies commonly employed in the market for such investments.

Collective trust funds are valued using the net asset value, calculated daily, based on the fair value of the underlying investments. Private equity and real estate investments are valued using the net asset value, as a practical expedient, which is based on the fair value of the underlying investments. The net asset value is adjusted for contributions, distributions, and both realized and unrealized gains and losses incurred during the period. The realized and unrealized gains and losses are based on reported valuation changes.

Because of the uncertainty inherent in determining the fair value of investments that do not have a readily available fair value, the fair value of these investments may differ significantly from the values that would have been reported if a readily available fair value had existed for these investments and may differ materially from the values that may ultimately be realized.

The following tables present the financial instruments recorded at fair value as of December 31, 2017 and 2016 by ASC 820 hierarchy (in millions):

Description	2017			
	Level 1	Level 2	Level 3	Total [1]
Short-term investments	$ 226	$ -	$ -	$ 226
Treasury and Federal agency securities	87	2,785	-	2,872
Corporate bonds	-	3,072	-	3,072
Other fixed income securities	-	381	-	381
Collective trusts	8,838	-	-	8,838
Investments measured at net asset value[2]	-	-	-	1,062
Total investments at fair value[3]	$9,151	$6,238	$ -	$16,451

[1] There were no transfers between Levels during the year ended December 31, 2017.

[2] Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been categorized in the fair value hierarchy.

[3] In addition to total investments, the System Plan holds future margin receivable of $4 million and future margin payable of $1 million at December 31, 2017.

Description	2016			
	Level 1	Level 2	Level 3	Total [1]
Short-term investments	$ 101	$ -	$ -	$ 101
Treasury and Federal agency securities	40	2,232	-	2,272
Corporate bonds	-	2,469	-	2,469
Other fixed income securities	-	353	-	353
Collective trusts	7,749	-	-	7,749
Investments measured at net asset value[2]	-	-	-	724
Total investments at fair value[3]	$7,890	$5,054	$ -	$13,668

[1] There were no transfers between Level 1 and Level 2 and no material transfers between Level 2 and 3 during the year ended December 31, 2016.

[2] Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been categorized in the fair value hierarchy.

[3] In addition to total investments at fair value, the System Plan holds future margin receivable of $1 million and future margin payables of $2 million at December 31, 2016.

The System Plan enters into futures contracts, traded on regulated exchanges, to manage certain risks and to maintain appropriate market exposure in meeting the investment objectives of the System Plan. The System Plan bears the market risk that arises from any unfavorable changes in the value of the securities or indexes underlying these futures contracts. The use of futures contracts involves, to varying degrees, elements of market risk in excess of the amount recorded in the Combined Statements of Condition. The guidelines established by the CIP further reduce risk by limiting the net futures positions, for most fund managers, to 15 percent of the market value of the advisor's portfolio.

At December 31, 2017 and 2016, a portion of short-term investments was available for futures trading. There were $7 million of Treasury securities pledged as collateral for both years ended December 31, 2017 and 2016.

Thrift Plan

Employees of the Reserve Banks participate in the defined contribution Thrift Plan for Employees of the Federal Reserve System (Thrift Plan). The Reserve Banks match 100 percent of the first 6 percent of employee contributions from the

date of hire and provides an automatic employer contribution of 1 percent of eligible pay. The Reserve Banks' Thrift Plan contributions totaled $136 million and $129 million for the years ended December 31, 2017 and 2016, respectively, and are reported as a component of "Operating expenses: Salaries and benefits" in the Combined Statements of Operations.

(10) Postretirement Benefits other than Retirement Plans and Postemployment Benefits

Postretirement Benefits Other Than Retirement Plans

In addition to the Reserve Banks' retirement plans, employees who have met certain age and length-of-service requirements are eligible for both medical and life insurance benefits during retirement.

The Reserve Banks and plan participants fund benefits payable under the medical and life insurance plans as due and the plans have no assets.

Following is a reconciliation of the beginning and ending balances of the benefit obligation for the years ended December 31, 2017 and 2016 (in millions):

	2017	2016
Accumulated postretirement benefit obligation at January 1	$1,751	$1,744
Service cost benefits earned during the period	75	72
Interest cost on accumulated benefit obligation	70	75
Net actuarial loss	48	86
Curtailment gain	-	(8)
Special termination benefits loss	-	1
Contributions by plan participants	26	27
Benefits paid	(103)	(104)
Medicare Part D subsidies	2	5
Plan amendments	(4)	(147)
Accumulated postretirement benefit obligation at December 31	$1,865	$1,751

At December 31, 2017 and 2016, the weighted-average discount rate assumptions used in developing the postretirement benefit obligation were 3.59 percent and 4.07 percent, respectively.

Discount rates reflect yields available on high-quality corporate bonds that would generate the cash flows necessary to pay the plan's benefits when due. The System Plan discount rate assumption setting convention uses an unrounded rate.

Following is a reconciliation of the beginning and ending balance of the plan assets, and the unfunded postretirement benefit obligation and accrued postretirement benefit costs for the years ended December 31, 2017 and 2016 (in millions):

	2017	2016
Fair value of plan assets at January 1	$ -	$ -
Contributions by the employer	75	72
Contributions by plan participants	26	27
Benefits paid	(103)	(104)
Medicare Part D subsidies	2	5
Fair value of plan assets at December 31	$ -	$ -
Unfunded obligation and accrued postretirement benefit cost	$1,865	$1,751
Amounts included in accumulated other comprehensive loss are shown below:		
Prior service cost	$ 128	$ 158
Net actuarial loss	(336)	(300)
Deferred curtailment gain	1	1
Total accumulated other comprehensive loss	$ (207)	$ (141)

Accrued postretirement benefit costs are reported as a component of "Accrued benefit costs" in the Combined Statements of Condition.

For measurement purposes, the assumed health-care cost trend rates at December 31, 2017 and 2016 are provided in the table below:

	2017	2016
Health-care cost trend rate assumed for next year	6.20%	6.60%
Rate to which the cost trend rate is assumed to decline (the ultimate trend rate)	4.75%	4.75%
Year that the rate reaches the ultimate trend rate	2022	2022

Assumed health-care cost trend rates have a significant effect on the amounts reported for health-care plans. A one percentage point change in assumed health-care cost trend rates would have the following effects for the year ended December 31, 2017 (in millions):

	One percentage point increase	One percentage point decrease
Effect on aggregate of service and interest cost components of net periodic postretirement benefit costs	$ 29	$ (24)
Effect on accumulated postretirement benefit obligation	257	(216)

The following is a summary of the components of net periodic postretirement benefit expense for the years ended December 31, 2017 and 2016 (in millions):

	2017	2016
Service cost-benefits earned during the period	$ 75	$ 72
Interest cost on accumulated benefit obligation	70	75
Amortization of prior service cost	(33)	(9)
Amortization of net actuarial loss	11	5
Total periodic expense	123	143
Special termination benefits loss	-	1
Net periodic postretirement benefit expense	$123	$144

Estimated amounts that will be amortized from accumulated other comprehensive loss into net periodic postretirement benefit expense in 2018 are shown below:

Prior service cost	$(32)
Net actuarial loss	19
Total	$(13)

Net postretirement benefit costs are actuarially determined using a January 1 measurement date. At January 1, 2017 and 2016, the weighted-average discount rate assumptions used to determine net periodic postretirement benefit costs were 4.07 percent and 4.31 percent, respectively.

Net periodic postretirement benefit expense is reported as a component of "Operating expenses: Salaries and benefits" in the Combined Statements of Operations.

A curtailment gain was recorded in 2016 related to the employees who transferred employment from the Federal Reserve Bank of Minneapolis to the Federal Reserve Bank of Atlanta. This curtailment gain is recorded to accumulated other comprehensive loss and offsets previously recorded actuarial losses.

The Medicare Prescription Drug, Improvement and Modernization Act of 2003 established a prescription drug benefit under Medicare (Medicare Part D) and a federal subsidy to sponsors of retiree health-care benefit plans that provide benefits that are at least actuarially equivalent to Medicare Part D. The benefits provided under the Reserve Banks' plan to certain participants are at least actuarially equivalent to the Medicare Part D prescription drug benefit. The estimated effects of the subsidy are reflected in the actuarial loss in the accumulated postretirement benefit obligation and net periodic postretirement benefit expense.

During 2016, the Reserve Banks adopted an amendment to their health benefits program that added a Medicare Advantage and Prescription Drug (MAPD) plan to the program effective January 1, 2017. The MAPD plan is a fully insured product that combines into one integrated benefit Medicare and Medicare Supplement coverages, as well as prescription drug coverage. The plan amendment resulted in a change in the Reserve Banks' accumulated postretirement benefit obligation in the amount of $155 million as of December 31, 2016 with an equivalent change in the prior service component of accumulated other comprehensive income.

Federal Medicare Part D subsidy receipts were $2 million and $5 million in the years ended December 31, 2017 and 2016, respectively. Expected receipts in 2018, related to benefits paid in both the years ended December 31, 2017 and 2016, are $0.3 million, respectively.

Following is a summary of expected postretirement benefit payments (in millions):

	Without subsidy	With subsidy
2018	$ 78	$ 77
2019	83	81
2020	87	85
2021	91	89
2022	95	93
2023 - 2027	549	537
Total	$983	$962

Postemployment Benefits

The Reserve Banks offer benefits to former qualifying or inactive employees. Postemployment benefit costs are actuarially determined using a December 31 measurement date and include the cost of providing disability; medical, dental, and vision insurance; and survivor income benefits. The accrued postemployment benefit costs recognized by the Reserve Banks at December 31, 2017 and 2016 were $131 million and $136 million, respectively. This cost is included as a component of "Accrued benefit costs" in the Combined Statements of Condition. Net periodic postemployment benefit expense included in 2017 and 2016 operating expenses were $13 million and $9 million, respectively, and are recorded as a component of "Operating expenses: Salaries and benefits" in the Combined Statements of Operations.

(11) Accumulated Other Comprehensive Income and Other Comprehensive Income

Following is a reconciliation of beginning and ending balances of accumulated other comprehensive income (loss) as of December 31, 2017 and 2016 (in millions):

	2017			2016		
	Amount related to defined benefit retirement plan	Amount related to postretirement benefits other than retirement plans	Total accumulated other comprehensive income (loss)	Amount related to defined benefit retirement plan	Amount related to postretirement benefits other than retirement plans	Total accumulated other comprehensive income (loss)
Balance at January 1	$(3,844)	$(141)	$(3,985)	$(3,596)	$(206)	$(3,802)
Change in funded status of benefit plans:						
Prior service costs arising during the year	-	4	4	-	147	147
Amortization of prior service cost	88[1]	(33)[2]	55	93[1]	(9)[2]	84
Change in prior service costs related to benefit plans	88	(29)	59	93	138	231
Net actuarial gain (loss) arising during the year	420	(48)	372	(552)	(86)	(638)
Curtailment effect actuarial gain	-		-	-	8	8
Amortization of net actuarial loss	209[1]	11[2]	220	211[1]	5[2]	216
Change in actuarial gain (loss) related to benefit plans	629	(37)	592	(341)	(73)	(414)
Change in funded status of benefit plans—other comprehensive income (loss)	717	(66)	651	(248)	65	(183)
Balance at December 31	$(3,127)	$(207)	$(3,334)	$(3,844)	$(141)	$(3,985)

[1] Reclassification is reported as a component of "Operating expenses: Net periodic pension expense" in the Combined Statements of Operations.

[2] Reclassification is reported as a component of "Operating expenses: Salaries and benefits" in the Combined Statements of Operations.

Additional detail regarding the classification of accumulated other comprehensive loss is included in Note 9 and 10.

(12) Reconciliation of Total Distribution of Comprehensive Income

In accordance with the Federal Reserve Act, the Reserve Banks remit excess earnings to the Treasury after providing for the cost of operations, payment of dividends, and reservation of an amount necessary to maintain surplus at the $10 billion aggregate surplus limitation. The following table presents the distribution of

the System total comprehensive income for the years ended December 31, 2017 and 2016 (in millions):

	2017	2016
Net income before providing for remittances to Treasury	$80,692	$92,361
Other comprehensive income (loss)	651	(183)
Comprehensive income - available for distribution	$81,343	$92,178
Distribution of comprehensive income (loss):		
Dividends	784	711
Earnings remittances to the Treasury	80,559	91,467
Total distribution of comprehensive income	$81,343	$92,178

(13) Subsequent Events

The following subsequent event took place after the balance sheet date but was not present at the balance sheet date. In accordance with FASB ASC Topic 855 *Subsequent Events*, the Reserve Banks' 2017 financial statements were not updated for the impact of this event.

Effective February 9, 2018, the Bipartisan Budget Act of 2018 (Budget Act) reduced the statutory limit on aggregate Reserve Bank surplus from $10 billion to $7.5 billion, which required the Reserve Banks to make a lump-sum payment to the Treasury in the amount of $2.5 billion. The payment was remitted to the Treasury on February 22, 2018. Reserve Bank surplus is allocated among Reserve Banks as described in Note 3(o).

There were no other subsequent events that required adjustments to or disclosures in the consolidated financial statements as of December 31, 2017. Subsequent events were evaluated through March 8, 2018, which is the date that the consolidated financial statements were available to be issued.

Office of Inspector General Activities

The Office of Inspector General (OIG) for the Federal Reserve Board, which is also the OIG for the Consumer Financial Protection Bureau (CFPB), operates in accordance with the Inspector General Act of 1978, as amended. The OIG conducts activities and makes recommendations to promote economy and efficiency; enhance policies and procedures; and prevent and detect waste, fraud, and abuse in Board programs and operations, including functions that the Board has delegated to the Federal Reserve Banks. Accordingly, the OIG plans and conducts audits, inspections, evaluations, investigations, and other reviews relating to Board and Board-delegated programs and operations. It also retains an independent public accounting firm to annually audit the Board's and the Federal Financial Institutions Examination Council's financial statements. In addition, the OIG keeps the Congress and the Board of Governors fully informed about serious abuses and deficiencies.

During 2017, the OIG issued 23 reports (table 1) to the Board and the CFPB and conducted a number of follow-up reviews to evaluate action taken on prior recommendations. Due to the sensitive nature of some of the material, two of the reports were only issued internally to the CFPB, as indicated. Regarding the OIG's investigative work related to the Board and the CFPB, 32 investigations were opened and 43 investigations were closed during the year. OIG investigative work resulted in 8 arrests, 11 indictments, and 13 convictions, as well as $17,086,288 in criminal fines, restitution, and special assessments. The OIG also issued its listings of major management challenges facing the Board and the CFPB. Further, the OIG issued two semiannual reports to Congress and performed approximately 35 reviews of legislation and regulations related to the operations of the Board, the CFPB, or the OIG.

For more information and to view OIG reports, visit the OIG's website at https://oig.federalreserve.gov. Specific details about the OIG's body of work also may be found in the OIG's *Work Plan* and semiannual reports to Congress.

Table 1. OIG reports issued in 2017

Report title	Month issued
Fiscal Year 2016 Risk Assessment of the CFPB's Purchase Card Program	February
Fiscal Year 2016 Risk Assessment of the CFPB's Travel Card Program	February
Federal Financial Institutions Examination Council Financial Statements as of and for the Years Ended December 31, 2016 and 2015, and Independent Auditors' Reports	March
Board of Governors of the Federal Reserve System Financial Statements as of and for the Years Ended December 31, 2016 and 2015, and Independent Auditors' Reports	March
The Board Can Improve Documentation of Office of Foreign Assets Control Examinations	March
The CFPB Can Strengthen Its Controls for Identifying and Avoiding Conflicts of Interest Related to Vendor Activities	March
The Board Can Improve the Effectiveness of Continuous Monitoring as a Supervisory Tool	March
The CFPB's Civil Penalty Fund Is in Compliance with the Improper Payments Information Act of 2002, as Amended	March
The CFPB Can Strengthen Contract Award Controls and Administrative Processes	March
Security Control Review of the CFPB's Active Directory Implementation (internal report)	April
The Board Can Enhance Its Cybersecurity Supervision Approach in the Areas of Third-Party Service Provider Oversight, Resource Management, and Information Sharing	April
The CFPB Can Improve Its Practices to Safeguard the Office of Enforcement's Confidential Investigative Information	May
Security Control Review of the CFPB's Public Website (internal report)	May
The Board Can Improve Communication and Documentation Regarding the Martin Building Project	May
The Board Can Strengthen Its Guidance and Planning Efforts for Future Evaluations of the Law Enforcement Unit	August
The CFPB Can Enhance the Effectiveness of Its Examiner Commissioning Program and On-the-Job Training Program	September
The CFPB Generally Complies with Requirements for Issuing Civil Investigative Demands but Can Improve Certain Guidance and Centralize Recordkeeping	September
The CFPB Can Improve Its Examination Workpaper Documentation Practices	September
The CFPB Met DATA Act Submission Requirements	October
2017 Audit of the Board's Information Security Program	October
2017 Audit of the CFPB's Information Security Program	October
Leadership and Management Best Practices to Increase Employee Willingness to Share Views	November
The Board's Organizational Governance System Can Be Strengthened	December

Government Accountability Office Reviews

The Federal Banking Agency Audit Act (Pub. L. No. 95–320) authorizes the Government Accountability Office (GAO) to audit certain aspects of Federal Reserve System operations. The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act) directs the GAO to conduct additional audits with respect to these operations. In 2017, the GAO completed 10 projects that involved the Federal Reserve (table 1). Eighteen projects were ongoing as of December 31, 2017 (table 2).

