Prefatory Note

The attached document represents the most complete and accurate version available based on original files from the FOMC Secretariat at the Board of Governors of the Federal Reserve System.

Please note that some material may have been redacted from this document if that material was received on a confidential basis. Redacted material is indicated by occasional gaps in the text or by gray boxes around non-text content. All redacted passages are exempt from disclosure under applicable provisions of the Freedom of Information Act.

Content last modified 01/08/2021.

Class II FOMC – Restricted (FR)

Report to the FOMC
on Economic Conditions
and Monetary Policy

Book A

Economic and Financial Conditions:
Current Situation and Outlook

June 10, 2015

Prepared for the Federal Open Market Committee
by the staff of the Board of Governors of the Federal Reserve System

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Domestic Economic Developments and Outlook

The economic expansion appears to have downshifted modestly: After increasing 2½ percent last year, real GDP looks to be on track to rise at an annual rate of only 1 percent over the first half of this year, even assuming—as we do—that some of the factors that weighed on spending early in the year have already unwound. Over the second half, we expect real GDP growth will step up to a 2 percent annual rate. Such a pace would exceed our assumption for the economy's potential growth rate by ½ percentage point, but it would also be a few tenths slower than we anticipated in the April Tealbook, as we have become more guarded in our assessment of the outlook for household spending.

One reason we have not reacted more strongly to the recent slowdown in spending is that conditions in the labor market have continued to improve. After slowing some in the first quarter, payroll employment posted stronger gains in April and May. Meanwhile, the employment-to-population ratio has continued to converge toward our estimate of its trend at the same pace that we anticipated in the April projection.

Beyond the near term, we expect that real GDP growth will be 2½ percent in 2016 before edging down to 2¼ percent in 2017. All told, the growth that we anticipate is sufficient to close the output gap by the end of 2017, much as in the April Tealbook. The unemployment rate is expected to edge down from 5.5 percent in the second quarter of this year to 5.2 percent in the fourth quarter of 2016—in line with our estimate of its natural rate—and to remain there through the end of the medium term. As in previous forecasts, we continue to expect that an unwinding of the current unusual weakness in labor force participation will attenuate the speed at which the jobless rate declines going forward.

Our outlook for inflation is little revised. As in the April Tealbook, we have core inflation gradually moving up from 1¼ percent this year to 1¾ percent in 2017 as import prices turn back up, resource utilization tightens, and the effects of earlier sharp declines in energy prices wane. Over most of the medium term, we expect total PCE inflation to run roughly in line with core inflation. The recent data provide some evidence that compensation is accelerating; smoothing through the quarterly volatility, we continue to expect that compensation growth, as measured by the employment cost index (ECI), will

Domestic Econ Devel & Outlook

Revisions to the Staff Projection since the Previous SEP

The FOMC most recently published its Summary of Economic Projections, or SEP, following the March FOMC meeting. The table below compares the staff's current economic projection with the one we presented in the March Tealbook.

Since the March projection, we have revised down our forecast for real GDP growth this year, primarily reflecting the weaker-than-expected incoming data on aggregate spending. Our forecast for real GDP growth in 2016 and 2017 is slightly higher than in March, mostly because our projected path for the foreign exchange value of the dollar is lower. Altogether, these revisions leave our projection for the GDP gap next year and in 2017 weaker than in the March forecast. The unemployment rate has declined a little less than we expected in March and is projected to average 5.3 percent in the fourth quarter of this year. Reflecting both the recent labor data and our lower projected path for aggregate output, the unemployment rate is revised up a little at the end of 2017 to 5.2 percent, equal to the staff's estimate of its natural rate.

The staff's projection for headline PCE inflation has been revised up somewhat in the first half of this year, mostly reflecting recent higher-than-expected readings for consumer energy prices, and projected core PCE inflation is essentially unchanged. Given our assumptions that longer-run inflation expectations will remain stable over the medium term, the earlier declines in energy prices were transitory, and core import prices will start to rise after this year, our forecasts for headline and core inflation in 2016 and 2017 are little changed. We continue to project that inflation will run somewhat below the Committee's 2 percent objective through 2017.

Staff Economic Projections Compared with the March Tealbook

Variable	2014	2015 H1	2015 H2	2015	2016	2017	Longer run
Real GDP[1]	2.4	1.0	2.1	1.6	2.4	2.2	1.9
March Tealbook	2.4	2.2	2.3	2.2	2.3	2.0	1.9
Unemployment rate[2]	5.7	5.5	5.3	5.3	5.2	5.2	5.2
March Tealbook	5.7	5.3	5.2	5.2	5.1	5.0	5.2
PCE inflation[1]	1.1	-.1	1.3	.6	1.6	1.8	2.0
March Tealbook	1.1	-.3	1.6	.6	1.7	1.9	2.0
Core PCE inflation[1]	1.4	1.2	1.4	1.3	1.6	1.8	n.a.
March Tealbook	1.4	1.1	1.5	1.3	1.6	1.8	n.a.
Federal funds rate[2]	.10	.13	.35	.35	1.26	2.12	3.50
March Tealbook	.10	.16	.66	.66	1.75	2.67	3.50
Memo: Federal funds rate, end of period	.13	.13	.44	.44	1.33	2.19	3.50
March Tealbook	.13	.20	.76	.76	1.84	2.73	3.50
GDP gap[2,3]	-1.0	-1.3	-1.0	-1.0	-.4	.1	n.a.
March Tealbook	-1.0	-.7	-.4	-.4	.2	.5	n.a.

1. Percent change from final quarter of preceding period to final quarter of period indicated.
2. Percent, final quarter of period indicated.
3. Percent difference between actual and potential. A negative number indicates that the economy is operating below potential.
n.a. Not available.

Since the March Tealbook, our assumption for the date of liftoff of the federal funds rate from its effective lower bound was changed from the second quarter to the third quarter of this year. Reflecting both the later assumed liftoff date and the softer GDP gap in the current forecast, the projected path for the federal funds rate is around ½ percentage point lower at the end of next year and in 2017 than in March.

Because FOMC participants are providing additional information about their expectations of the economic conditions that will exist at the time they anticipate it will first become appropriate to increase the target range for the federal funds rate, we include the table below providing quarterly information from the staff projection. In the third quarter of this year—the quarter when our baseline projection assumes liftoff of the federal funds rate will occur—we forecast the unemployment rate to average 5.4 percent and the trailing four-quarter change in real GDP to be 1.5 percent. We project the trailing four-quarter change in core PCE inflation to be 1.2 percent, and the four-quarter change in headline PCE prices to be only 0.2 percent because of earlier decreases in energy prices. (We do not anticipate that these energy price declines will fall out of the four-quarter change in headline inflation until early next year.) Of course, even the preliminary versions of these readings on economic performance will not become available until after the close of the quarter in question.

Staff Economic Projections Compared with the March Tealbook, Quarterly

Variable	2015				2016			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Four-quarter percent change								
Real GDP	2.8	2.3	1.5	1.6	2.2	2.2	2.4	2.4
March Tealbook	3.3	2.8	2.2	2.2	2.4	2.3	2.3	2.3
PCE inflation	.3	.2	.2	.6	1.5	1.4	1.5	1.6
March Tealbook	.3	.0	.1	.6	1.5	1.6	1.6	1.7
Core PCE inflation	1.3	1.2	1.2	1.3	1.5	1.5	1.5	1.6
March Tealbook	1.3	1.1	1.2	1.3	1.5	1.5	1.6	1.6
Percent								
Unemployment rate	5.6	5.5	5.4	5.3	5.3	5.3	5.3	5.2
March Tealbook	5.5	5.3	5.2	5.2	5.1	5.1	5.1	5.1
Federal funds rate	.11	.13	.15	.35	.59	.82	1.04	1.26
March Tealbook	.13	.16	.40	.66	.95	1.23	1.50	1.75
Memo								
Federal funds rate, end of period	.11	.13	.19	.44	.67	.89	1.11	1.33
March Tealbook	.13	.20	.49	.76	1.05	1.33	1.59	1.84

Domestic Econ Devel & Outlook

Comparing the Staff Projection with Other Forecasts

The staff's projection for real GDP growth is, on balance, a little lower than the most recent Blue Chip Consensus outlook and the Survey of Professional Forecasters (SPF) median projection (note that the latter survey dates from mid-May). The staff's forecast of the unemployment rate is a little higher than those of the outside forecasters; the staff's inflation projection is a bit lower.

Comparison of Tealbook and Outside Forecasts

|	2015	2016
GDP (Q4/Q4 percent change)		
June Tealbook	1.6	2.4
Blue Chip (6/10/15)	2.0	2.7
SPF median (5/15/15)	2.2	n.a.
Unemployment rate (Q4 level)		
June Tealbook	5.3	5.2
Blue Chip (6/10/15)	5.1	4.8
SPF median (5/15/15)	5.2	n.a.
Consumer price inflation (Q4/Q4 percent change)		
June Tealbook	.7	2.0
Blue Chip (6/10/15)	.8	2.3
SPF median (5/15/15)	.7	2.1
PCE price inflation (Q4/Q4 percent change)		
June Tealbook	.6	1.6
SPF median (5/15/15)	.8	1.9
Core PCE price inflation (Q4/Q4 percent change)		
June Tealbook	1.3	1.6
SPF median (5/15/15)	1.4	1.7

Note: SPF is the Survey of Professional Forecasters. Blue Chip does not provide results for PCE price inflation. The Blue Chip Consensus contains about 50 panelists, and the SPF about 40. Roughly 20 panelists contribute to both surveys.

n.a. Not available.

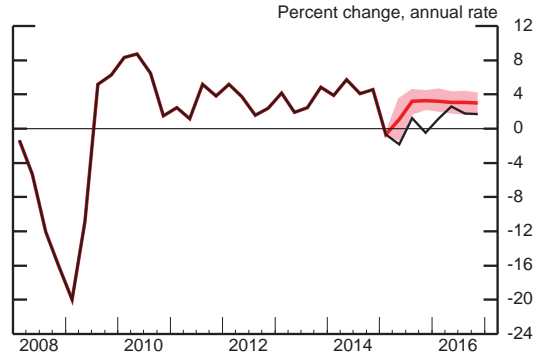Source: Blue Chip Economic Indicators; Federal Reserve Bank of Philadelphia.

Tealbook Forecast Compared with Blue Chip
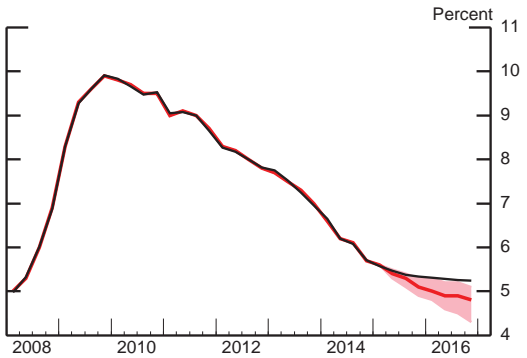## (Blue Chip survey released June 10, 2015)

Real GDP

Percent change, annual rate

— Blue Chip consensus
— Staff forecast
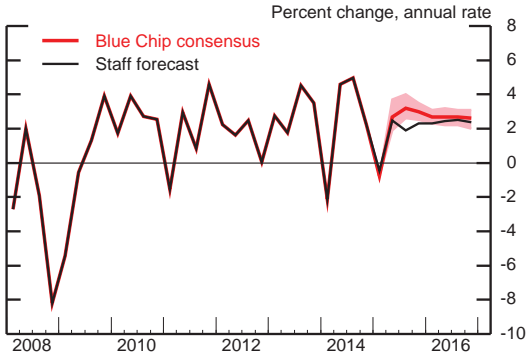
Note: The shaded area represents the area between the Blue Chip top 10 and bottom 10 averages.

Industrial Production

Percent change, annual rate
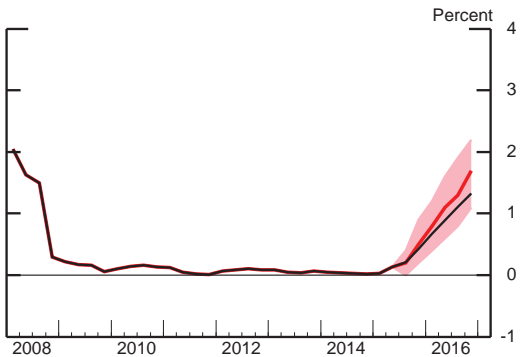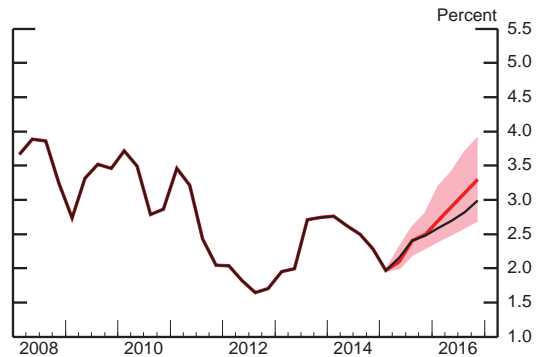
Unemployment Rate