Table 1. Reports completed during 2017

Report title	Report number	Month issued (2017)
Federal Housing Administration: Capital Requirements and Stress Testing Practices Need Strengthening	GAO-18-92	December
Large Bank Supervision: Improved Implementation of Federal Reserve Policies Could Help Mitigate Threats to Independence	GAO-18-118	December
Financial Audit: Bureau of the Fiscal Service's Fiscal Years 2017 and 2016 Schedules of Federal Debt	GAO-18-134	November
Financial Regulation: Perspectives on the Swaps Push-Out Rule	GAO-17-607	September
Investment Management: Key Practices Could Provide More Options for Federal Entities and Opportunities for Minority- and Women-Owned Asset Managers	GAO-17-726	September
Anti-Money Laundering: U.S. Efforts to Combat Narcotics-Related Money Laundering in the Western Hemisphere	GAO-17-684	September
Management Report: Areas for Improvement in the Federal Reserve Banks' Information Systems Controls	GAO-17-537R	May
Financial Technology: Information on Subsectors and Regulatory Oversight	GAO-17-361	April
Federal Reserve System: Potential Implications of Modifying the Capital Surplus Account and Stock Ownership Requirement	GAO-17-243	February
Retirement Security: Improved Guidance Could Help Account Owners Understand the Risks of Investing in Unconventional Assets	GAO-17-102	January

Table 2. Projects active at year-end 2017

Subject of project	Month initiated	Status
Community Reinvestment Act	September 2015	Closed 3/16/2018
Impact of regulations on community banks and credit unions	April 2016	Closed 2/27/2018
Branch closings along the Southwest border	May 2016	Closed 2/26/2018
Impact of de-risking on U.S. remittances to fragile countries	September 2016	Closed 3/8/2018
Alternative payment technologies	October 2016	Closed 3/22/2018
Impact of de-risking on money transmitters	October 2016	Open
Effect of regulations on community banks and credit unions	December 2016	Open
Dodd-Frank mandated report on financial services regulations	February 2017	Closed 1/30/2018
Heightened risk in commercial real estate lending	March 2017	Closed 3/15/2018
Puerto Rico debt	March 2017	Open
Bank regulatory oversight	April 2017	Open
Bureau of Engraving and Printing facility planning	May 2017	Open
FOIA compliance	June 2017	Open
Bankruptcy resolution of large bank holding companies	August 2017	Open
SBA 7(a) Loan Program Credit Unavailable Elsewhere Requirement	August 2017	Open
Tax-time financial products	August 2017	Open
Equity-building in homeownership	September 2017	Open
Financial technology and marketplace lending	October 2017	Open

13 Federal Reserve System Budgets

The Federal Reserve Board of Governors and the Federal Reserve Banks prepare annual budgets as part of their efforts to ensure appropriate stewardship and accountability.[1] This section presents information on the 2017 budget performance of the Board and Reserve Banks and on their 2018 budgets, budgeting processes, and trends in expenses and employment. This section also presents information on the costs of new currency.

[1] Before 2013, information about the budgeted expenses of the Board and Reserve Banks was presented in a separate report titled *Annual Report: Budget Review*. Copies of that report are available at www.federalreserve.gov/publications/budget-review/default.htm.

Each budget covers one calendar year.

System Budgets Overview

Tables 1 and 2 summarize the Federal Reserve Board of Governors' and Federal Reserve Banks' 2017 budgeted and actual and 2018 budgeted operating expenses and employment.[2]

[2] Substantially all employees of the Board and Reserve Banks participate in the Retirement Plan for Employees of the Federal Reserve System (System Plan). Reserve Bank employees at certain compensation levels participate in the Benefit Equalization Plan, and certain Reserve Bank officers participate in the Supplemental Retirement Plan for Select Officers of the Reserve Banks. The operating expenses of the Reserve Banks presented in this section do not include expenses related to the retirement plans; however, the 2017 claims for reimbursement include the allocated portion of the pension. Additional information about these expenses can be found in section 11, "Statistical Tables"

Table 1. Total operating expenses of the Federal Reserve System, net of receipts and claims for reimbursement, 2017–18

Millions of dollars, except as noted

Item	2017 budget	2017 actual	Variance 2017 actual to 2017 budget		2018 budget	Variance 2018 budget to 2017 actual	
			Amount	Percent		Amount	Percent
Board	744.6	707.8	-36.7	-4.9	766.7	58.9	8.3
Office of Inspector General	34.3	33.8	-0.4	-1.2	35.9	2.1	6.2
Reserve Banks[1]	4,312.4	4,209.0	-103.5	-2.4	4,451.3	242.4	5.8
Currency	726.0	723.3	-2.7	-0.4	861.7	138.5	19.1
Total System operating expenses[2]	5,817.3	5,673.9	-143.4	-2.5	6,115.7	441.8	7.8
Revenue from priced services	439.4	441.6	2.2	0.5	441.7	0.1	0.0
Claims for reimbursement[3]	677.3	698.2	20.9	3.1	668.2	-30.0	-4.3
Other income[4]	2.5	2.6	0.1	3.7	2.5	-0.1	-3.5
Revenue and claims for reimbursement[5]	1,119.2	1,142.4	23.2	2.1	1,112.4	-30.0	-2.6
Total System operating expenses, net of revenue and claims for reimbursement	**4,698.1**	**4,531.5**	**-166.6**	**-3.5**	**5,003.3**	**471.7**	**10.4**

Note: Here and in subsequent tables, components may not sum to totals and may not yield percentages shown because of rounding.

1 Excludes Reserve Bank capital expenditures as well as assessments by the Board of Governors for costs related to currency and the operations of the Board of Governors, Office of Inspector General, and the Consumer Financial Protection Bureau (CFPB).

2 Includes total operating expenses of the Federal Reserve Information Technology (FRIT) support function and the System's Office of Employee Benefits (OEB), the majority of which are in the Reserve Banks.

3 Reimbursable claims include the expenses of fiscal agency. In 2017 actual, the fiscal agency allocated portion of the pension is also included but is not included for the budget.

4 Fees that depository institutions pay for the settlement component of the Fedwire Securities Service transactions for Treasury securities transfers.

5 Excludes annual assessments for the supervision of large financial companies pursuant to Regulation TT, which are not recognized as revenue or used to fund Board expenses. (See section 4, "Supervision and Regulation," for more information.)

Table 2. Employment in the Federal Reserve System, 2017–18

Item	2017 budget	2017 actual	Variance 2017 actual to 2017 budget		2018 budget	Variance 2018 budget to 2017 actual	
			Amount	Percent		Amount	Percent
Board[1]	2,847	2,847	0	0.0	2,847	0	0.0
Office of Inspector General[1]	132	132	0	0.0	132	0	0.0
Reserve Banks[2]	19,822	19,393	-429	-2.2	19,878	485	2.5
Total System employment	**22,801**	**22,372**	**-429**	**-1.9**	**22,857**	**485**	**2.2**

Note: Employment numbers presented include authorized position counts for the Board and average number of personnel (ANP) for the Reserve Banks. ANP is the average number of employees expressed in terms of full-time positions for the period and includes outside agency help.

[1] Budget represents authorized position count at the beginning of the year and actual represents authorized position count at year-end.

[2] Includes employment of the FRIT support function and the OEB.

2017 Budget Performance

In carrying out its responsibilities in 2017, the Federal Reserve System incurred $4,531.5 million in net expenses. Total System operating expenses of $5,673.9 million were offset by $1,142.4 million in revenue from priced services, claims for reimbursement, and other income. Total 2017 System operating expenses were $143.4 million, or 2.5 percent, less than the amount budgeted for 2017.

2018 Operating Expense Budget

Budgeted 2018 System operating expenses of $5,003.3 million, net of revenue and reimbursements, are $471.7 million, or 10.4 percent, higher than 2017 actual expenses. The Reserve Bank budgets comprise almost three-quarters of the System budget (figure 1). Budgeted 2018 revenue from priced services and claims for reimbursements are expected to slightly decrease in 2018.

Trends in Expenses and Employment

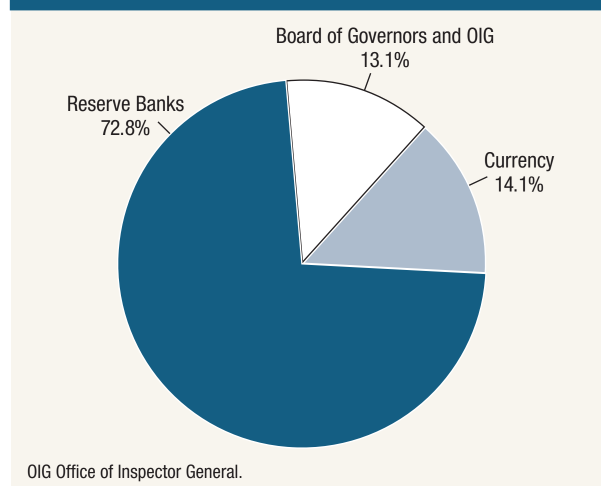
From the actual 2008 level to the budgeted 2018 amount, the total operating expenses of the Federal Reserve System have increased an average of 4.7 percent per year (figure 2). Over the same period, nondefense discretionary spending by the federal government has increased an average of 1.4 percent per year (figure 3). Federal Reserve System employment declined from 2007 through 2010 because of continued efforts to reduce the size of the System's check service and because of efficiency improvements in cash. Staffing has subsequently increased in information technology (IT) to support large application-development projects, information security efforts, end-user services, and the central computing environment. Supervision resource levels were augmented to meet requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) and to support portfolio growth (figure 4).

Growth in supervision expenses over the past 10 years has been driven by additional supervisory resources needed to respond to the financial crisis and a growth in the state member bank portfolio, to continue to implement expanded responsibilities mandated by the Dodd-Frank Act, to build out the cybersecurity supervision program, and to support

(see "Table 10. Income and expenses of the Federal Reserve Banks, by Bank").

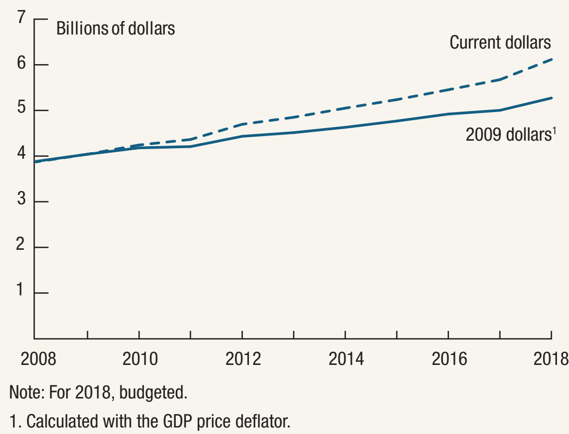
Board employees also participate in the Benefit Equalization Plan, and Board officers participate in the Pension Enhancement Plan for Officers of the Board of Governors of the Federal Reserve System (PEP). The operating expenses of the Board presented in this section include expenses related to Board participants in the Benefit Equalization Plan and PEP but do not include expenses related to the System Plan.

Figure 1. Distribution of budgeted expenses of the Federal Reserve System, 2018



OIG Office of Inspector General.

Figure 2. Total expenses of the Federal Reserve System, 2008–18



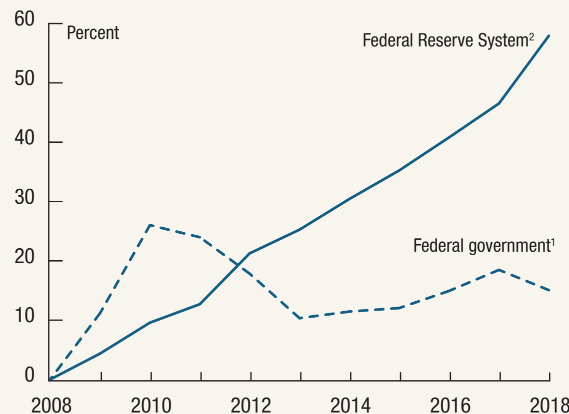
Note: For 2018, budgeted.

1. Calculated with the GDP price deflator.

other strategic national initiatives. Expense growth in the monetary policy area during the financial crisis has been followed by a focus on enhancing financial stability monitoring and dedicating additional resources to regional economic research.

Federal Reserve Bank expenses in the cash area have increased as a result of a multiyear effort to modernize the cash-processing and inventory-tracking infrastructure. These increases have been partially offset by lower expenses because of efficiency improvements in cash operations. Treasury services expenses

Figure 3. Cumulative change in Federal Reserve System expenses and federal government expenses, 2008–18

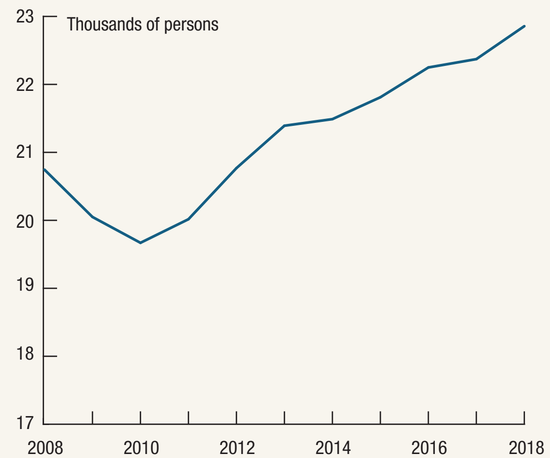


Note: For 2018, budgeted. Federal government expenses are reported on a fiscal-year basis beginning October 1; the Federal Reserve System expenses are reported on a calendar-year basis.

1. Discretionary spending less expenditures on defense. Source: Budget of the United States Government, Fiscal Year 2018: Historical Tables, Table 8.1. Outlays by Budget Enforcement Act Category, 1962–2021.

2. Includes expenses of the OIG.

Figure 4. Employment in the Federal Reserve System, 2008–18



Note: For 2018, budgeted. Employment numbers presented include position counts for the Board and average number of personnel (ANP) for the Reserve Banks.

have increased to meet evolving needs, including the automation of the Treasury's collection and payment services, the addition of Treasury applications to the Treasury Web Application Infrastructure (TWAI), and other requested projects.[3]

2018 Capital Budgets

The capital budgets for the Board and Reserve Banks total $158.0 million and $406.6 million, respectively.[4] As in previous years, the capital budgets in 2018 include funding for projects that support the strategic direction outlined by the Board and each Reserve Bank. These strategic goals emphasize investments that continue to improve operational efficiencies, enhance services to Bank customers, and ensure a safe and productive work environment.

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[3] TWAI is a dedicated, distributed computing environment that houses multiple Treasury applications.

In April 2014, the Treasury announced the consolidation of the fiscal agent services provided by the Federal Reserve Banks as part of its effort to increase operational efficiency and effectiveness. The Treasury anticipates long-term savings, once services are transitioned from 10 sites to 4 consolidated sites. As of year-end 2017, 12 of the 15 business line transitions had been completed.

[4] The capital budget reported for the Board includes single-year capital expenditures and 2018 expected capital expenditures from multiyear projects of the Board and the Office of Inspector General. The capital budget reported for the Reserve Banks includes the amounts budgeted for the Federal Reserve Information Technology support function and the Office of Employee Benefits.

Board of Governors Budgets

Board of Governors

The Board's budget is grounded in the principles established by the *Strategic Plan 2016–19* (www.federalreserve.gov/publications/gpra/files/2016-2019-gpra-strategic-plan.pdf)[5] and provides funding to advance the Plan's goals, objectives, and initiatives. The budget is structured by division, office, or special account.

The Board's budget process is as follows:

- At the start of the budget process, the chief operating officer and chief financial officer meet with the Committee on Board Affairs (CBA) to recommend a specific growth target for the Board's operating budget. For 2018, the recommended growth target included known changes in the run-rate of the Board's ongoing operations, such as funding for the Board's compensation and benefit programs; no net growth in authorized position count; projected increases to centrally managed benefits, such as retirement and post-retirement benefits; and targeted increases in select goods and services accounts. After endorsement by the CBA, the target is briefed to the Board members, and to the Executive Committee, which comprises the directors of each division.
- To achieve the CBA's growth target, divisions review their resource requirements, reallocate funding to support mission-critical activities and strategic priorities, and submit initial budget requests, including proposed initiatives and potential savings. Since the growth target for 2018 did not include any new authorized positions, divisions prioritized vacancies to their most critical needs.
- Division of Financial Management staff review initial budget requests submitted by divisions and work collaboratively with all divisions to achieve the growth target.
- The chief operating officer and chief financial officer subsequently meet with the Executive Committee and the CBA to further review and refine the budget submissions. Once the budget has been finalized, the administrative governor submits the budget to the full Board for review and final approval.
- Expenses are monitored throughout the year. Quarterly financial forecasts provide insights into budgetary pressures. Variances are analyzed and reported to senior management.[6]

Tables 3 and 4 summarize the Board's 2017 budgeted and actual expenses and its 2018 budgeted expenses by division, office, or special account and by account classification, respectively. Table 5 summarizes the Board's budgeted and actual authorized position count for 2017 and 2018. Table 6 summarizes the Board's budgeted and actual capital expenditures for 2017 and 2018. Each table includes a line item for the Office of Inspector General (OIG), which is discussed later in this section.