Percent

Consumer Price Index

Percent change, annual rate
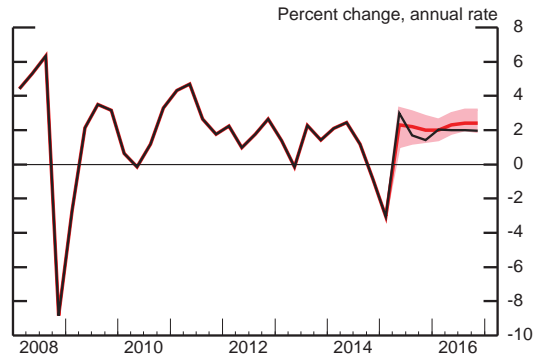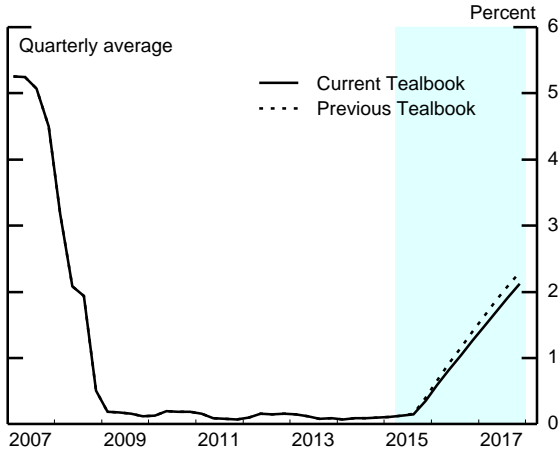
Treasury Bill Rate
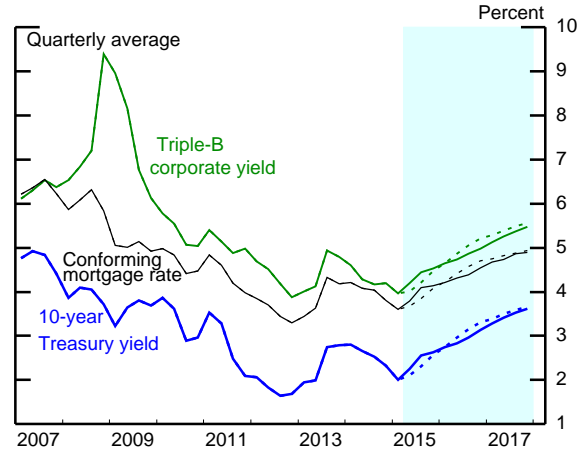
Percent

10-Year Treasury Yield

Percent

Note: The yield is for on-the-run Treasury securities. Over the forecast period, the staff's projected yield is assumed to be 15 basis points below the off-the-run yield.

Domestic Econ Devel & Outlook

Key Background Factors underlying the Baseline Staff Projection

Federal Funds Rate

Quarterly average

Percent

Current Tealbook
Previous Tealbook

Long-Term Interest Rates

Quarterly average

Percent

Triple-B
corporate yield

Conforming
mortgage rate

10-year
Treasury yield

Equity Prices

Quarter-end

Ratio scale, 2007:Q1 = 100

Dow Jones
U.S. Total Stock Market
Index

House Prices

Quarterly

Ratio scale, 2007:Q1 = 100

CoreLogic
index

Crude Oil Prices

Quarterly average

Dollars per barrel

Imported oil

West Texas
Intermediate

Broad Real Dollar

Quarterly average

2007:Q1 = 100
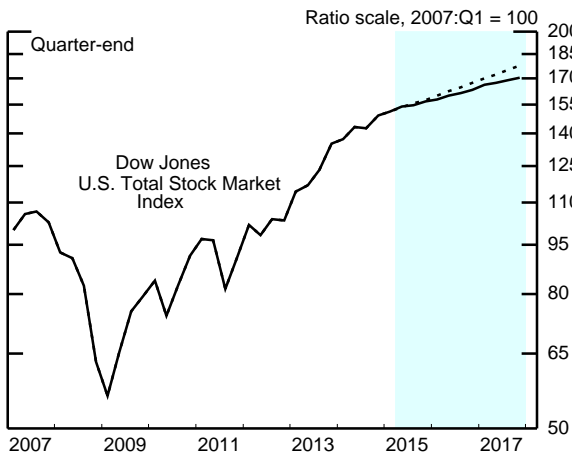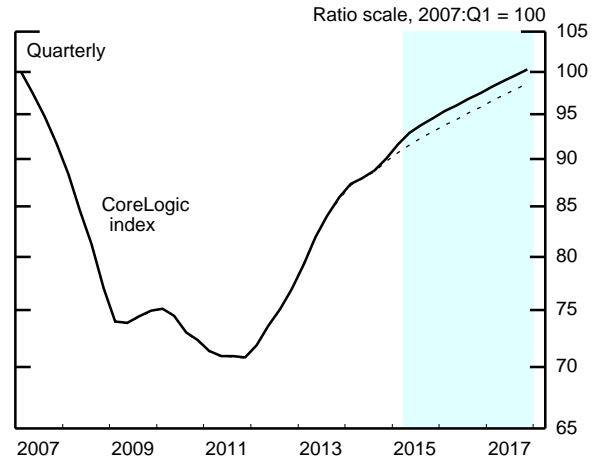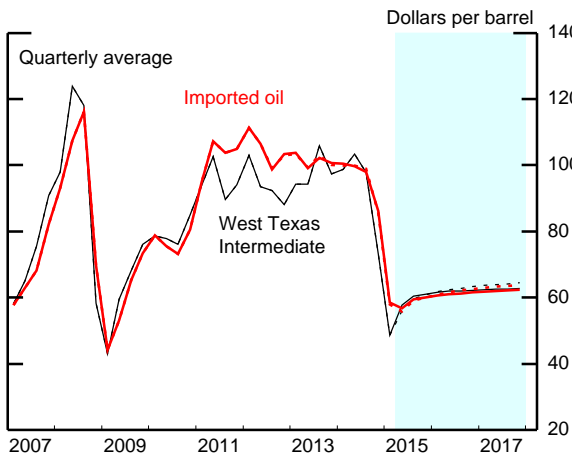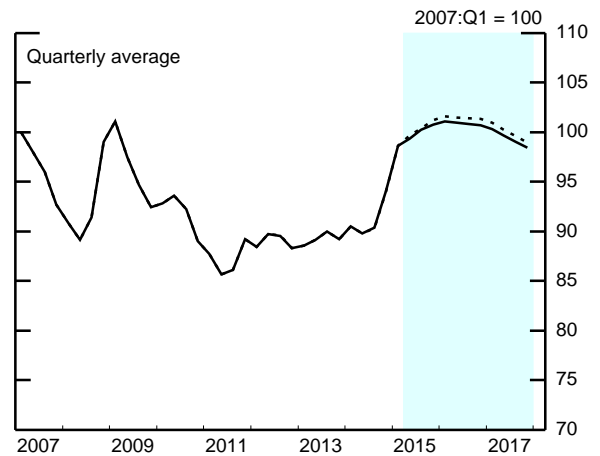
move up from last year's pace of 2¼ percent to 2¾ percent this year and 3 percent next year.

KEY BACKGROUND FACTORS

Monetary Policy

- We continue to assume that the federal funds rate will lift off from its effective lower bound after the September meeting. As in our previous projections, the post-liftoff trajectory of the federal funds rate is assumed to be governed by an inertial version of the Taylor (1999) policy rule. The projected path of the federal funds rate is a touch lower than in the April Tealbook—mainly because the output gap is slightly weaker in this forecast— and reaches an average of 2.1 percent in the fourth quarter of 2017.