2017 Budget Performance

Total expenses for Board operations were $707.8 million, which was $36.7 million, or 4.9 percent, less than the approved 2017 budget of $744.6 million. The Board's 2017 single-year capital spending was less than budgeted by $2.7 million, or 19.6 percent, and multiyear capital projects remained within their project budgets with actual spending in 2017 less than budgeted by $14.5 million, or 24.9 percent.

Personnel services expenses were $16.4 million less than budgeted because of the hiring freeze, which caused higher-than-budgeted vacancy rates.[7] The underrun in personnel services was partially offset by an overrun in centrally managed benefits (e.g., retirement and post-retirement benefits), which was driven by changes in actuarial assumptions, including lower-than-planned discount rates and changes in other key actuarial assumptions.

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[5] *The Strategic Plan 2016–19*, which was approved by the Board in July 2015, continues the work of the *Strategic Framework 2012–15*. In addition to investing in ongoing operations, the Board is prioritizing investments and dedicating resources to six pillars over the 2016–19 period, which will allow the Board to advance its mission and respond to continuing and evolving challenges. The six pillars are: project development and resource allocation, workforce, physical infrastructure, technology, data, and public engagement and accountability.

[6] The Division of Financial Management has implemented an automated, multiyear budget development and forecasting system, which helps inform budget development, provides forecast information, and allows for greater comparability with Federal Reserve Bank information.

[7] On January 23, 2017, President Trump issued a memorandum ordering a freeze on the hiring of federal civilian employees "across the board in the executive branch," with only limited exceptions for national security and public safety. In keeping with past practice, the System complied with the spirit of the memorandum's provisions while allowing for the continued advancement of critical strategic priorities and the ability to meet the System's public service mission.

Table 3. Operating expenses of the Board of Governors, by division, office, or special account, 2017–18
Millions of dollars, except as noted

Division, office, or special account	2017 budget	2017 actual	Variance 2017 actual to 2017 budget		2018 budget	Variance 2018 budget to 2017 actual	
			Amount	Percent		Amount	Percent
Research and Statistics	80.1	77.3	-2.8	-3.5	85.0	7.7	9.9
International Finance	33.4	31.6	-1.8	-5.5	34.7	3.1	9.9
Monetary Affairs	41.1	39.2	-1.9	-4.6	43.4	4.2	10.8
Financial Stability	12.7	11.8	-0.9	-7.1	13.1	1.3	11.2
Supervision and Regulation	143.4	133.8	-9.6	-6.7	144.8	11.0	8.2
Consumer and Community Affairs	35.3	34.1	-1.1	-3.2	37.6	3.5	10.2
Reserve Bank Operations and Payment Systems	44.7	41.7	-3.0	-6.8	46.3	4.6	11.1
Board Members	28.4	26.3	-2.1	-7.2	28.5	2.2	8.3
Secretary	11.3	11.2	-0.1	-0.7	12.0	0.7	6.3
Legal	32.1	29.5	-2.6	-8.0	32.0	2.5	8.3
Chief Operating Officer	17.7	16.6	-1.1	-6.1	19.2	2.6	15.4
Financial Management	12.8	12.4	-0.4	-3.5	13.1	0.7	5.8
Information Technology	116.0	111.1	-4.9	-4.2	118.2	7.1	6.4
IT income	-48.3	-48.4	-0.1	0.1	-52.8	-4.4	9.1
Management	137.0	133.7	-3.3	-2.4	137.7	4.0	3.0
Special projects[1]	16.4	12.4	-4.0	-24.4	14.5	2.1	17.1
Extraordinary items: strategic projects[2]	16.1	15.2	-0.8	-5.3	20.9	5.6	37.0
Survey of Consumer Finances[3]	0.6	0.7	0.1	10.3	1.2	0.5	74.1
Centrally managed benefits[4]	13.9	17.5	3.7	26.4	17.4	-0.2	-0.9
Total, Board operations	**744.6**	**707.8**	**-36.7**	**-4.9**	**766.7**	**58.9**	**8.3**
Office of Inspector General	34.3	33.8	-0.4	-1.2	35.9	2.1	6.2

[1] Includes centralized Boardwide benefit programs.
[2] Includes several strategic projects, including the Martin Building renovation.
[3] Previously, the Survey of Consumer Finances was reported with extraordinary items.
[4] Includes retirement and post-retirement benefits, which fluctuate due to changes in actuarial assumptions and demographics.

Goods and services expenses were $20.3 million less than the budget. Lower-than-expected employment levels in 2017 contributed to underruns in several areas, particularly travel and relocation. In addition, underruns in goods and services were driven by lower utilization of contractual professional services, reduced telecommunications expenses and less professional service support for supervision projects, lower rentals and depreciation expenses because of delays in several major projects, and fewer data and software purchases.

2018 Operating Expense Budget

The 2018 budget for Board operations is $766.7 million, which is $58.9 million, or 8.3 percent, higher than 2017 actual expenses and 3.0 percent higher than the 2017 budget. The operating budget includes funding for the Board's ongoing operations and support for the six overarching pillars identified in the Board's *Strategic Plan 2016–19*.

The 2018 budget includes employment growth as hiring activities are expected to continue to normalize in 2018, funding for the Board's compensation and benefit programs, projected increases to centrally managed benefits (e.g., retirement and post-retirement benefits), and expenses related to preparing for the 2019 Survey of Consumer Finances. The budget allows for continued investments in strategic, high-priority projects in support of the Plan's pillars: project development and resource allocation, workforce, physical infrastructure, technology, data, and public engagement and accountability.

The Board's total authorized position count for 2018 remains unchanged at 2,847.

Risks in the 2018 Budget

The 2018 operating budget is built on the steps taken in recent years to better align budget requests with historic hiring trends and spending patterns, while

Table 4. Operating expenses of the Board of Governors, by account classification, 2017–18
Millions of dollars, except as noted

Account classification	2017 budget	2017 actual	Variance 2017 actual to 2017 budget		2018 budget	Variance 2018 budget to 2017 actual	
			Amount	Percent		Amount	Percent
Personnel services							
Salaries	433.9	416.6	-17.4	-4.0	449.8	33.2	8.0
Retirement/Thrift plans	56.5	52.3	-4.1	-7.3	61.7	9.4	17.9
Employee insurance and other benefits	42.3	40.0	-2.2	-5.3	42.8	2.8	6.9
Net periodic benefits costs[1]	0.0	7.3	7.3	n/a	n/a	n/a	n/a
Subtotal, personnel services	532.7	516.3	-16.4	-3.1	554.3	38.0	7.4
Goods and services							
Postage and shipping	0.4	0.2	-0.1	-37.6	0.3	0.0	9.4
Travel	17.5	13.3	-4.2	-24.0	17.1	3.8	28.7
Telecommunications	8.3	6.0	-2.3	-28.3	7.2	1.2	20.7
Printing and binding	2.2	1.8	-0.4	-18.4	1.8	0.0	1.7
Publications	0.6	0.5	-0.1	-15.4	0.6	0.0	7.4
Stationery and supplies	1.7	1.1	-0.5	-31.3	1.4	0.3	25.0
Software	17.1	15.8	-1.3	-7.9	17.0	1.2	7.6
Furniture and equipment (F&E)	11.1	10.9	-0.1	-1.2	6.3	-4.6	-42.0
Rentals	30.6	29.2	-1.3	-4.3	32.5	3.3	11.3
Data, news, and research	14.7	13.3	-1.4	-9.7	14.8	1.5	11.1
Utilities	2.8	2.3	-0.6	-20.1	2.3	0.0	0.9
Repairs and alterations—building	2.7	3.7	1.0	38.4	2.5	-1.2	-31.4
Repairs and maintenance—F&E	5.4	4.5	-0.9	-16.0	4.7	0.2	4.2
Contractual professional services	53.9	48.1	-5.8	-10.7	54.2	6.1	12.7
Interest	0.0	0.0	0.0	-3.9	0.0	0.0	-40.8
Training and dues	4.8	3.6	-1.2	-25.6	4.7	1.1	31.3
Subsidies and contributions	0.9	0.9	0.0	0.8	2.1	1.2	126.5
All other	3.6	3.1	-0.6	-16.1	4.0	0.9	30.6
Depreciation/amortization	40.3	38.7	-1.6	-3.9	43.2	4.5	11.6
IT user charge	47.5	47.6	0.1	0.2	52.2	4.7	9.8
IT income	-48.3	-48.4	-0.1	0.2	-52.8	-4.4	9.0
Income	-5.9	-4.7	1.2	-20.2	-3.8	0.9	-19.1
Subtotal, goods and services	211.9	191.5	-20.3	-9.6	212.4	20.9	10.9
Total, Board operations	**744.6**	**707.8**	**-36.7**	**-4.9**	**766.7**	**58.9**	**8.3**
Office of Inspector General							
Personnel services	25.8	25.7	-0.1	-0.4%	27.7	2.0	7.8
Goods and services	8.5	8.2	-0.3	-3.8%	8.3	0.1	1.0
Total, OIG operations	**34.3**	**33.8**	**-0.4**	**-1.2%**	**35.9**	**2.1**	**6.2**

n/a Not applicable.

[1] Account was established after the approval of the 2018 budget to track net periodic benefits costs other than services costs related to pension and post-retirement benefits.

ensuring the funding of the Board's highest priorities. Meeting the approved growth targets required all divisions to make tradeoffs and prioritize resources to fund mission-critical activities for 2018.

Staff from the Division of Financial Management will work closely with all divisions throughout the year to mitigate potential budget overruns by closely monitoring spending. Building improvements projects will continue to be an area of focus, from both a budget and project management perspective, given their size, complexity, and strategic importance.

2018 Capital Budgets

The Board's 2018 single-year capital budget totals $17.3 million, which is $6.1 million higher than 2017 actual capital expenditures and $3.3 million higher than the 2017 budget. The increase is primarily

Table 5. Positions authorized by the Board of Governors, by division, office, or special account, 2017–18

Division, office, or special account	2017 budget[1]	2017 actual	Variance 2017 actual to 2017 budget		2018 budget	Variance 2018 budget to 2017 actual	
			Amount	Percent		Amount	Percent
Research and Statistics	356	356	0	0.0	356	0	0.0
International Finance	154	155	1	0.6	155	0	0.0
Monetary Affairs	172	172	0	0.0	172	0	0.0
Financial Stability	55	55	0	0.0	55	0	0.0
Supervision and Regulation	493	493	0	0.0	493	0	0.0
Consumer and Community Affairs	131	131	0	0.0	131	0	0.0
Reserve Bank Operations and Payment Systems	183	183	0	0.0	183	0	0.0
Board Members	121	121	0	0.0	121	0	0.0
Secretary	53	53	0	0.0	53	0	0.0
Legal	125	125	0	0.0	125	0	0.0
Chief Operating Officer	68	67	-1	-1.5	67	0	0.0
Financial Management	68	69	1	1.5	69	0	0.0
Information Technology	413	412	-1	-0.2	413	1	0.2
Management	455	455	0	0.0	454	-1	-0.2
Total, Board operations	**2,847**	**2,847**	**0**	**0.0**	**2,847**	**0**	**0.0**
Office of Inspector General	132	132	0	0.0	132	0	0.0

[1] Budget represents authorized position count at the beginning of the year, and actual represents authorized position count at year-end.

driven by planned equipment replacements in the data center and the continuation of pre-design efforts for the Eccles Building.

The Board's multiyear capital budget totals $452.8 million, which includes 2018 expected capital expenditures of $140.6 million. The budget includes increases to building improvement projects, such as furniture purchases and renovation funding for design phases services in the Eccles Building. The potential renovation of the Eccles Building will improve compliance with modern building codes and allow for efficient space utilization with today's technology capabilities. Other funding increases are driven by: continued enhancements of supervision and regulation data capabilities; automation initiatives, including Federal Open Market Committee (FOMC) system enhancements; and security enhancements. Expected capital expenditures in 2018 are primarily driven by the Martin Building renova-

Table 6. Capital expenditures of the Board of Governors, by capital type, 2017–18
Millions of dollars, except as noted

Item	2017 budget	2017 actual	Variance 2017 actual to 2017 budget		2018 budget	Variance 2018 budget to 2017 actual	
			Amount	Percent		Amount	Percent
Board							
Single-year capital expenditures	14.0	11.2	-2.7	-19.6	17.3	6.1	53.9
Multiyear capital expenditures	58.3	43.8	-14.5	-24.9	140.6	96.8	221.0
Total capital expenditures	**72.3**	**55.0**	**-17.2**	**-23.8**	**157.8**	**102.8**	**186.9**
Office of Inspector General							
Single-year capital expenditures	0.0	0.0	0.0	n/a	0.1	0.1	n/a
Multiyear capital expenditures	0.2	0.3	0.1	29.0	0.0	-0.3	-100.0
Total capital expenditures	**0.2**	**0.3**	**0.1**	**29.0**	**0.1**	**-0.1**	**-54.8**
Board and OIG total capital expenditures	**72.5**	**55.3**	**-17.2**	**-23.7**	**158.0**	**102.7**	**185.7**

Note: The amount reported for the multiyear capital budget represents the expected expenditures for the budget year.
n/a Not applicable.

tion project. Table 6 summarizes the Board's budgeted and actual capital expenditures for 2017 and 2018.

Office of Inspector General

The budget for the Board's OIG is grounded in the values established by its strategic plan (https://oig.federalreserve.gov/strategic-plan.htm), which include delivering high-quality products and services that promote agency excellence and a diverse, skilled, and engaged workforce; cultivating leadership; fostering an inclusive and collaborative environment; optimizing external stakeholder engagement; and enhancing the capacity and improving the operational effectiveness of the OIG.

In keeping with its statutory independence, the OIG prepares its proposed budget apart from the Board's budget. The OIG presents its budget directly to the Board for approval.

2017 Budget Performance

Total expenses for OIG operations were $33.8 million, which was $0.4 million, or 1.2 percent, less than the approved 2017 operating budget. Personnel services expenses were $0.1 million less than budgeted. Goods and services expenses were $0.3 million less than budgeted because of lower-than-planned rental expenses and contractual professional services usage, and fewer furniture and equipment purchases. The OIG did not have single-year capital spending in 2017. Multiyear capital projects remained within their project budgets with actual spending in 2017 higher than planned because of the buildout of additional office space at the San Francisco regional office. Table 6 summarizes the OIG's budgeted and actual capital expenditures for 2017 and 2018.

2018 Operating Expense Budget

The 2018 budget for OIG operations is $35.9 million, which is $2.1 million, or 6.2 percent, higher than 2017 actual expenses and 4.8 percent higher than the 2017 budget. The OIG's total authorized position count for 2018 remains unchanged at 132. The additional funding assists the OIG in implementing the goals, objectives, and activities identified in its strategic plan.

2018 Capital Budget

The OIG's 2018 single-year capital budget totals $0.1 million for vehicle lifecycle replacements. For 2018, the OIG closed its $3.2 million multiyear capital budget, which funded the construction of temporary and permanent regional offices.

Federal Reserve Banks Budgets

Each Reserve Bank establishes major operating goals for the coming year, devises strategies for attaining those goals, estimates required resources, and monitors results. The Reserve Banks' budgets are structured by functional area, with attributable support and overhead charged to each area. The budgets are formulated to ensure alignment with each Reserve Bank's and the System's strategic priorities, including

- contributing to the formulation of monetary policy and enhancing monetary policy implementation to become more effective, flexible, and resilient
- promoting financial stability through effective monitoring, analysis, and policy development
- promoting safety and soundness of financial institutions through effective supervision
- leading efforts to enhance the security, resiliency, functionality, and efficiency of services provided to financial institutions and the public

The Reserve Bank budget process is as follows:

- Reserve Bank and Board governance bodies provide an aggregate System-level growth expectation for the upcoming budget year.
- The Reserve Banks develop budgets that incorporate this guidance, and senior leadership in the Reserve Banks reviews the budgets for alignment with Reserve Bank and System priorities.
- The Reserve Banks submit preliminary budget information to the Board for review, including documentation to support the budget request.
- Board staff analyzes the Banks' budgets, both individually and in the context of System initiatives.
- The Board's Committee on Federal Reserve Bank Affairs (BAC) reviews the Bank budgets.
- The Reserve Banks make any needed changes, and the BAC chair submits the revised budgets to Board members for review and final action.
- Throughout the year, Reserve Bank and Board staffs monitor actual performance and compare it to approved budgets and forecasts.

In addition to the budget approval process, the Reserve Banks must submit proposals for certain

Table 7. Operating expenses of the Federal Reserve Banks, by District, 2017–18
Millions of dollars, except as noted

District	2017 budget	2017 actual	Variance 2017 actual to 2017 budget		2018 budget	Variance 2018 budget to 2017 actual	
			Amount	Percent		Amount	Percent
Boston	230.5	217.4	-13.1	-5.7	233.0	15.6	7.2
New York	992.1	968.7	-23.4	-2.4	1,006.7	37.9	3.9
Philadelphia	191.4	181.3	-10.1	-5.3	191.8	10.5	5.8
Cleveland	196.8	189.3	-7.6	-3.8	203.3	14.0	7.4
Richmond	450.6	435.3	-15.3	-3.4	479.8	44.5	10.2
Atlanta	407.4	391.8	-15.5	-3.8	420.3	28.5	7.3
Chicago	383.3	381.1	-2.1	-0.6	397.8	16.6	4.4
St. Louis	399.1	395.3	-3.8	-1.0	412.0	16.7	4.2
Minneapolis	165.1	162.2	-2.9	-1.8	174.0	11.8	7.3
Kansas City	285.0	282.3	-2.7	-1.0	307.3	25.0	8.9
Dallas	229.1	219.6	-9.5	-4.2	238.6	19.0	8.6
San Francisco	381.9	384.6	2.6	0.7	386.8	2.3	0.6
Total Reserve Bank operating expenses	**4,312.4**	**4,209.0**	**-103.5**	**-2.4**	**4,451.3**	**242.4**	**5.8**

Note: Includes expenses of the FRIT support function and the OEB and reflects all redistributions for support and allocation for overhead. Excludes Reserve Bank capital expenditures as well as assessments by the Board of Governors for costs related to currency and the operations of the Board of Governors and the CFPB.

capital expenditures to the Board for further review and approval.