Other Interest Rates

- Our forecast continues to call for the 10-year Treasury yield to rise significantly. The projected increase in the Treasury yield reflects the movement of the 10-year valuation window through the period of extremely low short-term interest rates, as well as an increase in term premiums that is partly attributable to the waning of the effects of the FOMC's balance sheet policies. Compared with the April Tealbook, the 10-year Treasury yield is a little higher over the next couple of quarters due to the recent increases in market rates, but it is a touch lower thereafter.

- Our forecasts for corporate bond yields and mortgage rates in the medium term have been revised essentially in line with the changes to the path for the Treasury yield.

Equity Prices and Home Prices

- Equity prices are projected to rise 4½ percent per year over the forecast period, a somewhat slower pace than in the April Tealbook. We continue to expect a notable decline in the equity risk premium; however, at the end of 2017 the level of the premium is somewhat higher than what we had assumed in April, which better aligns it with historical norms.

- Incoming data on house prices for the first quarter led us to boost our forecast for house price appreciation in 2015 to 5 percent, compared with 3¾ percent

in the April Tealbook. We continue to expect house prices to decelerate to an average pace of 3 percent per year in 2016 and 2017.

Fiscal Policy

- We have made no changes to our fiscal policy assumptions in this forecast. We continue to anticipate that, after having been a small drag on real GDP growth in 2014, fiscal policy actions at all levels of government will provide a small stimulus in 2015 and over the remainder of the medium term.

Foreign Economic Activity and the Dollar

- Foreign real GDP growth slowed a little more than expected in the first quarter, to a 1½ percent annual rate, and—at 2¼ percent—is projected to be a bit weaker in the current quarter than in our previous forecast. For 2015 as a whole, projected foreign growth is down a little from the April Tealbook, reflecting the softer-than-expected tone of recent data, the lower path for U.S. GDP, and—in the advanced economies—some restraint from recent increases in long-term interest rates. We continue to expect foreign GDP growth to rise to 3 percent by early next year, supported by accommodative monetary policy abroad, depreciated currencies, and still-low oil prices, and to remain at that pace through 2017.

- The broad nominal dollar is down a touch relative to the April Tealbook. We project that the dollar will appreciate 2 percent through the remainder of 2015 as investors intensify their focus on the divergence between monetary policies in the United States and abroad. Thereafter, as foreign monetary policy begins to normalize and as tail risks for the euro-area economy diminish, the dollar is projected to weaken. Our forecast leaves the level of the broad real dollar at the end of the medium term slightly lower than in the previous Tealbook.

Oil Prices

- The spot price of Brent crude oil is up nearly $3 per barrel since the time of the April Tealbook; however, prices for futures contracts with delivery at the end of 2017 are unchanged, continuing the trend of flattening futures curves. We expect the price of imported oil to move up from $57 per barrel this quarter to about $62 per barrel by the end of the forecast period. Relative to

the April Tealbook, the projection is about unchanged this year and is down about $1 per barrel at the end of 2017.

THE OUTLOOK FOR REAL GDP

As we discuss in the box "Special Factors Contributing to Weakness in GDP in the First Quarter," we believe that a portion of the weakness in first-quarter aggregate demand reflects a variety of identifiable temporary factors whose effects will be largely reversed in coming quarters.[1] But early indications are that second-quarter real GDP will only rise enough to leave average growth over the first half of this year in the neighborhood of 1 percent. As in previous Tealbooks, we attribute much of the first-half slowdown in GDP to the stronger dollar and the drag on drilling and mining investment from sharply lower oil prices. Relative to the April Tealbook, the slightly more subdued GDP picture for the first half is more than accounted for by weaker-than-anticipated indicators of household spending and net exports.[2]

We continue to expect, however, that the economy will expand at a moderate pace over the projection period. In particular, despite the generally disappointing news on consumer spending, we still view the fundamentals underpinning household demand as sufficient to support an acceleration in real PCE going forward. Likewise, we expect drilling and mining investment to bottom out relatively soon as the effects of the declines in oil prices recede. In total, we expect real GDP growth to average about 2 percent in the second half of this year, ¼ percentage point lower than our April projection.

- As noted, the recent data on real PCE have been weaker than we expected overall despite a surge in light motor vehicle sales in May. As a result, we have lowered our projection for second-quarter real PCE growth 1½ percentage points relative to our previous forecast, to 2¾ percent.[3] Moreover, the recent disappointment extends a tendency during each of the past several years for consumer spending to come in on the low side of our expectations. Hence, while we still anticipate a near-term acceleration in real

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[1] Note that real gross domestic income (GDI), which aims to measure the same economic concept as real GDP, is reported to have increased at a 1½ percent annual rate in the first quarter.

[2] The table "Federal Reserve System Nowcasts of 2015:Q2 Real GDP Growth" provides forecasts of second-quarter output growth from other near-term forecasting approaches used within the System.

[3] The Quarterly Services Survey for the first quarter of 2015, released as the Tealbook projection was closing, was not incorporated in our estimate of first-quarter real PCE growth. In addition, the May retail sales report is scheduled to be released on June 11, 2015, the day after the Tealbook is published.

Special Factors Contributing to Weakness in GDP in the First Quarter

A number of transitory factors appear to have restrained aggregate spending in the first quarter, and the unwinding of their effects is expected to provide a boost to spending this quarter. The staff's estimates of the effects of these factors on real GDP are shown in the table below. While we discuss point estimates here, there is, of course, considerable uncertainty around the magnitude of these estimates, and other analysts—including from within the Federal Reserve System—have judged some of these effects to be larger than the staff's estimates.

Residual seasonality is estimated to have subtracted 0.8 percentage point from the change in real GDP last quarter (line 2). Residual seasonality appears evident in real spending for exports, state and local government construction, and private-sector nonresidential construction, along with the change in inventory investment. The staff assumes that much of the first-quarter residual seasonality will be unwound in the second quarter, with the rest showing up in the second half.

Unusually severe winter weather is estimated to have subtracted 0.2 percentage point from the change in real GDP in the first quarter, as PCE and construction spending were held down temporarily (line 3). The bounceback in spending from this weather effect is assumed to raise second-quarter real GDP growth by a similar amount.

Numerous reports suggested that the West Coast port labor dispute restrained international trade and disrupted some manufacturing supply chains. The staff estimates that the port labor dispute shaved 0.2 percentage point off the change in real GDP in the first quarter and assumes that a comparable amount will be added to second-quarter real GDP growth as activity returns to normal (line 4).

Finally, the large declines in retail gasoline prices early this year likely caused some measurement error in the BEA's translation to real PCE of nominal retail sales by some big-box stores that also sell gasoline (line 5). The staff estimates that this measurement error reduced real GDP growth 0.2 percentage point in the first quarter but that it is unlikely to reverse in the near term, as gasoline prices are not projected to return to their earlier levels.

In total, these identifiable transitory factors are judged to have reduced the change in real GDP 1.4 percentage points last quarter (line 6). The corresponding bounceback in spending as these factors disappate is projected to boost real GDP growth 1 percentage point this quarter.

Estimated Effects of Transitory Special Factors on Real GDP
(Percent change from previous period at an annual rate)

		2015:Q1	2015:Q2
1.	**Change in real GDP**	**-.5**	**2.5**
	Contribution from special factors:		
2.	Residual seasonality	-.8	.6
3.	Weather	-.2	.2
4.	West Coast port labor dispute	-.2	.2
5.	Measurement error (retail sales)	-.2	.0
6.	**Total effect of special factors**	**-1.4**	**1.0**
7.	**Change in real GDP (line 1) excluding special factors (line 6)**	**.9**	**1.5**

Note: Staff estimates.

Domestic Econ Devel & Outlook

Federal Reserve System Nowcasts of 2015:Q2 Real GDP Growth
(Percent change at annual rate from previous quarter)

Federal Reserve entity	Type of model	Nowcast as of June 8, 2015
Federal Reserve Bank		
New York	• Factor-augmented autoregressions	1.6
	• Factor-augmented autoregressions (financials only)	2.3
Cleveland	• Bayesian regressions with stochastic volatility	2.2
	• Tracking model	2.8
Atlanta	• Tracking model combined with Bayesian vector autoregressions (VARs), dynamic factor models, and factor-augmented autoregressions (known as GDPNow)	1.5
Chicago	• Dynamic factor models	1.4
	• Bayesian VARs	2.5
St. Louis	• Dynamic factor models	2.8
	• News index model	4.7
	• Let-the-data-decide regressions	2.3
Minneapolis	• Bayesian VARs	1.6
Kansas City	• Judgmental tracking model	1.9
Board of Governors	• Board staff's forecast (judgmental tracking model)[1]	2.5
	• Dynamic factor models	.7
Memo: Median of Federal Reserve System nowcasts		2.3

1. The June Tealbook forecast, which incorporates data received after June 8, is also 2.5 percent.
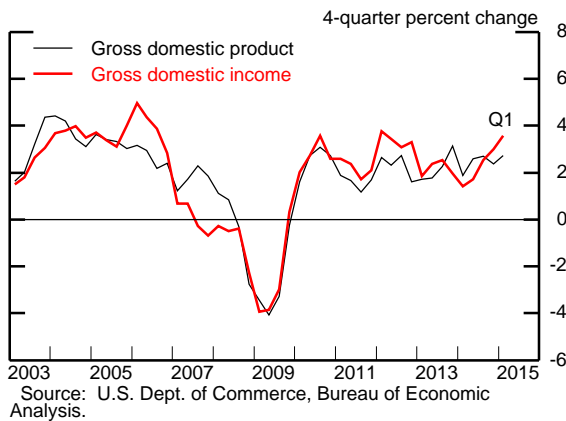
Summary of the Near-Term Outlook
(Percent change at annual rate except as noted)

Measure	2015:Q1 Previous Tealbook	2015:Q1 Current Tealbook	2015:Q2 Previous Tealbook	2015:Q2 Current Tealbook	2015:H2 Previous Tealbook	2015:H2 Current Tealbook
Real GDP	**.1**	**-.5**	**2.4**	**2.5**	**2.4**	**2.1**
Private domestic final purchases	.9	1.3	3.1	2.8	4.1	3.5
Personal consumption expenditures	1.9	1.8	4.2	2.8	4.1	3.4
Residential investment	1.8	6.3	1.1	11.3	11.2	6.5
Nonres. private fixed investment	-4.3	-2.8	-1.9	1.0	2.3	2.8
Government purchases	-2.3	-.6	1.3	1.3	.3	.4
Contributions to change in real GDP						
Inventory investment[1]	.4	.4	.2	.1	-.3	-.2
Net exports[1]	-.6	-1.8	-.6	-.2	-.8	-.7
Unemployment rate[2]	**5.6**	**5.6**	**5.4**	**5.5**	**5.3**	**5.3**
PCE chain price index	**-2.0**	**-2.0**	**1.5**	**1.9**	**1.5**	**1.3**
Ex. food and energy	.8	.8	1.6	1.6	1.4	1.4

1. Percentage points.
2. Percent.

Recent Nonfinancial Developments (1)

Real GDP and GDI

Source: U.S. Dept. of Commerce, Bureau of Economic Analysis.

Manufacturing IP ex. Motor Vehicles and Parts

Source: Federal Reserve Board, G.17 Statistical Release, "Industrial Production and Capacity Utilization."
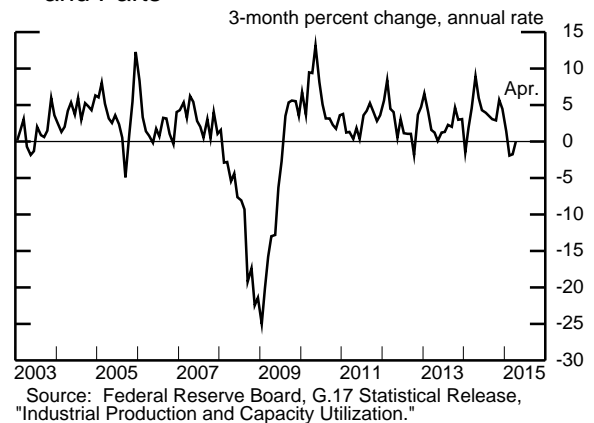
Sales and Production of Light Motor Vehicles

Source: Ward's Communications, Chrysler, General Motors; adjusted using FRB seasonals.
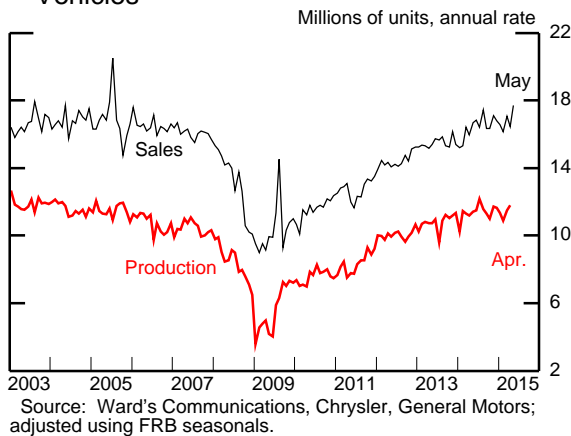
Real PCE Goods ex. Motor Vehicles