Tables 7, 8, and 9 summarize the Reserve Banks' 2017 budgeted and actual expenses and 2018 budgeted expenses by Reserve Bank, functional area, and account classification.[8] Table 10 shows the Reserve Banks' budgeted and actual employment for 2017 and budgeted employment for 2018. In addition, table 11 shows the Reserve Banks' budgeted and actual capital expenditures for 2017 and budgeted capital for 2018.

[8] Additional information about the operating expenses of each of the Reserve Banks can be found in section 11, "Statistical Tables" (see "Table 10. Income and expenses of the Federal Reserve Banks, by Bank").

2017 Budget Performance

Total 2017 operating expenses for the Reserve Banks were $4,209.0 million, which is $103.5 million, or 2.4 percent, less than the approved 2017 budget of $4,312.4 million. The actual average number of personnel (ANP) was less than the 2017 budget, largely because of delays in hiring as a result of the hiring freeze. The Reserve Banks' 2017 capital expenditures

Table 8. Operating expenses of the Federal Reserve Banks, by operating area, 2017–18
Millions of dollars, except as noted

Operating area	2017 budget	2017 actual	Variance 2017 actual to 2017 budget		2018 budget	Variance 2018 budget to 2017 actual	
			Amount	Percent		Amount	Percent
Monetary and economic policy	697.7	693.4	-4.4	-0.6	721.5	28.2	4.1
Services to the U.S. Treasury and other government agencies	625.7	597.6	-28.0	-4.5	616.1	18.4	3.1
Services to financial institutions and the public	1,151.2	1,127.0	-24.2	-2.1	1,211.6	84.6	7.5
Supervision and regulation	1,389.6	1,366.0	-23.6	-1.7	1,449.3	83.3	6.1
Fee-based services to financial institutions	448.2	425.0	-23.2	-5.2	452.9	27.9	6.6
Total Reserve Bank operating expenses[1]	**4,312.4**	**4,209.0**	**-103.5**	**-2.4**	**4,451.3**	**242.4**	**5.8**

[1] Operating expenses exclude pension costs, reimbursements, and operating expense of the Board of Governors (see table 4).

Table 9. Operating expenses of the Federal Reserve Banks, by account classification, 2017–18
Millions of dollars, except as noted

Account classification	2017 budget	2017 actual	Variance 2017 actual to 2017 budget		2018 budget	Variance 2018 budget to 2017 actual	
			Amount	Percent		Amount	Percent
Salaries and other benefits[1]	3,238.4	3,135.0	-103.4	-3.2	3,330.2	195.2	6.2
Building	330.6	326.2	-4.4	-1.3	335.2	9.0	2.7
Software costs	250.8	254.3	3.5	1.4	264.6	10.3	4.0
Equipment	189.1	185.0	-4.2	-2.2	192.4	7.4	4.0
Recoveries[2]	-183.5	-190.7	-7.2	3.9	-394.4	-203.7	106.8
Expenses capitalized	-93.0	-68.9	24.1	-25.9	-76.5	-7.5	10.9
All other[3]	580.1	568.1	-12.0	-2.1	799.8	231.7	40.8
Total Reserve Bank operating expenses	**4,312.4**	**4,209.0**	**-103.5**	**-2.4**	**4,451.3**	**242.4**	**5.8**

1 Includes salaries, other personnel expense, and retirement and other employment benefit expenses. It does not include pension expenses related to all the participants in the Retirement Plan for Employees of the Federal Reserve System and the Reserve Bank participants in the Benefit Equalization Plan and the Supplemental Retirement Plan for Select Officers of the Federal Reserve Banks. These expenses are recorded as a separate line item in the financial statements; see "Table 10. Income and expenses of the Federal Reserve Banks, by Bank" in section 11, "Statistical Tables."

2 Includes tenant rent recoveries.

3 Includes fees, materials and supplies, travel, communications, and shipping.

were less than budgeted by $68.4 million, or 16.4 percent, because of changes in timing and scope for numerous initiatives.

Revised project plans, benefits assumptions, and increased cash recoveries from depository institutions contributed to the 2017 operating expense budget underrun. Project plan changes include updated business-line transition plans for ongoing Treasury services, delays in development efforts for Fedwire and automated clearinghouse (ACH) enhancements and check-related projects, and the completion of software development and testing following the implementation of the CashForward initiative.[9] The

9 The ACH Modernization initiative involves the transition of the ACH application from the legacy mainframe environment to a distributed platform. The CashForward initiative replaced legacy software applications, automated business processes, and employed technologies to meet current and future needs for the cash function. The project was completed in November 2017.

Table 10. Employment at the Federal Reserve Banks, by District, and at FRIT and OEB, 2017–18

District	2017 budget	2017 actual	Variance 2017 actual to 2017 budget		2018 budget	Variance 2018 budget to 2017 actual	
			Amount	Percent		Amount	Percent
Boston	1,131	1,090	-41	-3.6	1,086	-4	-0.4
New York	3,319	3,200	-119	-3.6	3,277	78	2.4
Philadelphia	914	894	-20	-2.2	876	-18	-2.0
Cleveland	995	963	-31	-3.2	999	35	3.6
Richmond	1,499	1,471	-29	-1.9	1,498	27	1.9
Atlanta	1,762	1,745	-18	-1.0	1,774	29	1.7
Chicago	1,600	1,546	-54	-3.4	1,605	59	3.8
St. Louis	1,416	1,368	-47	-3.4	1,442	74	5.4
Minneapolis	1,008	997	-11	-1.1	1,030	33	3.3
Kansas City	1,850	1,848	-2	-0.1	1,910	62	3.3
Dallas	1,294	1,257	-37	-2.9	1,320	64	5.1
San Francisco	1,697	1,701	4	0.2	1,732	31	1.8
Total, all Districts	**18,487**	**18,080**	**-407**	**-2.2**	**18,550**	**470**	**2.6**
Federal Reserve Information Technology	1,277	1,260	-18	-1.4	1,270	10	0.8
Office of Employee Benefits	58	53	-4	-7.7	58	5	9.3
Total	**19,822**	**19,393**	**-429**	**-2.2**	**19,878**	**485**	**2.5**

Table 11. Capital expenditures of the Federal Reserve Banks, by District, and of FRIT and OEB, 2017–18
Millions of dollars, except as noted

District	2017 budget	2017 actual	Variance 2017 actual to 2017 budget		2018 budget	Variance 2018 budget to 2017 actual	
			Amount	Percent		Amount	Percent
Boston	26.6	16.7	-9.9	-37.1	20.5	3.7	22.1
New York	100.8	92.9	-7.9	-7.8	92.0	-0.9	-1.0
Philadelphia	20.9	13.6	-7.3	-34.9	34.6	21.0	153.9
Cleveland	32.8	31.4	-1.4	-4.3	13.7	-17.7	-56.5
Richmond	21.3	11.1	-10.1	-47.6	20.4	9.3	83.5
Atlanta	25.8	24.2	-1.6	-6.2	21.1	-3.1	-12.9
Chicago	29.2	26.0	-3.2	-11.0	22.3	-3.7	-14.1
St. Louis	6.8	6.5	-0.3	-4.0	6.6	0.1	1.4
Minneapolis	4.4	3.7	-0.7	-15.5	19.3	15.6	417.2
Kansas City	25.3	26.7	1.4	5.7	23.4	-3.3	-12.3
Dallas	19.3	15.2	-4.0	-20.9	20.1	4.9	32.2
San Francisco	36.2	15.5	-20.7	-57.2	30.9	15.4	99.1
Total, all Districts	**349.4**	**283.8**	**-65.7**	**-18.8**	**324.9**	**41.1**	**14.5**
Federal Reserve Information Technology	67.2	64.4	-2.8	-4.2	81.6	17.3	26.9
Office of Employee Benefits	*	*	*	6.0	0.1	*	34.8
Total	**416.6**	**348.2**	**-68.4**	**-16.4**	**406.6**	**58.4**	**16.8**

* Less than $50,000.

underrun is partially offset by increased expenses for the TWAI.

Total 2017 actual employment for the Reserve Banks, the Federal Reserve Information Technology (FRIT), and the Office of Employee Benefits (OEB) was 19,393 ANP, an underrun of 429 ANP, or 2.2 percent, from 2017 budgeted staffing levels. The impact of the hiring freeze affected all functional areas with the largest underruns in support services and the monetary policy business lines. Additionally, program delays in several Treasury business lines and changes in the cash environment contributed to the underrun.

2018 Operating Expense Budget

The 2018 operating budgets of the Reserve Banks total $4,451.3 million, which is $242.4 million, or 5.8 percent, higher than 2017 actual expenses. The increase in the supervision function is primarily for the ongoing support of the supervision portfolio and national and horizontal review initiatives and for the continued development and implementation of the cybersecurity supervision program. The increase is partially offset by operational efficiencies and the extension of the exam cycle for qualifying depository institutions because of the implementation of the Fixing America's Surface Transportation (FAST) Act.

Increases in services to financial institutions and the public include expenses for cash related to the first phase of the next-generation currency-processing program (NextGen) as well as staffing to address the increase in the volume of currency received from circulation. Expenses related to fee-based services are increasing to fund continuing technology investments for ACH and Fedwire enhancements. Budgeted expenses for services to the Treasury, which are fully reimbursable, are increasing primarily for the Stored Value Card (SVC) program, expanded Do Not Pay (DNP) analytics, and Pay.gov initiatives.[10]

Total 2018 budgeted employment for the Reserve Banks, FRIT, and OEB is 19,878 ANP, an increase of 485 ANP, or 2.5 percent, from 2017 actual employment levels. The increase is largely due to 2017 hiring

[10] The SVC program comprises three military cash-management programs: EagleCash, EZpay, and NavyCash. These programs provide electronic payment methods for goods and services on military bases and Navy ships, both domestic and overseas, to reduce costs and increase convenience for the military and service members. DNP helps agencies mitigate and eliminate improper payments. Pay.gov is an application that allows the public to use the internet to authorize and initiate payments to federal agencies.

delays as a result of the hiring freeze. Support and overhead functions plan to add resources to strengthen facilities maintenance, strategic planning, enterprise risk management, internal audit, and human resources capabilities. In information technology, ANP increases are for information security initiatives and application development projects, primarily for Treasury programs. In the Treasury services function, ANP increases are due to updated requirements for ongoing programs, including SVC and DNP. Staff is also increasing in cash to address local cash-processing volume increases and to support phase I of the NextGen program. Supervision ANP are increasing to support the cybersecurity program and the growth in the number of state member banks.

Reserve Bank officer and staff personnel expenses for 2018 total $2,565.6 million, an increase of $141.1 million, or 5.8 percent, from 2017 actual expenses. The increase reflects expenses associated with additional staff and budgeted salary adjustments, including merit increases, equity adjustments, promotions, and funding for variable pay.

The 2018 Reserve Bank budgets include a 3.0 percent merit program for eligible officers, senior professionals, and staff totaling $64.8 million and a variable pay program totaling $206.4 million. Budgeted equity adjustments and promotions total $7.3 million for officers and senior professionals and $26.4 million for staff.

2018 Capital Budgets

The 2018 capital budgets for the Reserve Banks, FRIT, and OEB total $406.6 million. The increase in the 2018 capital budget is $58.4 million, or 16.8 percent, more than the 2017 actual levels of $348.2 million, largely reflecting ongoing multiyear building and information technology projects. Initiatives in the 2018 capital budget include supporting workspace renovations, addressing aging building infrastructure, and providing application upgrades and releases.

Capital Expenditures Designated for Conditional Approval

The BAC chair designated projects with an aggregate cost of $83.6 million in 2018 for conditional approval, requiring additional review and approval by the Board's director of the Division of Reserve Bank Operations and Payment Systems before the commitment of funds.[11] The expenditures designated for conditional approval by the chair of the BAC include large-scale building projects to renovate office and cafeteria spaces, increase parking, and upgrade mechanical and electrical infrastructure. Technology projects include current and future Fedwire initiatives, Treasury applications, and the migration of major applications off the mainframe.[12]

Other Capital Expenditures

Significant capital expenditures (typically expenditures exceeding $1 million) that are not designated for conditional approval include total multiyear budgeted expenditures of $496.7 million for 2018 and future years, of which the single-year 2018 budgeted expenditures are $232.2 million. This category includes building expenditures for office space renovations, infrastructure upgrades, and security enhancements. IT projects include ongoing IT infrastructure investments and Treasury, monetary policy, and supervision initiatives.

Capital initiatives that are individually less than $1 million are budgeted at an aggregate amount of $90.8 million for 2018 and include building maintenance expenditures, equipment and furniture replacements, and scheduled software and equipment upgrades.

Currency Budget

The Board is the issuing authority for Federal Reserve notes. As the issuing authority, the Board has a wide range of responsibilities, from ensuring an adequate supply of notes in circulation, to protecting and maintaining confidence. To protect the integrity of the notes it issues, the Board works with the Reserve Banks, the Treasury Department, the Treasury's Bureau of Engraving and Printing (BEP), and the United States Secret Service to ensure that the notes meet quality standards from production

[11] Generally, capital expenditures that are designated for conditional approval include certain building projects, District expenditures that substantially affect or influence future System direction or the manner in which significant services are performed, expenditures that may be inconsistent with System direction or vary from previously negotiated purchasing agreements, and local expenditures that duplicate national efforts.

[12] The Reserve Bank migration strategy involves moving a majority of applications from the mainframe to alternative processing environments. Budgeted projects for 2018 include the migration of the statistics and reserves application and the ACH processing platform.

through destruction, monitors counterfeiting threats for each denomination, and conducts adversarial analysis on existing and new security features to ensure they are robust to counterfeiting. The currency budget funds the Board's and BEP's activities related to note production and issuance.[13]

The annual currency budget process is as follows:

- Each August, based on Board staff's assessment of currency demand and other factors, the Board's director of the Division of Reserve Bank Operations and Payment Systems submits a fiscal year print order for notes to the director of the BEP.
- Each December, Board staff estimates expenses for the calendar-year currency budget, including printing expenses (based on estimated production costs provided by the BEP); certain other BEP initiatives; and expenses for currency transportation, quality assurance, research and development, counterfeit deterrence, currency education, and depreciation.[14]
- The BAC reviews the proposed currency budget.
- The BAC chair submits the proposed currency budget to Board members for review and final action.

2017 Budget Performance

The Board's 2017 actual operating expenses for new currency were $723.3 million, a decrease of $2.7 million, or 0.4 percent, from the 2017 budget. This budget underrun is primarily attributable to lower-than-budgeted expenses for currency education and counterfeit deterrence. The currency education program delivered educational content more cost-effectively by encouraging the public to download electronic versions of resources rather than ordering hard copy versions, and by using in-house web development resources instead of more-expensive contracted resources. The counterfeit-deterrence program was unable to conduct all planned research and development efforts in 2017.

2018 Budget

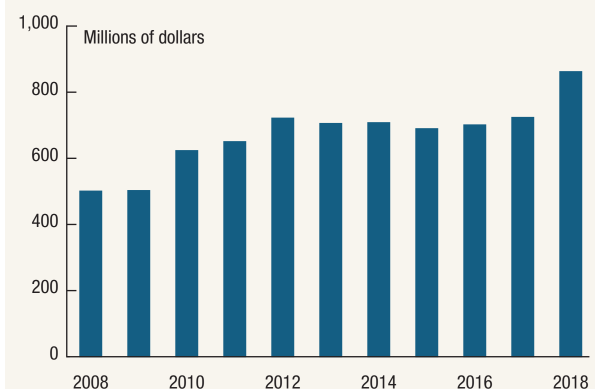
The 2018 operating budget for currency is $861.7 million, which is $138.5 million, or 19.1 percent, higher than 2017 actual expenses (figure 5). Printing costs for notes are 93 percent of the operating budget. Expenses for currency transportation, quality assurance, research and development, counterfeit deterrence, other BEP initiatives, currency education, and depreciation make up the remaining 7 percent (table 12).

Printing and Transportation of Federal Reserve Notes

The currency budget includes $801.0 million in printing costs for 2018, an increase of $127.1 million, or 18.9 percent from 2017 actual expenses. The increase is attributable to continued strong demand for banknotes, which resulted in the Board's request for 20.6 percent more notes in 2018 from the prior year, with a 61.8 percent increase in the share of more-expensive $100 notes.

The 2018 currency transportation budget is $24.3 million, an increase of $2.5 million, or 11.7 percent, from 2017 actual expenses. The budget includes the cost of shipping new notes from the BEP to Reserve Banks, of intra-System shipments of fit and unprocessed notes, and of returning pallets from the Reserve Banks to the BEP. The majority of the increase is attributable to the BEP shipping a larger

Figure 5. Federal Reserve costs for currency, 2008–18



Note: For 2018, budgeted. Data for 2008–16 have been revised.

[13] The Board reimburses the BEP for all costs related to the production of currency because the BEP does not receive federal appropriations. All operations of the BEP are financed by a revolving fund that is reimbursed through product sales, virtually all of which are sales of Federal Reserve notes to the Board to fulfill its annual print order. Section 16 of the Federal Reserve Act requires that all costs incurred for the issuing of notes shall be paid for by the Board and included in its assessments to the Reserve Banks. Customer billings are the BEP's only means of recovering costs of operations and generating funds necessary for capital investment.

[14] Other BEP expenses include costs to reimburse the BEP for expenses incurred by its Destruction Standards and Compliance Division of the Office of Compliance and Mutilated Currency Division of the Office of Financial Management and for work performed in 2017 toward a new facility to replace the existing facility in Washington, D.C.

Table 12. Federal Reserve currency budget, 2017 and 2018
Thousands of dollars, except as noted

Item	2017 budget	2017 actual	Variance 2017 actual to 2017 budget		2018 budget	Variance 2018 budget to 2017 actual	
			Amount	Percent		Amount	Percent
BEP-related expenses							
Printing Federal Reserve notes	673,799	673,936	137	0.0	800,995	127,059	18.9
Currency reader	1,715	1,426	-289	-16.9	1,286	-140	-9.8
Other	4,000	3,569	-431	-10.8	3,697	128	3.6
New BEP facility	0	683	n/a	n/a	0	-683	-100.0
Board expenses							
Currency transportation	21,200	21,711	511	2.4	24,260	2,549	11.7
Currency quality assurance	12,500	13,117	617	4.9	14,000	883	6.7
Research and development[1]	n/a	n/a	n/a	n/a	7,740	n/a	n/a
Currency counterfeit deterrence and analysis	8,100	6,103	-1,997	-24.7	7,145	1,042	17.1
Currency education, outreach, and research	4,645	2,714	-1,931	-41.6	2,531	-183	-6.7
Depreciation	71	25	-46	-64.8	80	55	220.0
Total expenses	**726,030**	**723,284**	**-2,746**	**-0.4**	**861,734**	**138,450**	**19.1**
Capital expenses							
Single cycle capital	600	364	-236	-39.3	0	-364	n/a

BEP Bureau of Engraving and Printing.
n/a Not applicable.
1 The Board established the research and development budget category in 2018 to distinguish between research and development efforts and ongoing project work. Previously, these expenses were included in quality assurance, counterfeit deterrence, and currency education.

volume of new notes to the Reserve Banks in 2018 than it did in 2017.

Currency Reader Program

The 2018 currency reader budget is $1.3 million, which is $0.1 million, or 9.8 percent, lower than 2017 actual expenses. The budget allows the BEP to distribute currency readers to qualified blind or visually-impaired individuals at no cost to the user; to reimburse the Library of Congress for administering the currency reader program through the existing infrastructure of its book reader program, which is managed by the National Library Service; and other administrative and outreach expenses.

Other Reimbursements to the Bureau of Engraving and Printing

The 2018 budget for other reimbursements to the BEP is $3.7 million, which is an increase of $0.1 million, or 3.6 percent, from 2017 actual expenses. This funding reimburses the BEP for expenses incurred by its Destruction Standards and Compliance Division of the Office of Compliance (OC) and Mutilated Currency Division (MCD) of the Office of Financial Management. The OC develops standards for cancellation and destruction of unfit currency and for note accountability at the Reserve Banks and reviews Reserve Banks' cash operations for compliance with its standards. As a public service, the MCD also processes claims for the redemption of damaged or mutilated currency.

Quality Assurance

The 2018 budget for quality assurance initiatives is $14.0 million, which is $0.9 million, or 6.7 percent, higher than 2017 actual expenses. The currency quality assurance consultants, in consultation with staff from the Board and BEP, will develop operational performance metrics to monitor and assess the BEP's efficiency and effectiveness. In addition, the consultants will establish process roadmaps that will facilitate the transition of responsibility for quality-related processes to the BEP. The budget also includes funding for the Board to continue working with a design consultant to assist with the accelerated development of a new family of notes.

Research and Development

The 2018 budget includes $7.7 million to fund ongoing initiatives related to research and development of security features and optical-inspection technology.[15] Previously, these expenses were included in quality

15 The Board established the research and development budget category in 2018 to distinguish between research and development efforts and ongoing project work.

assurance, counterfeit deterrence, and currency education. The Board will develop, test, and evaluate new and existing security features in support of the new family of notes, continue development work on optical-inspection technology, and develop an automated system for identification and analysis of counterfeit notes. In addition, the Board will continue to work on cognitive and perception studies to help inform security feature and banknote design decisions.

Counterfeit Deterrence

The 2018 budget for counterfeit deterrence and analysis is $7.1 million, which is $1.0 million, or 17.1 percent, higher than 2017 actual expenses. The budget funds membership in the Central Bank Counterfeit Deterrence Group to combat digital counterfeiting and funds the Reproduction Research Center to perform adversarial analysis on design concepts and potential security features.

Currency Education Program

The 2018 budget for the currency education program (CEP) is $2.5 million, which is $0.2 million, or 6.7 percent, lower than 2017 actual expenses. The CEP is designed to protect and maintain confidence in U.S. currency worldwide by providing information on all circulating designs of notes to the global public and key stakeholder groups. In 2018, the CEP will continue to conduct outreach to domestic and international businesses and retailers, maintain the uscurrency.gov educational website, and launch new initiatives such as an educational app and a suite of youth-focused digital learning tools.

14 Federal Reserve System Organization

Congress designed the Federal Reserve System to give it a broad perspective on the economy and on economic activity in all parts of the nation. As such, the System is composed of a central, governmental agency—the Board of Governors—in Washington, D.C., and 12 regional Federal Reserve Banks. This section lists key officials across the System, including the Board of Governors, its officers, Federal Open Market Committee members, several System councils, and Federal Reserve Bank and Branch directors and officers.

Board of Governors

Members

The Board of Governors of the Federal Reserve System is composed of seven members, who are nominated by the President and confirmed by the Senate. The Chair and the Vice Chairman of the Board are also named by the President from among the members and are confirmed by the Senate. This section lists Board members who served in 2017. For a full listing of Board members from 1914 through the present, visit www.federalreserve.gov/aboutthefed/bios/board/boardmembership.htm.

Janet L. Yellen
Chair

Stanley Fischer
Vice Chairman (through October 13, 2017)

Randal K. Quarles
Vice Chairman for Supervision (as of October 13, 2017)

Daniel K. Tarullo *(through April 5, 2017)*

Jerome H. Powell

Lael Brainard

Divisions and Officers

Fifteen divisions support and carry out the mission of the Board of Governors, which is based in Washington, D.C.

Office of Board Members

Michelle A. Smith
Director and Assistant to the Board

Linda L. Robertson
Assistant to the Board

Lucretia M. Boyer
Assistant to the Board

David W. Skidmore
Assistant to the Board

Jennifer C. Gallagher
Special Assistant to the Board for Congressional Liaison

Legal Division

Mark E. Van Der Weide
General Counsel

Richard M. Ashton
Deputy General Counsel

Stephanie Martin
Associate General Counsel

Laurie S. Schaffer
Associate General Counsel

Katherine H. Wheatley
Associate General Counsel

Jean C. Anderson
Assistant General Counsel

Patrick M. Bryan
Assistant General Counsel

Alicia S. Foster
Assistant General Counsel

Benjamin W. McDonough
Assistant General Counsel

Alison M. Thro
Assistant General Counsel

Cary K. Williams
Assistant General Counsel

Office of the Secretary

Ann Misback
Secretary of the Board

Margaret M. Shanks
Deputy Secretary

Yao-Chin Chao
Assistant Secretary

Michele T. Fennell
Assistant Secretary

Division of International Finance

Steven B. Kamin
Director

Thomas A. Connors
Deputy Director

Beth Anne Wilson
Deputy Director

Christopher J. Erceg
Senior Associate Director

Shaghil Ahmed
Associate Director

David H. Bowman
Associate Director

Mark S. Carey
Associate Director

Brian M. Doyle
Associate Director

Joseph W. Gruber
Associate Director

Charles P. Thomas
Associate Director

James A. Dahl
Deputy Associate Director

Sally M. Davies
Deputy Associate Director

Carol C. Bertaut
Assistant Director

Stephanie E. Curcuru
Assistant Director

Matteo Iacoviello
Assistant Director

Paul R. Wood
Assistant Director

John H. Rogers
Senior Adviser

Division of Financial Stability

Andreas W. Lehnert
Director

Michael T. Kiley
Deputy Director

William F. Bassett
Associate Director

John W. Schindler
Associate Director

Luca Guerrieri
Deputy Associate Director

Andrew M. Cohen
Assistant Director

Skander J. Van den Heuvel
Assistant Director

Jennifer E. Roush
Adviser

Division of Monetary Affairs

Heinrich T. Laubach
Director

James A. Clouse
Deputy Director

Rochelle M. Edge
Deputy Director

Stephen A. Meyer
Deputy Director

Trevor A. Reeve
Deputy Director

Gretchen C. Weinbach
Senior Associate Director

Margaret G. DeBoer
Associate Director

Mary T. Hoffman
Associate Director

Jane E. Ihrig
Associate Director

J. David Lopez-Salido
Associate Director

Matthew M. Luecke
Associate Director

Min Wei
Deputy Associate Director

Christopher J. Gust
Assistant Director

Elizabeth C. Klee
Assistant Director

Jason J. Wu
Assistant Director

Antulio Bomfim
Senior Adviser

Brian F. Madigan
Senior Adviser

Ellen E. Meade
Senior Adviser

Edward M. Nelson
Senior Adviser

Robert J. Tetlow
Senior Adviser

Egon Zakrajsek
Senior Adviser

Joyce K. Zickler
Senior Adviser

Don H. Kim
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Senior Associate Director

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Michael G. Palumbo
Senior Associate Director

Elizabeth K. Kiser
Associate Director

John J. Stevens
Associate Director

Stacey Tevlin
Associate Director

Timothy A. Mullen
Deputy Associate Director

Steven A. Sharpe
Deputy Associate Director

Stephanie R. Aaronson
Assistant Director

Burcu Duygan-Bump
Assistant Director

John A. Figura
Assistant Director

Glenn R. Follette
Assistant Director

Erik A. Heitfield
Assistant Director

Patrick E. McCabe
Assistant Director

Norman J. Morin
Assistant Director

Karen M. Pence
Assistant Director

John E. Sabelhaus
Assistant Director

Shane M. Sherlund
Assistant Director

Lillian Shewmaker
Assistant Director

Paul A. Smith
Assistant Director

S. Wayne Passmore
Senior Adviser

Robin A. Prager
Senior Adviser

Jeremy Rudd
Senior Adviser

Eric C. Engstrom
Adviser

John M. Roberts
Adviser

Division of Supervision and Regulation

Michael S. Gibson
Director

Jennifer Burns
Deputy Director

Maryann F. Hunter
Deputy Director

Mary L. Aiken
Senior Associate Director

Barbara J. Bouchard
Senior Associate Director

Arthur W. Lindo
Senior Associate Director

Steven P. Merriett
Senior Associate Director

Richard Ragan
Senior Associate Director

Todd A. Vermilyea
Senior Associate Director

Kevin M. Bertsch
Associate Director

Sean D. Campbell
Associate Director

Nida Davis
Associate Director

Christopher Finger
Associate Director

Jeffery W. Gunther
Associate Director

Anna L. Hewko
Associate Director

Michael J. Hsu
Associate Director

John Kolb
Associate Director

Richard A. Naylor II
Associate Director

Lisa H. Ryu
Associate Director

Michael D. Solomon
Associate Director

Thomas R. Sullivan
Associate Director

John Beebe
Deputy Associate Director

Constance Horsley
Deputy Associate Director

Ryan P. Lordos
Deputy Associate Director

David K. Lynch
Deputy Associate Director

Molly E. Mahar
Deputy Associate Director

Thomas Odegard
Deputy Associate Director

Catherine A. Piche
Deputy Associate Director

Laurie Priest
Deputy Associate Director

Suzanne L. Williams
Deputy Associate Director

Karen Caplan
Assistant Director

Keith Coughlin
Assistant Director

James Ray Diggs
Assistant Director

Constance M. Horsley
Assistant Director

Kathleen W. Johnson
Assistant Director

Keith A. Ligon
Assistant Director

Susan E. Motyka
Assistant Director

Vaishali Sack
Assistant Director

Steven M. Spurry
Assistant Director

Catherine Ann Tilford
Assistant Director

Joanne Wakim
Assistant Director and Chief Accountant

Donna Webb
Assistant Director

Norah M. Barger
Senior Adviser

Robert Ashman
Adviser

Fang Du
Adviser

Ann McKeehan
Adviser

William F. Treacy
Adviser

Division of Consumer and Community Affairs

Eric S. Belsky
Director

V. Nicole Bynum
Deputy Director

Anna Alvarez Boyd
Senior Associate Director

Suzanne G. Killian
Senior Associate Director

Carol A. Evans
Associate Director

Allen J. Fishbein
Associate Director

Phyllis L. Harwell
Associate Director

James A. Michaels
Associate Director

David E. Buchholz
Deputy Associate Director

Joseph A. Firschein
Deputy Associate Director

Marisa A. Reid
Deputy Associate Director

Minh-Duc T. Le
Assistant Director

Division of Reserve Bank Operations and Payment Systems

Matthew J. Eichner
Director

Jeffrey C. Marquardt
Deputy Director

Marta E. Chaffee
Senior Associate Director

Gregory L. Evans
Senior Associate Director

Susan V. Foley
Senior Associate Director

Michael J. Lambert
Associate Director

Lawrence E. Mize
Associate Director

Jennifer K. Chang
Deputy Associate Director

Jennifer A. Lucier
Deputy Associate Director

David C. Mills
Deputy Associate Director

Stuart E. Sperry
Deputy Associate Director

Timothy W. Maas
Assistant Director

Travis D. Nesmith
Assistant Director

Mark J. Olechowski
Assistant Director

Rebecca L. Royer
Assistant Director

Jeffrey D. Walker
Assistant Director

Office of the Chief Operating Officer

Donald V. Hammond
Chief Operating Officer

Michael J. Kraemer
Chief Data Officer

Sheila Clark
Diversity and Inclusion Programs Director

Philip C. Daher
Assistant Director

Jeffrey A. Monica
Assistant Director

Todd A. Glissman
Senior Adviser

Division of Financial Management

Ricardo Aguilera
Director and Chief Financial Officer

Stephen J. Bernard
Deputy Director

Christine M. Fields
Associate Director

Jeffrey R. Peirce
Deputy Associate Director

Karen L. Vassallo
Deputy Associate Director

Andrew Leonard
Senior Adviser

Management Division

Michell C. Clark
Director

Winona Varnon
Deputy Director

Steven A. Miranda
Deputy Director

Tameika L. Pope
Senior Associate Director

Marie S. Savoy
Senior Associate Director

Curtis B. Eldridge
Associate Director and Chief

Tara Tinsley-Pelitere
Associate Director

Reginald V. Roach
Deputy Associate Director

Keith F. Bates
Assistant Director

Patricia Ann Buckingham
Assistant Director

Curtis B. Eldridge
Assistant Director and Chief

Catherine A. Jack
Assistant Director

Timothy E. Markey
Assistant Director

Jeffrey A. Martin
Assistant Director

Stephen E. Pearson
Assistant Director

Katherine A. Perez
Assistant Director

Daniela S. Wegmann
Assistant Director

Division of Information Technology

Sharon L. Mowry
Director

Lisa M. Bell
Deputy Director

Raymond Romero
Deputy Director

Kofi A. Sapong
Deputy Director

Glenn S. Eskow
Associate Director

Sheryl Lynn Warren
Associate Director

Rajasekhar R. Yelisetty
Associate Director

William Dennison
Deputy Associate Director

Marietta Murphy
Deputy Associate Director

Theresa C. Palya
Deputy Associate Director

Charles B. Young II
Deputy Associate Director

Can Xuan Nguyen
Assistant Director

Deborah Prespare
Assistant Director

Jonathan F. Shrier
Assistant Director

Eric C. Turner
Assistant Director

Virginia M. Wall
Assistant Director

Edgar Wang
Assistant Director

Ivan K. Wun
Assistant Director

Tillena G. Clark
Adviser

Office of Inspector General

Mark Bialek
Inspector General

James A. Ogden
Deputy Inspector General

Jacqueline M. Becker
Associate Inspector General

Alberto Rivera-Fournier
Associate Inspector General

Melissa M. Heist
Associate Inspector General

Peter J. Sheridan
Assistant Inspector General

Gerald L. Maye
Assistant Inspector General

Federal Open Market Committee

The Federal Open Market Committee is made up of the seven members of the Board of Governors; the president of the Federal Reserve Bank of New York; and four of the remaining eleven Federal Reserve Bank presidents, who serve one-year terms on a rotating basis. During 2017, the Federal Open Market Committee held eight regularly scheduled meetings (see section 9, "Minutes of Federal Open Market Committee Meetings").