Source: U.S. Dept. of Commerce, Bureau of Economic Analysis.
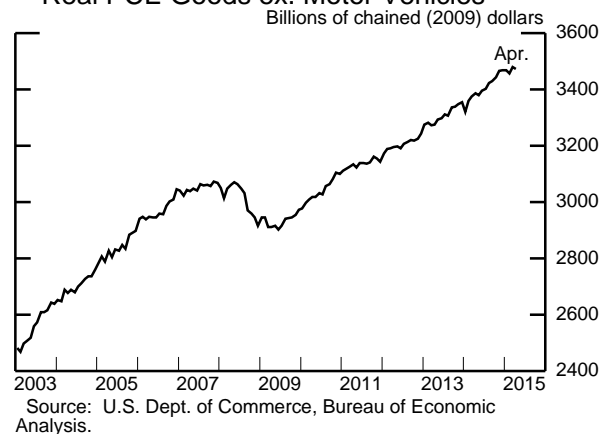
Recent Nonfinancial Developments (2)

Single-Family Housing Starts and Permits

Millions of units, annual rate

Adjusted permits
Starts

Apr.
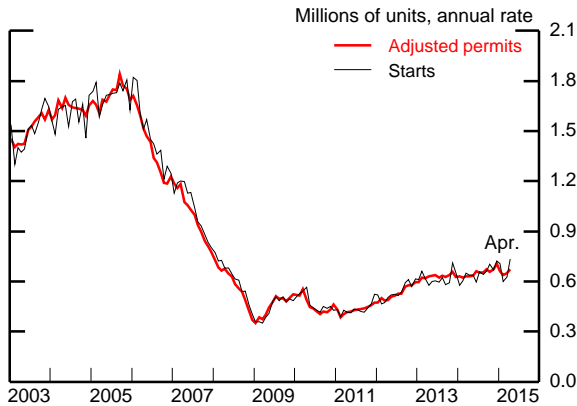
Note: Adjusted permits equal permit issuance plus total starts outside of permit-issuing areas.
Source: U.S. Census Bureau.

Home Sales

Millions of units
(annual rate)

Millions of units
(annual rate)

Existing homes
(left scale)

New single-family
homes (right scale)

Apr.
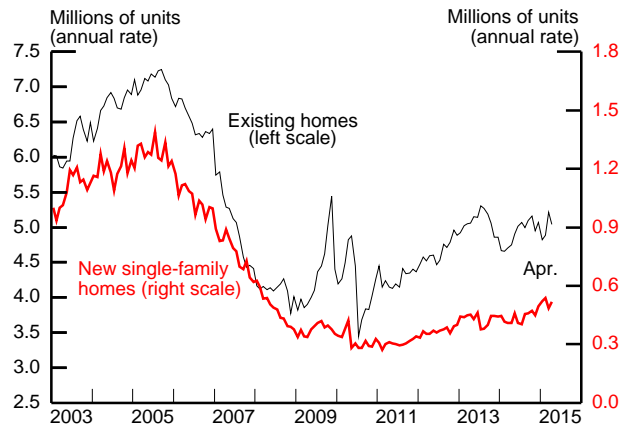
Source: For existing, National Association of Realtors; for new, U.S. Census Bureau.

Nondefense Capital Goods ex. Aircraft

Billions of dollars

3-month moving average

Orders

Shipments

Apr.
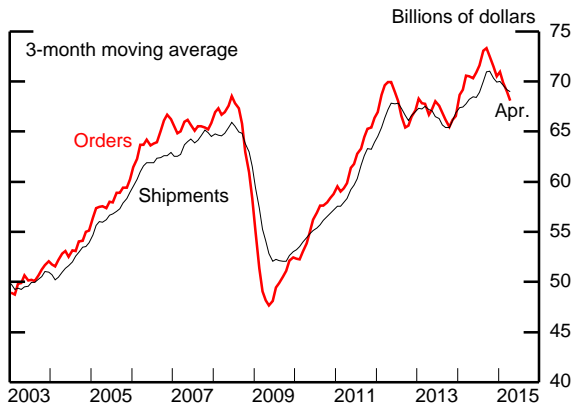
Source: U.S. Census Bureau.

Nonresidential Construction Put in Place

Billions of chained (2009) dollars

Apr.
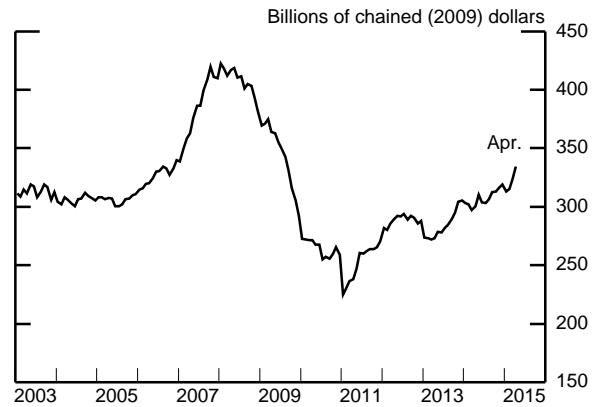
Note: Nominal CPIP deflated by BEA prices through 2014:Q4 and by the staff's estimated deflator thereafter.
Source: U.S. Census Bureau.

Inventory Ratios ex. Motor Vehicles

Months

Staff flow-of-goods system

Apr.

Census book-value data

Mar.
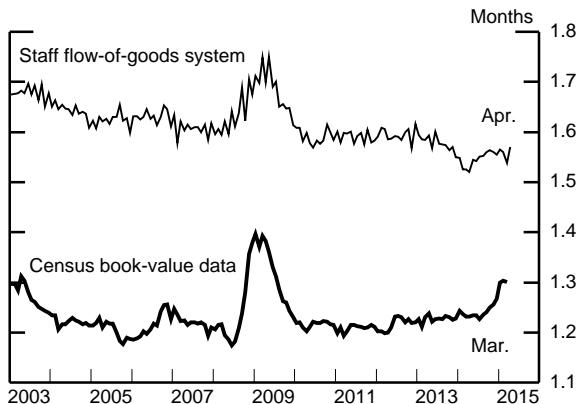
Note: Flow-of-goods system inventories include manufacturing and mining industries except motor vehicles and parts and are relative to consumption. Census data cover manufacturing and trade ex. motor vehicles and parts, and inventories are relative to sales.
Source: U.S. Census Bureau; staff calculations.

Exports and Non-oil Imports

Billions of dollars

Non-oil imports

Apr.

Exports
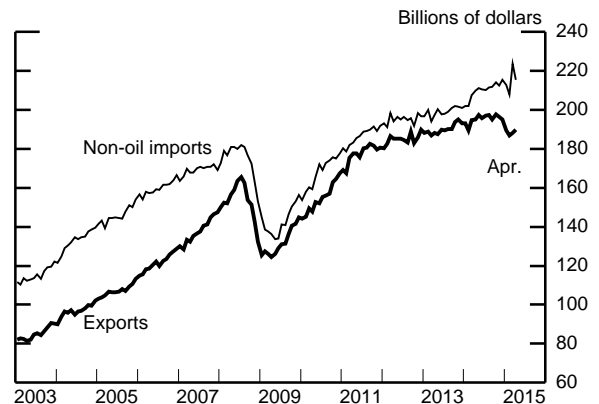
Source: U.S. Dept. of Commerce, Bureau of Economic Analysis; U.S. Census Bureau.

consumer spending supported by robust gains in real disposable income, previous increases in household wealth, and upbeat consumer sentiment, we have taken our forecast for second-half real PCE growth down about ¾ percentage point relative to April, to an average annual rate of 3½ percent.