Members

Janet L. Yellen
Chair, Board of Governors

William C. Dudley
Vice Chairman, President, Federal Reserve Bank of New York

Lael Brainard
Member, Board of Governors

Charles L. Evans
President, Federal Reserve Bank of Chicago

Stanley Fischer
Member, Board of Governors *(through October 13, 2017)*

Patrick Harker
President, Federal Reserve Bank of Philadelphia

Robert S. Kaplan
President, Federal Reserve Bank of Dallas

Neel Kashkari
President, Federal Reserve Bank of Minneapolis

Jerome H. Powell
Member, Board of Governors

Randal K. Quarles
Member, Board of Governors *(as of October 13, 2017)*

Daniel K. Tarullo
Member, Board of Governors *(through April 5, 2017)*

Alternate Members

Raphael W. Bostic
President, Federal Reserve Bank of Atlanta *(as of June 5, 2017)*

Marie Gooding
First Vice President, Federal Reserve Bank of Atlanta *(through June 4, 2017)*

Jeffrey M. Lacker
President, Federal Reserve Bank of Atlanta *(through April 4, 2017)*

Loretta J. Mester
President, Federal Reserve Bank of Cleveland

Mark L. Mullinix
First Vice President, Federal Reserve Bank of Richmond *(as of April 24, 2017)*

Michael Strine
First Vice President, Federal Reserve Bank of New York

John C. Williams
President, Federal Reserve Bank of San Francisco

Officers

Brian F. Madigan
Secretary (through November 25, 2017)

James A. Clouse
Secretary (as of November 26, 2017)

Matthew M. Luecke
Deputy Secretary

David W. Skidmore
Assistant Secretary

Michelle A. Smith
Assistant Secretary

Scott G. Alvarez
General Counsel (through August 19, 2017)

Mark E. Van Der Weide
General Counsel (as of August 20, 2017)

Michael Held
Deputy General Counsel

Richard M. Ashton
Assistant General Counsel

Steven B. Kamin
Economist

Heinrich T. Laubach
Economist

David W. Wilcox
Economist

James A. Clouse
Associate Economist (through November 25, 2017)

Thomas A. Connors
Associate Economist

Michael Dotsey
Associate Economist

Eric M. Engen
Associate Economist

Evan F. Koenig
Associate Economist

Jonathan P. McCarthy
Associate Economist

Daniel G. Sullivan
Associate Economist

William Wascher
Associate Economist

Beth Anne Wilson
Associate Economist

Simon Potter
Manager, System Open Market Account

Lorie K. Logan
Deputy Manager, System Open Market Account

Board of Governors Advisory Councils

The Federal Reserve Board uses advisory committees in carrying out its varied responsibilities. To learn more, visit www.federalreserve.gov/aboutthefed/advisorydefault.htm.

Federal Advisory Council

The Federal Advisory Council—a statutory body established under the Federal Reserve Act—consults with and advises the Board of Governors on all matters within the Board's jurisdiction. It is composed of one representative from each Federal Reserve District, chosen by the Reserve Bank in that District. The president and vice president of the council are selected from amongst council members. The Federal Reserve Act requires the council to meet in Washington, D.C., at least four times a year. In 2017, the council met on February 9–10, May 11–12, September 7–8, and November 29–30. The council met with the Board on February 10, May 12, September 8, and November 30, 2017.

Members

District 1
Bruce Van Saun
Chairman and Chief Executive Officer, Citizens Financial Group, Inc., Stamford, CT

District 2
Michael L. Corbat
Chief Executive Officer, Citigroup, New York, NY

District 3
Mark A. Turner
President and Chief Executive Officer, WSFS Bank, Wilmington, DE

District 4
Beth Mooney
Chairman and Chief Executive Officer, KeyCorp, Cleveland, OH

District 5
Brian T. Moynihan
Chairman and Chief Executive Officer, Bank of America, Charlotte, NC

District 6
William H. Rogers, Jr.
Chairman and Chief Executive Officer, SunTrust Banks, Inc., Atlanta, GA

District 7
Frederick H. Waddell
Chairman and Chief Executive Officer, Northern Trust Corporation and The Northern Trust Company, Chicago, IL

District 8
Ronald J. Kruszewski
Chairman and Chief Executive Officer, Stifel Financial Corp., St. Louis, MO

District 9
Kenneth J. Karels
President and Chief Executive Officer, Great Western Bank, Sioux Falls, SD

District 10
Leslie R. Andersen
President and Chief Executive Officer, Bank of Bennington, Bennington, NE

District 11
Ralph W. Babb Jr.
Chairman and Chief Executive Officer, Comerica Inc. and Comerica Bank, Dallas, TX

District 12
Robert G. Sarver
Chairman and CEO, Western Alliance Bancorporation, Phoenix, AZ

Officers

Ralph W. Babb, Jr.
President

Michael L. Corbat
Vice President

Herb Taylor
Secretary

Community Depository Institutions Advisory Council

The Community Depository Institutions Advisory Council advises the Board of Governors on the economy, lending conditions, and other issues of interest to community depository institutions. Members are selected from among representatives of banks, thrift institutions, and credit unions who are serving on local advisory councils at the 12 Federal Reserve Banks. One member of each of the Reserve Bank councils serves on the Community Depository Institutions Advisory Council. The president and vice president are selected from amongst council members. The council usually meets with the Board twice a year in Washington, D.C. In 2017, the council met on April 14 and November 17.

Members

District 1
Gilda M. Nogueira
President and Chief Executive Officer, East Cambridge Savings Bank, Cambridge, MA

District 2
Tyrone E. Muse
President and Chief Executive Officer, Visions Federal Credit Union, Endicott, NY

District 3
Christopher D. Maher
President and Chief Executive Officer, OceanFirst Financial Corporation and OceanFirst Bank, Toms River, NJ

District 4
Thomas J. Fraser
President and Chief Executive Officer, First Federal Lakewood, Lakewood, OH

District 5
Robert A. DeAlmeida
President and Chief Executive Officer, Hamilton Bank, Baltimore, MD

District 6
Alvin J. Cowans
President and Chief Executive Officer, McCoy Federal Credit Union, Orlando, FL

District 7
Jeffrey Plagge
President and Chief Executive Officer, Northwest Financial Corp., Arnolds Park, IA

District 8
Elizabeth G. McCoy
President and Chief Executive Officer, Planters Bank, Hopkinsville, KY

District 9
Lora Benrud
Chief Executive Officer, WESTconsin Credit Union Menomonie, WI

District 10
Kyle Heckman
President and Chairman of the Board, Flatirons Bank, Boulder, CO

District 11
S. Boyce Brown
Chairman, President and Chief Executive Officer, Extraco Corporation, Waco, TX

District 12
Janet Garufis
President and Chief Executive Officer, Montecito Bank & Trust, Santa Barbara, CA

Officers

Janet A. Garufis
President

Gilda M. Nogueira
Vice President

Community Advisory Council

The Community Advisory Council was formed in 2015 to advise the Board of Governors on the economic circumstances and financial services needs of consumers and communities, with a particular focus on the concerns of low- and moderate-income populations. The council is composed of a diverse group of experts and representatives of consumer and community development organizations and interests, including from such fields as affordable housing, community and economic development, employment and labor, financial services and technology, small business, and asset and wealth building. One member of the council serves as its chair. The council first met with the Board in November 2015, and meets with the Board twice each year. In 2017, the council met with the Board on May 26 and November 3.

Members

Roberto Barragan
Principal, Aquaria Funding Solutions, Los Angeles, CA

Angela Glover Blackwell
Founder and Chief Executive Officer, PolicyLink, Oakland, CA

Barrett Burns
President and CEO, VantageScore Solutions LLC, Stamford, CT

Vanessa Calderon-Rosado
CEO, IBA (Inquilinos Boricuas en Accion), Boston, MA

Patrick Dujakovich
President, Greater Kansas City AFL-CIO, Kansas City, MO

Andrea Levere
President, Prosperity Now, Washington, DC

Ben Mangan
Executive Director and Lecturer, Haas School of Business, U.C. Berkeley, Center for Social Sector Leadership, Berkeley, CA

Rodrick Miller
Founder & CEO, Ascendant Global, Detroit, MI

Noel Poyo
Executive Director, National Association for Latino Community Asset Builders, San Antonio, TX

Gerry Roll
Executive Director, Foundation for Appalachian Kentucky, Chavies, KY

Arden Shank
President and Chief Executive Officer, Neighborhood Housing Services of South Florida, Miami, FL

Sue Taoka
Executive Vice President, Craft3, Seattle, WA

Mary Tingerthal
Commissioner, Minnesota Housing Finance Agency, St. Paul, MN

Raul Vazquez
Chief Executive Officer, Oportun, Redwood City, CA

Catherine Wilson
Professor, University of Nebraska–Lincoln College of Law, Lincoln, NE

Officer

Raul Vazquez
Chair

Roberto Barragan
Vice Chair

Model Validation Council

The Model Validation Council was established in 2012 by the Board of Governors to provide expert and independent advice on its process to rigorously assess the models used in stress tests of banking institutions. The Dodd-Frank Wall Street Reform and Consumer Protection Act required the Federal Reserve to conduct annual stress tests of large bank holding companies and systemically important, nonbank financial institutions supervised by the Board. The Model Validation Council provides input on the Board's efforts to assess the effectiveness of the models used in the stress tests. The council is intended to improve the quality of the Federal Reserve's model assessment program and to strengthen the confidence in the integrity and independence of the program.

Members

Philip Strahan, *Chair*
Professor, Boston College

Gregory Duffee
Professor, John Hopkins University

M. Suresh Sundaresan
Professor, Columbia University *(through September 2017)*

Monika Piazzesi
Professor, Stanford University

Jennie Bai
Assistant Professor, Georgetown University

Robert Stine
Professor, University of Pennsylvania

Federal Reserve Banks and Branches

To carry out the day-to-day operations of the Federal Reserve System, the nation has been divided into 12 Federal Reserve Districts, each with a Reserve Bank. The majority of Reserve Banks also have at least one Branch.

Reserve Bank and Branch Directors

As required by the Federal Reserve Act, each Federal Reserve Bank is supervised by a nine-member board with three different classes of three directors each: Class A directors, who are nominated and elected by the member banks in that District to represent the stockholding banks; Class B directors, who are nominated and elected by the member banks to represent the public; and Class C directors, who are appointed by the Board of Governors to represent the public. Class B and Class C directors are selected with due, but not exclusive, consideration to the interests of agriculture, commerce, industry, services, labor, and consumers. Each Federal Reserve Bank Branch also has a board with either five or seven directors. A majority of the directors on each Branch board are appointed by the Federal Reserve Bank, with the remaining directors appointed by the Board of Governors.

For more information on Reserve Bank and Branch directors, see www.federalreserve.gov/aboutthefed/directors/about.htm.

Reserve Bank and Branch directors are listed below. For each director, the class of directorship, the director's principal place of business, and the expiration date of the director's current term are shown.

District 1–Boston

Class A

Michael E. Tucker, 2017
President and Chief Executive Officer, Greenfield Co-operative Bank, Greenfield, MA

Peter L. Judkins, 2018
President and Chief Executive Officer, Franklin Savings Bank, Farmington, ME

Joseph L. Hooley, 2019
Chairman and Chief Executive Officer, State Street Corporation, Boston, MA

Class B

Kathleen E. Walsh, 2017
President and Chief Executive Officer, Boston Medical Center, Boston, MA

Roger S. Berkowitz, 2018
President and Chief Executive Officer, Legal Sea Foods, LLC, Boston, MA

Niraj Shah, 2019
Chief Executive Officer, Co-founder, and Co-Chairman, Wayfair, Boston, MA

Class C

Gary L. Gottlieb, MD, 2017
Chief Executive Officer, Partners In Health, Boston, MA

Phillip L. Clay, 2018
Professor – Department of Urban Studies & Planning, Massachusetts Institute of Technology (MIT), Cambridge, MA

Christina Hull Paxson, 2019
President, Brown University, Providence, RI

District 2–New York

Class A

Paul P. Mello, 2017
President and Chief Executive Officer, Solvay Bank, Solvay, NY

James P. Gorman, 2018
Chairman and Chief Executive Officer, Morgan Stanley, New York, NY

Gerald H. Lipkin, 2019
Chairman and Chief Executive Officer, Valley National Bank, Wayne, NJ

Class B

Terry J. Lundgren, 2017
Executive Chairman and Chairman of the Board, Macy's, Inc., New York, NY

Glenn H. Hutchins, 2018
Co-Founder, Silver Lake, New York, NY

David M. Cote, 2019
Executive Chairman, Honeywell International Inc., Morris Plains, NJ

Class C

Emily K. Rafferty, 2017
President Emerita, The Metropolitan Museum of Art, New York, NY

Sara Horowitz, 2018
Founder and Executive Director, Freelancers Union, Brooklyn, NY

Denise Scott, 2019
Executive Vice President, Local Initiatives Support Corporation, New York, NY

District 3–Philadelphia

Class A

Jon S. Evans, 2017
President and Chief Executive Officer, Atlantic Community Bankers Bank, Camp Hill, PA

David R. Hunsicker, 2018
Chairman, President, and Chief Executive Officer, New Tripoli Bank, New Tripoli, PA

William S. Aichele, 2019
Chairman, Univest Corporation of Pennsylvania, Souderton, PA

Class B

Patricia Hasson, 2017
President and Executive Director, Clarifi, Philadelphia, PA

Carol J. Johnson, 2018
Retired President and Chief Operating Officer, AlliedBarton Security Services, Conshohocken, PA

Edward J. Graham, 2019
Retired Chairman and Chief Executive Officer, South Jersey Industries, Folsom, NJ

Class C

Michael J. Angelakis, 2017
Chairman and Chief Executive Officer, Atairos, Bryn Mawr, PA

Phoebe Haddon, 2018
Chancellor, Rutgers University–Camden, Camden, NJ

Brian M. McNeill, 2019
President and Chief Executive Officer, TouchPoint, Inc., Concordville, PA

District 4–Cleveland

Class A

Todd A. Mason, 2017
President and Chief Executive Officer, First National Bank of Pandora, Pandora, OH

Claude E. Davis, 2018
Chief Executive Officer, First Financial Bancorp, Cincinnati, OH

Stephen D. Steinour, 2019
Chairman, President and Chief Executive Officer, Huntington Bancshares Incorporated, Columbus, OH

Class B

Charles H. Brown, 2017
Executive Adviser and Chair Compliance Advisory Council, Toyota Motor North America, Erlanger, KY

George S. Barrett, 2018
Chairman and Chief Executive Officer, Cardinal Health, Inc., Dublin, OH

David Megenhardt, 2019
Executive Director, United Labor Agency, Cleveland, OH

Class C

John P. Surma, 2017
Retired Chairman and Chief Executive Officer, United States Steel Corporation, Pittsburgh, PA

Dawne S. Hickton, 2018
President and Founding Partner, Cumberland Highstreet Partners, Sewickley, PA

Dwight Eric Smith, 2019
President and Chief Executive Officer, Sophisticated Systems, Inc., Columbus, OH

Cincinnati Branch

Appointed by the Federal Reserve Bank

Amos L. Otis, 2017
Founder, President, and Chief Executive Officer, SoBran, Inc., Dayton, OH

Alfonso Cornejo, 2017
President, Hispanic Chamber Cincinnati USA, Cincinnati, OH

Tucker Ballinger, 2018
President and Chief Executive Officer, Forcht Bank, N.A., Lexington, KY

Darin C. Hall, 2019
Executive Vice President, Greater Cincinnati Redevelopment Authority, Cincinnati, OH

Appointed by the Board of Governors

Deborah A. Feldman, 2017
President and Chief Executive Officer, Dayton Children's Hospital, Dayton, OH

Christopher C. Cole, 2018
Founder, Intelligrated Inc., Mason, OH

Valarie L. Sheppard, 2019
Senior Vice President, Comptroller, and Treasurer, The Procter & Gamble Company, Cincinnati, OH

Pittsburgh Branch

Appointed by the Federal Reserve Bank

Audrey Dunning, 2017
Senior Vice President, CGI Group, Pittsburgh, PA

Robert I. Glimcher, 2017
President, Glimcher Group Inc., Pittsburgh, PA

Dmitri D. Shiry, 2018
Managing Partner, Deloitte LLP, Pittsburgh, PA

Shelley L. Fant, 2019
President and Chief Executive Officer, FCG Solutions, Inc., Pittsburgh, PA

Appointed by the Board of Governors

Charles L. Hammel III, 2017
President, PITT OHIO, Pittsburgh, PA

Stefani Pashman, 2018
Chief Executive Officer, Allegheny Conference on Community Development, Pittsburgh, PA

Doris Carson Williams, 2019
President and Chief Executive Officer, African American Chamber of Commerce of Western Pennsylvania, Pittsburgh, PA

District 5–Richmond

Class A

Robert R. Hill, Jr., 2017
Chief Executive Officer, South State Corporation, Columbia, SC

Susan K. Still, 2018
President and Chief Executive Officer, HomeTown Bankshares Corporation and HomeTown Bank, Roanoke, VA

William A. Loving, Jr., 2019
President and Chief Executive Officer, Pendleton Community Bank, Franklin, WV

Class B

Thomas C. Nelson, 2017
Chairman, President and Chief Executive Officer, National Gypsum Company, Charlotte, NC

Catherine A. Meloy, 2018
President and Chief Executive Officer, Goodwill of Greater Washington/Goodwill Excel Center, Washington, DC

Ángel Cabrera, 2019
President, George Mason University, Fairfax, VA

Class C

Kathy J. Warden, 2017
Corporate Vice President and President, Mission Systems, Northrop Grumman Corporation, Linthicum, MD

Calvin G. Butler, Jr., 2018
Chief Executive Officer, Baltimore Gas and Electric Company, Baltimore, MD

Margaret G. Lewis, 2019
Retired President, HCA Capital Division, Richmond, VA

Baltimore Branch

Appointed by the Federal Reserve Bank

Austin J. Slater, Jr., 2017
President and Chief Executive Officer, Southern Maryland Electric Cooperative, Inc., Hughesville, MD

Christopher J. Estes, 2018
Consultant on Business Development and Advocacy, Rebuilding Together of Washington, DC, Washington, DC

Laura L. Gamble, 2018
Regional President Greater Maryland, PNC, Baltimore, MD

Mary Ann Scully, 2019
Chairman, President, and Chief Executive Officer, Howard Bancorp, Ellicott City, MD

Appointed by the Board of Governors

Susan J. Ganz, 2017
Chief Executive Officer, Lion Brothers Company, Inc., Owings Mills, MD

Kenneth R. Banks, 2018
President and Chief Executive Officer, Banks Contracting Company, Pikesville, MD

Wayne A. I. Frederick, MD, 2019
President, Howard University, Washington, DC

Charlotte Branch

Appointed by the Federal Reserve Bank

R. Glenn Sherrill, Jr., 2017
President and Chief Operating Officer, SteelFab Inc., Charlotte, NC

Jerry L. Ocheltree, 2018
President and Chief Executive Officer, Carolina Trust Bank, Lincolnton, NC

Michael D. Garcia, 2018
President, *Pulp and Paper Division*, Domtar Corporation, Ft. Mill, SC

Michael C. Crapps, 2019
President and Chief Executive Officer, First Community Bank, Lexington, SC

Appointed by the Board of Governors

Claude Z. Demby, 2017
Vice President and General Manager, Cree, Inc., Durham, NC

Laura Y. Clark, 2018
Chief Impact Officer, United Way of Central Carolinas, Charlotte, NC

Michelle A. Mapp, 2019
Chief Executive Officer, South Carolina Community Loan Fund, Charleston SC

District 6–Atlanta

Class A

O.B. Grayson Hall, Jr., 2017
Chairman and Chief Executive Officer, Regions Financial Corporation, Birmingham, AL

Gerard R. Host, 2018
President and Chief Executive Officer, Trustmark Corporation, Jackson, MS

Robert W. Dumas, 2019
President and Chief Executive Officer, AuburnBank, Auburn, AL

Class B

Jonathan T.M. Reckford, 2017
Chief Executive Officer, Habitat for Humanity International, Atlanta, GA

Elizabeth A. Smith, 2018
Chairman and Chief Executive Officer, Bloomin' Brands, Inc., Tampa, FL

Mary A. Laschinger, 2019
Chairman and Chief Executive Officer, Veritiv Corporation, Atlanta, GA

Class C

Myron A. Gray, 2017
President, U.S. Operations, United Parcel Service, Atlanta, GA

Thomas A. Fanning, 2018
Chairman, President, and Chief Executive Officer, Southern Company, Atlanta, GA

Mike J. Jackson, 2019
Chairman, Chief Executive Officer, and President, AutoNation, Inc., Fort Lauderdale, FL

Birmingham Branch

Appointed by the Federal Reserve Bank

Herschell L. Hamilton, 2017
Chief Strategic Officer, BLOC Global Group, Birmingham, AL

David M. Benck, 2018
Vice President and General Counsel, Hibbett Sports, Birmingham, AL

Michael Case, 2018
Retired President and Chief Executive Officer, The Westervelt Company, Tuscaloosa, AL

Vacancy, 2019

Appointed by the Board of Governors

Nancy C. Goedecke, 2017
Chairman and Chief Executive Officer, Mayer Electric Supply Company, Inc., Birmingham, AL

Pamela B. Hudson, MD, 2018
Chief Executive Officer, Crestwood Medical Center, Huntsville, AL

Brandon W. Bishop, 2019
International Representative, Southern Region, International Union of Operating Engineers, Birmingham, AL

Jacksonville Branch

Appointed by the Federal Reserve Bank

Dana S. Kilborne, 2017
Co-President and Chief Commercial Officer, Sunshine Bank, Orlando, FL

John Hirabayashi, 2018
President and Chief Executive Officer, Community First Credit Union of Florida, Jacksonville, FL

Dawn Lockhart, 2018
Director of Strategic Partnerships, Office of the Mayor, City of Jacksonville, Jacksonville, FL

Paul G. Boynton, 2019
Chairman, President, and Chief Executive Officer, Rayonier Advanced Materials, Inc., Jacksonville, FL

Appointed by the Board of Governors

David L. Brown, 2017
Chairman, Chief Executive Officer, and President, Web.com, Jacksonville, FL

Harold Mills, 2018
Owner, Wired Technologies Group, Windermere, FL

Cynthia A. Bioteau, 2019
Chief Executive Officer and College President, Florida State College at Jacksonville, Jacksonville, FL

Miami Branch

Appointed by the Federal Reserve Bank

Carol C. Lang, 2017
President, HealthLink Enterprises, Inc., Miami Beach, FL

Victoria E. Villalba, 2017
President and Chief Executive Officer, Victoria & Associates Career Services, Inc., Miami, FL

Millar Wilson, 2018
Vice Chairman and Chief Executive Officer, Mercantil Bank, N.A.,
Coral Gables, FL

Eduardo Arriola, 2019
Chairman and Chief Executive Officer, Apollo Bank, Miami, FL

Appointed by the Board of Governors

Keith T. Koenig, 2017
President, City Furniture, Tamarac, FL

Michael A. Wynn, 2018
Board Chairman and President, Sunshine Ace Hardware, Bonita Springs, FL

Ana M. Menendez, 2019
Chief Financial Officer and Treasurer, Watsco, Inc., Coconut Grove, FL

Nashville Branch

Appointed by the Federal Reserve Bank

W. Michael Madden, 2017
President and Chief Executive Officer, Kirkland's, Inc., Brentwood, TN

Kent M. Adams, 2018
Former President and Chief Executive Officer, Caterpillar Financial Services Corp., *Former Vice President*, Caterpillar, Inc., Nashville, TN

Beth R. Chase, 2018
Chief Executive Officer, c3/Consulting, Nashville, TN

Claire W. Tucker, 2019
President and Chief Executive Officer, CapStar Financial Holdings, Inc., Nashville, TN

Appointed by the Board of Governors

Scott McWilliams, 2017
Executive Vice President of Strategic Development, GEODIS, Brentwood, TN

Richard D. Holder, 2018
President and Chief Executive Officer, NN, Inc., Johnson City, TN

Matthew S. Bourlakas, 2019
President and Chief Executive Officer, Goodwill Industries of Middle Tennessee, Inc., Nashville, TN

New Orleans Branch

Appointed by the Federal Reserve Bank

Lampkin Butts, 2017
President and Chief Operating Officer, Sanderson Farms, Inc., Laurel, MS

Phillip R. May, 2018
President and Chief Executive Officer, Entergy Louisiana, LLC, Jefferson, LA

Suzanne T. Mestayer, 2018
Managing Principal, ThirtyNorth Investments, LLC, New Orleans, LA

Elizabeth A. Ardoin, 2019
Senior Executive Vice President – Director of Communications, IBERIABANK, Lafayette, LA

Appointed by the Board of Governors

Fred T. Stimpson III, 2017
President, U.S. South Operations, Canfor Scotch Gulf, Mobile, AL

Art E. Favre, 2018
President and Chief Executive Officer, Performance Contractors, Inc., Baton Rouge, LA

G. Janelle Frost, 2019
President and Chief Executive Officer, AMERISAFE, Inc., DeRidder, LA

District 7–Chicago

Class A

David W. Nelms, 2017
Chairman and Chief Executive Officer, Discover Financial Services, Riverwoods, IL

William M. Farrow, 2018
President and Chief Executive Officer, Urban Partnership Bank, Chicago, IL

Abram A. Tubbs, 2019
Chairman and Chief Executive Officer, Ohnward Bank & Trust, Cascade, IA

Class B

Nelda J. Connors, 2017
Chairwoman and Chief Executive Officer, Pine Grove Holdings, LLC, Chicago, IL

Susan M. Collins, 2018
Joan and Sanford Weill Dean of Public Policy, University of Michigan, Ann Arbor, MI

Jorge Ramirez, 2019
President, Chicago Federation of Labor, Chicago, IL

Class C

E. Scott Santi, 2017
Chairman and Chief Executive Officer, Illinois Tool Works Inc., Glenview, IL

Greg Brown, 2018
Chairman and Chief Executive Officer, Motorola Solutions, Inc., Chicago, IL

Anne R. Pramaggiore, 2019
President and Chief Executive Officer, ComEd, Chicago, IL

Detroit Branch

Appointed by the Federal Reserve Bank

Sandra E. Pierce, 2017
Chairman & Senior Executive Vice President, Private Client Group and Regional Banking Director, Huntington Michigan, Southfield, MI

Sandy K. Baruah, 2017
President and Chief Executive Officer, Detroit Regional Chamber, Detroit, MI

Rip Rapson, 2018
President and Chief Executive Officer, The Kresge Foundation, Troy, MI

Joseph B. Anderson, Jr., 2019
Chairman and Chief Executive Officer, TAG Holdings, LLC, Wixom, MI

Appointed by the Board of Governors

Michael L. Seneski, 2017
Former Director of Mobility, Ford Motor Company, Dearborn, MI

Wright L. Lassiter III, 2018
President and Chief Executive Officer, Henry Ford Health System, Detroit, MI

Linda P. Hubbard, 2019
President and Chief Operating Officer, Carhartt, Inc., Dearborn, MI

District 8–St. Louis

Class A

Susan S. Stephenson, 2017
Co-Chairman and President, Independent Bank, Memphis, TN

Patricia L. Clarke, 2018
President and Chief Executive Officer, First National Bank of Raymond, Raymond, IL

D. Bryan Jordan, 2019
Chairman, President, and Chief Executive Officer, First Horizon National Corporation, Memphis, TN

Class B

John N. Roberts III, 2017
President and Chief Executive Officer, J.B. Hunt Transport Services, Inc., Lowell, AR

Daniel J. Ludeman, 2018
President and Chief Executive Officer, Concordance Academy of Leadership, St. Louis, MO

Alice K. Houston, 2019
Chief Executive Officer, HJI Supply Chain Solutions, Louisville, KY

Class C

James M. McKelvey, Jr., 2017
Founder and Chief Executive Officer, Invisibly, St. Louis, MO

Suzanne Sitherwood, 2018
President and Chief Executive Officer, Spire Inc., St. Louis, MO

Kathleen M. Mazzarella, 2019
Chairman, President and Chief Executive Officer, Graybar Electric Company, Inc., St. Louis, MO

Little Rock Branch

Appointed by the Federal Reserve Bank

Keith Glover, 2017
President and Chief Executive Officer, Producers Rice Mill, Inc., Stuttgart, AR

Karama Neal, 2017
Chief Operating Officer, Southern Bancorp Community Partners, Little Rock, AR

Vacancy, 2018

R. Andrew Clyde, 2019
President and Chief Executive Officer, Murphy USA Inc., El Dorado, AR

Appointed by the Board of Governors

Ray C. Dillon, 2017
Former President and Chief Executive Officer, Deltic Timber Corporation, El Dorado, AR

Robert Martinez, 2018
Owner, Rancho La Esperanza, DeQueen, AR

Millie A. Ward, 2019
President, Stone Ward, Little Rock, AR

Louisville Branch

Appointed by the Federal Reserve Bank

Malcolm Bryant, 2017
President, The Malcolm Bryant Corporation, Owensboro, KY

Mary K. Moseley, 2017
Partner Owner, Al J. Schneider Company, Louisville, KY

Ben Reno-Weber, 2018
Co-Founder, MobileServe, Louisville, KY

Patrick J. Glotzbach, 2019
Chief Executive Officer, The New Washington State Bank, Charlestown, IN

Appointed by the Board of Governors

Sadiqa N. Reynolds, 2017
President and Chief Executive Officer, Louisville Urban League, Louisville, KY

Susan E. Parsons, 2018
Chief Financial Officer, Secretary, and Treasurer, Koch Enterprises, Inc., Evansville, IN

Randy W. Schumaker, 2019
Former President and Chief Management Officer, Logan Aluminum, Inc., Russellville, KY

Memphis Branch

Appointed by the Federal Reserve Bank

R. Molitor Ford, Jr., 2017
Vice Chairman and Chief Executive Officer, Commercial Bank and Trust Company, Memphis, TN

Michael E. Cary, 2017
President and Chief Executive Officer, Carroll Bank and Trust, Huntingdon, TN

Julianne Goodwin, 2018
Owner, Express Employment Professionals, Tupelo, MS

J. Brice Fletcher, 2019
Chairman, First National Bank of Eastern Arkansas, Forrest City, AR

Appointed by the Board of Governors

David T. Cochran, Jr., 2017
Partner, CoCo Planting Co., Avon, MS

Eric D. Robertson, 2018
President, Community LIFT Corporation, Memphis, TN

Carolyn Chism Hardy, 2019
President and Chief Executive Officer, Chism Hardy Investments, LLC, Collierville, TN

District 9–Minneapolis

Class A

Thomas W. Armstrong, 2017
President, First National Bank of Park Falls, Park Falls, WI

Randy L. Newman, 2018
Chairman and Chief Executive Officer, Alerus Financial, NA & Alerus Financial Corp., Grand Forks, ND

Catherine T. Kelly, 2019
Regional President, PNC Bank, Minneapolis-St. Paul, Minneapolis, MN

Class B

Kathleen Neset, 2017
President, Neset Consulting Service, Tioga, ND

Christine E. Hamilton, 2018
Managing Partner, Christiansen Land and Cattle, Ltd., Kimball, SD

Srilata Zaheer, 2019
Dean, Carlson School of Management, University of Minnesota, Minneapolis, MN

Class C

MayKao Y. Hang, 2017
President and Chief Executive Officer, Amherst H. Wilder Foundation, St. Paul, MN

Harry D. Melander, 2018
President, Minnesota Building and Construction Trades Council, St. Paul, MN

Kendall J. Powell, 2019
Chairman, General Mills, Inc., Minneapolis, MN

Helena Branch

Appointed by the Federal Reserve Bank

Duane Kurokawa, 2017
President, Western Bank of Wolf Point, Wolf Point, MT

Barbara Stiffarm, 2018
Executive Director, Opportunity Link, Inc., Havre, MT

Norma Nickerson, 2019
Director, Institute for Tourism & Recreation Research, University of Montana, Missoula, MT

Appointed by the Board of Governors

Sarah Walsh, 2017
Chief Operating Officer, PayneWest Insurance, Helena, MT

Marsha Goetting, 2018
Professor and Extension Family Economics Specialist, Montana State University, Bozeman, MT

District 10–Kansas City

Class A

Paul J. Thompson, 2017
Chairman, President, and Chief Executive Officer, Country Club Bank, Kansas City, MO

Mark A. Zaback, 2018
President and Chief Executive Officer, Jonah Bank of Wyoming, Casper, WY

Gregory Hohl, 2019
Chairman and President, Wahoo State Bank, Wahoo, NE

Class B

Lilly Marks, 2017
Vice President for Health Affairs, University of Colorado and Anschutz Medical Campus, Aurora, CO

Brent A. Stewart, Sr., 2018
President and Chief Executive Officer, United Way of Greater Kansas City, Kansas City, MO

Douglas J. Stussi, 2019
Executive Vice President - Chief Financial Officer, Love's Travel Stops & Country Stores, Oklahoma City, OK

Class C

James C. Farrell, 2017
President and Chief Executive Officer, Farmers National Company, Omaha, NE

Steve Maestas, 2018
Chief Executive Officer, Maestas Development Group, Albuquerque, NM

Rose M. Washington, 2019
Executive Director, Tulsa Economic Development Corporation, Tulsa, OK

Denver Branch

Appointed by the Federal Reserve Bank

Ashley J. Burt, 2017
President and Chief Executive Officer, The Gunnison Bank and Trust Company, Gunnison, CO

Edmond Johnson, 2018
President and Owner, Premier Manufacturing Inc., Frederick, CO

Katharine W. Winograd, 2018
President, Central New Mexico Community College, Albuquerque, NM

Jeffrey C. Wallace, 2019
Chief Executive Officer, Wyoming Bank & Trust, Cheyenne, WY

Appointed by the Board of Governors

Gary DeFrange, 2017
Retired President and Chief Operating Officer, Winter Park Resort, Winter Park, CO

Richard L. Lewis, 2018
President and Chief Executive Officer, RTL Networks, Inc., Denver, CO

Taryn Edwards, 2019
Senior Vice President, Saunders Construction, Englewood, CO

Oklahoma City Branch

Appointed by the Federal Reserve Bank

Tina Patel, 2017
Chief Financial Officer, Promise Hotels, Inc., Tulsa, OK

Michael C. Coffman, 2018
Retired President and Chief Executive Officer, Panhandle Oil and Gas, Inc., Oklahoma City, OK

Susan Chapman Plumb, 2019
Chief Operating Officer and Counsel, Bank of Cherokee County, Tahlequah, OK

Vacancy, 2019

Appointed by the Board of Governors

Katrina Washington, 2017
Owner, Stratos Realty Group LLC, Oklahoma City, OK

Peter B. Delaney, 2018
Retired Chairman and Chief Executive Officer, OGE Energy Corp., Oklahoma City, OK