- The decline in oil prices over the past year has resulted in a sharp drop in drilling and mining investment that subtracted ½ percentage point from first-quarter real GDP growth and looks set to take a similar amount off of growth in the current quarter. We expect the declines in drilling and mining investment to slow markedly over the second half of the year, and, indeed, we think we see early signs of such a bottoming out in the weekly data on rig counts.

- Housing starts rebounded strongly in April from the weak readings seen in February and March, while permits edged up. We interpret the April strength in starts as largely reflecting payback from the earlier weakness and so have left our forecast for starts essentially unrevised going forward. This contour of starts leaves our estimate for the level of residential investment somewhat higher in the current quarter relative to our previous forecast but not much different at the end of 2015.

- We now estimate that net exports subtracted nearly 2 percentage points from real GDP growth in the first quarter, a considerably larger drag than we had projected in the April Tealbook. The revision is almost entirely due to import data for March coming in much stronger than we had anticipated, as inbound shipments snapped back following the resolution of the labor disputes at West Coast ports. For the first quarter as a whole, the port disputes seem to have had little net effect on imports, which rose at an above-average 6¾ percent pace. In contrast, exports declined sharply in the first quarter; we attribute a sizable portion of this weakness to the port disruptions and to residual seasonality in the export data. We expect some payback in the growth rate of exports in the current quarter—an expectation that is supported by the April trade data—and now have the external sector making a less negative second-quarter contribution to real GDP growth than in the April Tealbook. Reflecting the continued drag from past dollar appreciations, net exports are expected to subtract ¾ percentage point from real GDP growth in the second half of 2015, nearly unchanged from the April Tealbook.

- Total industrial production continued to decline through April, and the available indicators, including manufacturing production-worker hours, point to a further decline in May. As with first-quarter GDP, we think that a combination of transitory factors (such as supply-chain disruptions arising from the labor disputes at West Coast ports) and longer-lived influences (such as the stronger dollar) have weighed on manufacturing output; similarly, production at both factories and mines has been affected by the sharp declines in drilling activity noted previously. We expect manufacturing production to rise at a subdued pace over the remainder of the near term, as the stronger dollar and the upstream effects of lower oil and gas prices continue to damp demand for factory output. The mixed tenor of the national and regional manufacturing surveys seems consistent with such an outcome.

With conditioning factors that are broadly unrevised relative to April, projected real GDP growth over the medium term is quite close to our previous forecast: In 2016, we expect real GDP to rise 2½ percent before edging down to a 2¼ percent pace in 2017. Actual GDP growth is expected to outpace our estimate of potential growth in coming years, resulting in a steady narrowing of the output gap.

- We expect above-trend growth in aggregate demand to be led by gains in consumer spending. As labor market conditions continue to improve, real personal income should rise faster than potential output; in addition, over much of the medium term, high wealth-to-income ratios and increasing confidence about the durability of the expansion should lead spending growth to modestly exceed income growth. (For a discussion of risks stemming from a consumer-led expansion, see the box "Alternative View: The Risk of Significant Macroeconomic Imbalances over the Medium Term.")

- In broad terms, the relatively flat contour of real GDP growth over the medium term reflects the interplay of two forces. First, the ongoing normalization of monetary policy is expected to weigh more heavily on aggregate demand growth going forward. However, as the effects of previous increases in the exchange value of the dollar wane—and with the dollar expected to begin depreciating later in the forecast period—we anticipate that

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Alternative View: The Risk of Significant Macroeconomic Imbalances over the Medium Term

The U.S. economy is approaching a state in which inflation and unemployment are about as close to the FOMC's current objectives as has been true at virtually any point over the past half-century. Despite these conditions, the risk of growing macroeconomic imbalances in the U.S. and global economy is substantial. In particular, the relatively stronger growth outlook and higher interest rates in the United States may spur domestic asset prices and contribute to a global recovery that is overly reliant on U.S. consumption. Such developments would imply low national saving and a large U.S. current account deficit despite inflation and unemployment running reasonably close to their objectives over the next couple of years. A state of affairs in which the global economy is overly reliant on U.S. household demand would echo aspects of the economic conditions in the mid-2000s, when the combination of low U.S. savings and large current account imbalances contributed to the financial excesses that precipitated the crisis.

Although overreliance on U.S. household demand may be a concern even along the path envisioned in the staff projection, a starker illustration of the risks can be seen by considering an alternative projection. In this alternative, strong demand for U.S. assets, in part due to low global interest rates, leads the low level of term premiums on U.S. Treasury securities to persist for several more years. Low interest rates contribute to more rapid growth in equity and house prices than in the staff projection. Moreover, the gains in U.S. asset prices and the higher level of U.S. interest rates (relative to those in Europe and Japan) draw capital to the United States and cause the dollar to appreciate roughly 20 percent from its level early this year, bringing its value back to the level of the early 2000s.[1]

While the higher level of equity and house prices and lower term premiums boost aggregate demand, the strong dollar offsets this boost, and the unemployment rate remains close to its natural rate over the next couple of years. However, core inflation remains stuck near 1¼ percent over this period, reflecting the effects of dollar appreciation, and short-term interest rates are lower than in the staff projection, with the federal funds rate remaining below 1 percent until early 2017 (according to the inertial Taylor (1999) rule).

Domestic and global imbalances are substantial in this alternative view. The higher level of household wealth contributes to a more rapid increase in personal consumption expenditures than expected in the staff outlook, and the personal saving rate falls to 2½ percent later this decade (figure 1). Global imbalances reemerge on a scale similar to that seen in the mid-2000s, with the U.S. current account deficit falling to 5½ percent of nominal GDP (figure 2).

Note: This alternative view was prepared by Michael Kiley.

[1] Although this alternative view uses an FRB/US model simulation to illustrate the effects of shocks to term premiums, house prices, and the dollar, the key elements of this alternative view are not tied to the FRB/US model's structure or the precise quantitative results from such a simulation.

These large domestic and international imbalances could create several challenges for the U.S. and global economy. First, the stretched position of U.S. households leads them, over time, to attempt to rebuild their savings, placing a drag on both consumption and investment and hence upward pressure on unemployment by 2017. A weak rate of investment and elevated borrowing from abroad lower U.S. potential output and national income, placing a persistent drag on U.S. living standards. And the limited savings buffer of U.S. households and the elevated level of U.S. asset prices imply some risk of a painful retrenchment, as households may have limited ability to weather adverse shocks and elevated domestic asset prices could collapse when unexpected adverse developments materialize.