Clint D. Abernathy, 2019
President, Abernathy Farms, Inc., Altus, OK

Omaha Branch

Appointed by the Federal Reserve Bank

Jeff W. Krejci, 2017
President and Director,
Cornerstone Bank, York, NE

Brian D. Esch, 2018
President and Chief Executive Officer, McCook National Bank, McCook, NE

Thomas J. Henning, 2018
President and Chief Executive Officer, Cash-Wa Distributing Co., Kearney, NE

Annette Hamilton, 2019
Chief Operating Officer,
Ho-Chunk, Inc. Winnebago, NE

Appointed by the Board of Governors

Eric L. Butler, 2017
Retired Executive Vice President and Chief Administrative Officer,
Union Pacific Railroad,
Omaha, NE

Kimberly A. Russel, 2018
President and Chief Executive Officer, Bryan Health,
Lincoln, NE

John F. Bourne, 2019
Retired International Representative, International Brotherhood of Electrical Workers, Omaha, NE

District 11–Dallas

Class A

Christopher C. Doyle, 2017
President and Chief Executive Officer, Texas First Bank,
Texas City, TX

Allan James Rasmussen, 2018
President and Chief Executive Officer, HomeTown Bank, N.A.,
Galveston, TX

J. Russell Shannon, 2019
President and Chief Executive Officer, National Bank of Andrews, Andrews, TX

Class B

Jorge A. Bermudez, 2017
President and Chief Executive Officer, The Byebrook Group, LLC, College Station, TX

Ann B. Stern, 2018
President and Chief Executive Officer, Houston Endowment Inc., Houston, TX

Curtis V. Anastasio, 2019
Chairman, GasLog Partners L.P.,
San Antonio, TX

Class C

Ellen Ochoa, 2017
Government Executive,
Houston, TX

Greg L. Armstrong, 2018
Chairman and Chief Executive Officer, Plains All American Pipeline L.P., Houston, TX

Matthew K. Rose, 2019
Executive Chairman, BNSF Railway Company, Fort Worth, TX

El Paso Branch

Appointed by the Federal Reserve Bank

Jerry Pacheco, 2017
President, Global Perspectives Integrated, Inc.,
Santa Teresa, NM

Teresa O. Molina, 2017
President, First New Mexico Bank, Deming, NM

Mary E. Kipp, 2018
Chief Executive Officer, El Paso Electric Company, El Paso, TX

Paul L. Foster, 2019
Director, Andeavor, El Paso, TX

Appointed by the Board of Governors

Richard D. Folger, 2017
Managing General Partner,
Colbridge Partners Ltd.,
Midland, TX

Renard U. Johnson, 2018
President and Chief Executive Officer, Management & Engineering Technologies International, Inc. (METI, Inc.), El Paso, TX

Julio Chiu, 2019
Founder and Chief Executive Officer, SEISA Medical, Inc., El Paso, TX

Houston Branch

Appointed by the Federal Reserve Bank

Albert Chao, 2017
President and Chief Executive Officer, Westlake Chemical Corp., Houston, TX

R.A. Walker, 2017
Chairman, President, and Chief Executive Officer, Anadarko Petroleum Corporation,
Houston, TX

David Zalman, 2018
Chairman and Chief Executive Officer, Prosperity Bancshares, Houston, TX

Darryl L. Wilson, 2019
Vice President and Chief Commercial Officer, General Electric Company, Houston, TX

Appointed by the Board of Governors

Vacancy, 2017

Vacancy, 2018

Marcus A. Watts, 2019
President, The Friedkin Group, Houston, TX

San Antonio Branch

Appointed by the Federal Reserve Bank

Janie Barrera, 2017
President and Chief Executive Officer, LiftFund, San Antonio, TX

Robert L. Lozano, 2017
President/Owner, Lynn Lee Inc., Dairy Queen, Pharr, TX

Alfred B. Jones, 2018
President and Director, American Bank Holding Corp., Corpus Christi, TX

Charles E. Amato, 2019
Chairman and Co-founder, Southwest Business Corp. (SWBC), San Antonio, TX

Appointed by the Board of Governors

Manoj Saxena, 2017
Managing Director, The Entrepreneurs' Fund, Austin, TX

Jesús Garza, 2018
Retired President and Chief Executive Officer, Seton Healthcare Family, Austin, TX

James Conrad Weaver, 2019
Chief Executive Officer, McCombs Partners, San Antonio, TX

District 12–San Francisco

Class A

Megan F. Clubb, 2017
Chairman of the Board, Baker Boyer National Bank, Walla Walla, WA

Peter S. Ho, 2018
Chairman, President, and Chief Executive Officer, Bank of Hawaii and Bank of Hawaii Corporation, Honolulu, HI

Steven R. Gardner, 2019
President and Chief Executive Officer, Pacific Premier Bank, Irvine, CA

Class B

Richard A. Galanti, 2017
Executive Vice President and Chief Financial Officer, Costco Wholesale Corporation, Issaquah, WA

Steven E. Bochner, 2018
Partner, Wilson, Sonsini, Goodrich, & Rosati, P.C., Palo Alto, CA

Sanford L. Michelman, 2019
Chairman, Michelman & Robinson, LLP, Los Angeles, CA

Class C

Rosemary Turner, 2017
President, UPS North California District, Oakland, CA

Alexander R. Mehran, 2018
Chairman and Chief Executive Officer, Sunset Development Company, San Ramon, CA

Barry M. Meyer, 2019
Retired Chairman and Chief Executive Officer, Warner Bros. Entertainment, *Chairman and Founder*, North Ten Mile Associates, Los Angeles, CA

Los Angeles Branch

Appointed by the Federal Reserve Bank

Peggy Tsiang Cherng, 2017
Co-Chair and Co-Chief Executive Officer, Panda Restaurant Group, Inc., Rosemead, CA

Ilyanne Morden Kichaven, 2018
Executive Director, Los Angeles, SAG-AFTRA, Los Angeles, CA

Luis Faura, 2018
President and Chief Executive Officer, C&F Foods, Inc., City of Industry, CA

Steven W. Streit, 2019
Founder, President, and Chief Executive Officer, Green Dot Bank and Green Dot Corporation, Pasadena, CA

Appointed by the Board of Governors

Robert H. Gleason, 2017
President and Chief Executive Officer, Evans Hotels, San Diego, CA

Anita V. Pramoda, 2018
Chief Executive Officer, Owned Outcomes, Las Vegas, NV

James A. Hughes, 2019
Former Director and Chief Executive Officer, First Solar, Inc., Tempe, AZ

Portland Branch

Appointed by the Federal Reserve Bank

Robert C. Hale, 2017
Chief Executive Officer, Hale Companies, Hermiston, OR

Charles A. Wilhoite, 2017
Managing Director, Willamette Management Associates, Portland, OR

S. Randolph Compton, 2018
Chief Executive Officer and Co-Chair of the Board, Pioneer Trust Bank, N.A., Salem, OR

Steven J. Zika, 2019
Chief Executive Officer, Hampton Lumber, Portland, OR

Appointed by the Board of Governors

Tamara L. Lundgren, 2017
President and Chief Executive Officer, Schnitzer Steel Industries, Inc., Portland, OR

Román D. Hernández, 2018
Partner, K&L Gates, Portland, OR

Anne C. Kubisch, 2019
President and Chief Executive Officer, The Ford Family Foundation, Roseburg, OR

Salt Lake City Branch

Appointed by the Federal Reserve Bank

Josh England, 2017
President, C.R. England, Inc., Salt Lake City, UT

Park Price, 2017
Chief Executive Officer Emeritus and Chairman, Bank of Idaho, Idaho Falls, ID

Susan D. Mooney Johnson, 2018
President Emeritus, Futura Industries, Clearfield, UT

Peter R. Metcalf, 2019
Founder, Brand Advocate, and Chief Executive Officer Emeritus, Black Diamond, Inc., Salt Lake City, UT

Appointed by the Board of Governors

Patricia R. Richards, 2017
President and Chief Executive Officer, SelectHealth, Inc., Murray, UT

Arthur F. Oppenheimer, 2018
Chairman and Chief Executive Officer, Oppenheimer Companies, Inc., Boise, ID

David B. Smith, 2019
Chief Operating Officer, Larry H. Miller Management Corporation, Sandy, UT

Seattle Branch

Appointed by the Federal Reserve Bank

Craig Dawson, 2017
President and Chief Executive Officer, Retail Lockbox, Inc., Seattle, WA

Carol K. Nelson, 2017
Pacific Region Sales Executive and Seattle Market President, KeyBank, Seattle, WA

Cheryl B. Fambles, 2018
Chief Executive Officer, Pacific Mountain Workforce Development Council, Tumwater, WA

Andrew Wolff, 2019
Chief Financial Officer, International and Channel Development, Starbucks Coffee Company, Seattle, WA

Appointed by the Board of Governors

Scott L. Morris, 2017
Chairman, President and Chief Executive Officer, Avista Corporation, Spokane, WA

West Mathison, 2018
President, Stemilt Growers, LLC, Wenatchee, WA

Sophie Minich, 2019
President and Chief Executive Officer, Cook Inlet Region, Inc., Anchorage, AK

Reserve Bank and Branch Leadership

Each year, the Board of Governors designates one Class C director to serve as chair, and one Class C director to serve as deputy chair, of each Reserve Bank board. Reserve Banks also have a president and first vice president who are appointed by the Bank's Class C, and certain Class B, directors, subject to approval by the Board of Governors. Each Reserve Bank selects a chair for every Branch in its District from among the directors on the Branch board who were appointed by the Board of Governors. For each Branch, an officer from its Reserve Bank is also charged with the oversight of Branch operations.

Boston

Gary L. Gottlieb, MD, *Chair*

Phillip L. Clay, *Deputy Chair*

Eric S. Rosengren, *President and Chief Executive Officer*

Kenneth C. Montgomery, *First Vice President and Chief Operating Officer*

New York

Sara Horowitz, *Chair*

Denise Scott, *Deputy Chair*

William C. Dudley, *President*

Michael Strine, *First Vice President*

Additional office at East Rutherford, NJ

Philadelphia

Michael J. Angelakis, *Chair*

Brian M. McNeill, *Deputy Chair*

Patrick T. Harker, *President*

James D. Narron, *First Vice President*

Cleveland

John P. Surma, *Chair*

Dawne S. Hickton, *Deputy Chair*

Loretta J. Mester, *President*

Gregory Stefani, *First Vice President*

Cincinnati

Valarie L. Sheppard, *Chair*

Gary Wagner, *Senior Regional Officer*

Pittsburgh

Doris Carson Williams, *Chair*

Guhan Venkatu, *Senior Regional Officer*

Richmond

Margaret G. Lewis, *Chair*

Kathy J. Warden, *Deputy Chair*

Mark L. Mullinix, *Interim President and Chief Executive Officer*

Baltimore

Susan J. Ganz, *Chair*

David E. Beck, *Senior Vice President and Baltimore Regional Executive*

Charlotte

Laura Y. Clark, *Chair*

Matthew A. Martin, *Senior Vice President and Charlotte Regional Executive*

Atlanta

Thomas A. Fanning, *Chair*

Mike J. Jackson, *Deputy Chair*

Raphael W. Bostic, *President*

Marie C. Gooding, *First Vice President*

Birmingham

Pamela B. Hudson, MD, *Chair*

Lesley McClure, *Vice President and Regional Executive*

Jacksonville

David L. Brown, *Chair*

Christopher L. Oakley, *Vice President and Regional Executive*

Miami

Michael A. Wynn, *Chair*

Karen Gilmore, *Vice President and Regional Executive*

Nashville

Scott McWilliams, *Chair*

Lee C. Jones, *Vice President and Regional Executive*

New Orleans

Art E. Favre, *Chair*

Adrienne C. Slack, *Vice President and Regional Executive*

Chicago

Anne R. Pramaggiore, *Chair*

E. Scott Santi, *Deputy Chair*

Charles L. Evans, *President*

Ellen J. Bromagen, *First Vice President and Chief Operating Officer*

Additional office at Des Moines, IA

Detroit

Michael L. Seneski, *Chair*

Robert Wiley, *Senior Vice President, Chief Information Officer, District Operations and Detroit Branch Manager*

St. Louis

Kathleen M. Mazzarella, *Chair*

Suzanne Sitherwood, *Deputy Chair*

James Bullard, *President*

David A. Sapenaro, *First Vice President and Chief Operating Officer*

Little Rock

Ray C. Dillon, *Chair*

Robert A. Hopkins, *Senior Vice President and Regional Executive*

Louisville

Susan E. Parsons, *Chair*

Nikki R. Jackson, *Senior Vice President and Regional Executive*

Memphis

David T. Cochran, Jr., *Chair*

Douglas G. Scarboro, *Senior Vice President and Regional Executive*

Minneapolis

MayKao Y. Hang, *Chair*

Kendall J. Powell, *Deputy Chair*

Neel T. Kashkari, *President*

Ron Feldman, *First Vice President*

Helena

Marsha Goetting, *Chair*

Major Robinson, *Assistant Vice President and Branch Executive*

Kansas City

Rose M. Washington, *Chair*

Steve Maestas, *Deputy Chair*

Esther L. George, *President*

Kelly J. Dubbert, *First Vice President*

Denver

Richard L. Lewis, *Chair*

Alison Felix, *Vice President and Branch Executive*

Oklahoma City

Peter B. Delaney, *Chair*

Chad R. Wilkerson, *Vice President and Branch Executive*

Omaha

John F. Bourne, *Chair*

Nathan Kauffman, *Assistant Vice President and Branch Executive*

Dallas

Matthew K. Rose, *Chair*

Greg L. Armstrong, *Deputy Chair*

Robert S. Kaplan, *President*

Meredith N. Black, *First Vice President*

El Paso

Richard D. Folger, *Chair*

Roberto A. Coronado, *Officer in Charge*

Houston

Marcus A. Watts, *Chair*

Daron D. Peschel, *Officer in Charge*

San Antonio

Manoj Saxena, *Chair*

Blake Hastings, *Officer in Charge*

San Francisco

Alexander R. Mehran, *Chair*

Barry M. Meyer, *Deputy Chair*

John C. Williams, *President*

Mark A. Gould, *First Vice President*

Additional office at Phoenix, AZ

Los Angeles

James A. Hughes, *Chair*

Roger W. Replogle, *Regional Executive*

Portland

Tamara L. Lundgren, *Chair*

Lynn Jorgensen, *Regional Executive*

Salt Lake City

Patricia R. Richards, *Chair*

Robin A. Rockwood, *Regional Executive*

Seattle

Scott L. Morris, *Chair*

Darlene Wilczynski, *Regional Executive*

Leadership Conferences

Conference of Chairs

The chairs of the Federal Reserve Banks are organized into the Conference of Chairs, which meets to consider matters of common interest and to consult with and advise the Board of Governors. Such meetings, also attended by the deputy chairs, were held in Washington, D.C., on May 23–24 and November 7–8, 2017. The conference's executive committee members for 2017 are listed below.[1]

Conference of Chairs Executive Committee—2017

Thomas A. Fanning, *Chair*,
Federal Reserve Bank of Atlanta

Rose M. Washington, *Vice Chair*,
Federal Reserve Bank of Kansas City

Margaret G. Lewis, *Member*,
Federal Reserve Bank of Richmond

Conference of Presidents

The presidents of the Federal Reserve Banks are organized into the Conference of Presidents, which meets periodically to identify, define, and deliberate issues of strategic significance to the Federal Reserve System; to consider matters of common interest; and to consult with and advise the Board of Governors. The chief executive officer of each Reserve Bank was originally labeled governor and did not receive the title of president until the passage of the Banking Act of 1935. Consequently, when the Conference was first established in 1914 it was known as the Conference of Governors. Conference officers for 2017 are listed below.

Conference of Presidents—2017

Eric S. Rosengren, *Chair*,
Federal Reserve Bank of Boston

Charles L. Evans, *Vice Chair*,
Federal Reserve Bank of Chicago

Joel W. Werkema, *Secretary*,
Federal Reserve Bank of Boston

Keri Trolson, *Assistant Secretary*,
Federal Reserve Bank of Chicago

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[1] On November 8, 2017, the Conference of Chairs elected Rose M. Washington, chair of the Federal Reserve Bank of Kansas City, as chair of the conference's executive committee for 2018. The conference also elected Kendall J. Powell, deputy chair of the Federal Reserve Bank of Minneapolis for 2017 as vice chair, and Dawne S. Hickton, deputy chair of the Federal Reserve Bank of Cleveland for 2017, as the executive committee's third member.

Conference of First Vice Presidents

The Conference of First Vice Presidents of the Federal Reserve Banks was organized in 1969 to meet periodically for the consideration of operations and other matters. Conference officers for 2017 are listed below.[2]

Conference of First Vice Presidents—2017

Gregory Stefani, *Chair*,
Federal Reserve Bank of Cleveland

Kelly J. Dubbert, *Vice Chair*,
Federal Reserve Bank of Kansas City

Terri Bialowas, *Secretary*,
Federal Reserve Bank of Cleveland

Erika Hamilton, *Assistant Secretary*,
Federal Reserve Bank of Kansas City

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[2] On November 4, 2015, the conference elected Gregory Stefani as chair for 2016–17 and Kelly Dubbert, Federal Reserve Bank of Kansas City, as vice chair. The conference also elected Terri Bialowas as secretary and Erika Hamilton, Federal Reserve Bank of Kansas City, as assistant secretary.

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