Monetary policy is not well suited to address these challenges: A more accommodative monetary policy stance would only marginally boost inflation (given the flat Phillips curve) and would likely further depress household saving, borrowing from future aggregate demand and leaving households even more vulnerable to adverse shocks. In principle, fiscal policy adjustments that boost domestic saving while supporting domestic productive investment would alleviate these imbalances. More direct tools to alleviate global imbalances would consist of coordinated international adjustments in fiscal and monetary policy (and related structural reforms), including increases in spending in countries with current account surpluses.

While the unsustainable pace of U.S. consumption in the scenario above is importantly due to an alternative perspective on the possible effect of low global interest rates on U.S. asset prices over the next couple of years, these forces are only one set that could lead to similar macroeconomic imbalances. For example, some staff models project that the household saving rate will decline more rapidly than in the staff projection, or the appreciation of the dollar that has already occurred may lead to a wider U.S. current account deficit than anticipated. Alternatively, the global economy would be even more reliant on U.S. household demand if growth among foreign economies were to fall substantially short of expectations, which could also contribute to a stronger dollar and lower U.S. interest rates.

Figure 1. Personal saving rate

Note: The shaded area indicates the projection period (2015:Q2 to 2020:Q4).
Source: U.S. Department of Commerce, Bureau of Economic Analysis; staff calculations.

Figure 2. Current account
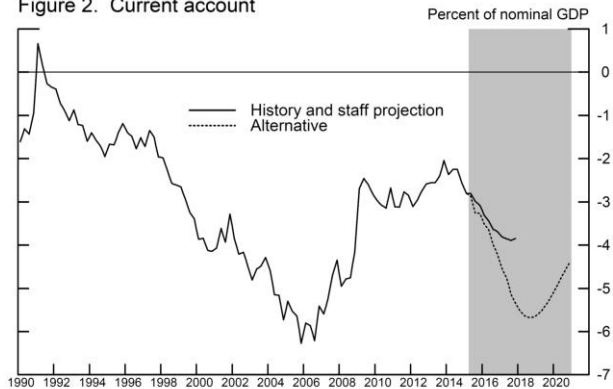
Note: The shaded area indicates the projection period (2015:Q2 to 2020:Q4).
Source: U.S. Department of Commerce, Bureau of Economic Analysis; staff calculations.

the contribution of net exports to overall output growth will become noticeably less negative by the end of the projection period.[4]

THE OUTLOOK FOR THE LABOR MARKET

Taken together, the two employment reports that we have received since the April Tealbook indicate that conditions in the labor market have improved in recent months—albeit at a slower pace than last year—and were close to our expectations in the April forecast. Thus, we have made only small revisions to our near-term outlook for the labor market.

- Payroll employment growth averaged 250,000 per month in April and May, about 30,000 more than our previous projection.

- The unemployment rate was 5.5 percent in May, 0.1 percentage point higher than expected. However, the labor force participation rate also came in 0.1 percentage point higher than expected last month, leaving the employment-to-population ratio in line with our previous forecast.

- For the first five months of this year, payroll gains have averaged 217,000 per month, down from 260,000 per month in 2014; in addition, the pace of decline in the unemployment rate has slowed this year. The staff's labor market conditions index also indicates that the pace of improvement in labor market conditions has slowed relative to 2014.

- We expect payroll employment to rise 215,000 in June and to increase at a similar average monthly pace over the second half of this year—about the same as in the April Tealbook.

- We expect the unemployment rate to average 5.5 percent in the current quarter (0.1 percentage point above our April forecast) before declining to 5.3 percent in the fourth quarter (unrevised relative to April).

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[4] As noted, the expected depreciation in the dollar—which occurs even as U.S. monetary policy continues to tighten—reflects both a reversal of earlier safe-haven flows and the eventual move to a less accommodative policy stance on the part of foreign monetary authorities.

The medium-term outlook for the labor market is also little changed relative to our previous forecast, consistent with the relatively small revisions we have made to the projected path of output.

- We expect monthly payroll gains to slow to 175,000 in 2016 and 140,000 in 2017 as productivity moves back up toward its trend.

- The unemployment rate is projected to edge down from 5.3 percent in the fourth quarter of this year to 5.2 percent by the end of 2016 and then to remain at that level throughout 2017.

- As in previous Tealbooks, we think that the unemployment rate gap currently understates the amount of slack remaining in the labor market because the labor force participation rate is unusually low and the level of involuntary part-time employment is unusually high. As the economy improves further, we expect additional individuals to be drawn into the labor market and the rate of involuntary part-time employment to move down. As a result, the decline in the unemployment rate is slower than it would otherwise be, yielding a projected path for the unemployment rate that is basically flat over much of the medium term despite output continuing to rise moderately faster than potential.

- As shown in the exhibit "Alternative Measures of Slack," output gaps from the Philadelphia Fed's PRISM model and—to a lesser degree—the New York Fed's DSGE model currently suggest more slack than the staff's unemployment rate gap. The National Federation of Independent Business measure of jobs that are hard to fill and the JOLTS job openings rate suggest somewhat tighter labor market conditions.[5]

THE OUTLOOK FOR INFLATION

After declining at an annual rate of 2 percent in the first quarter, headline PCE prices are expected to *rise* 2 percent in the second quarter. The turnaround is attributable to a large swing in energy prices and a pickup in core PCE inflation from ¾ percent in the

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[5] For more discussion of the slack measures shown in the exhibit, see the December 5, 2014, memorandum to the FOMC, "How Much Slack Remains in Resource Utilization? Comparing the Staff's Unemployment Rate Gap with Alternative Measures," by Hess Chung, Charles Fleischman, Chris Nekarda, and David Ratner.

Alternative Measures of Slack
The red line in each panel is the staff's measure of the unemployment rate gap (right axis).

Output gaps*

Percentage points

- FRB/US
- EDO** production function gap
- FRBNY
- PRISM

Q1
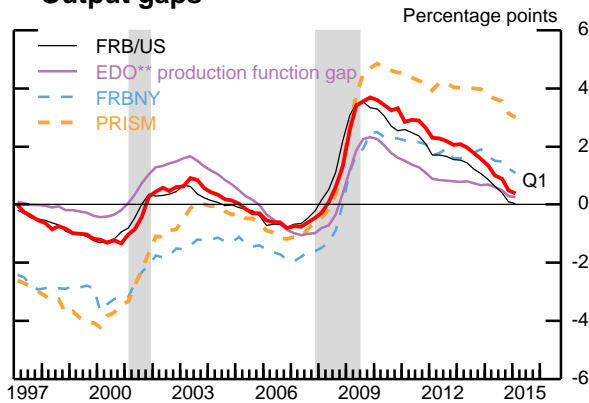
** EDO is Estimated, Dynamic, Optimization-based model.
Source: Federal Reserve Board; PRISM: Federal Reserve Board Bank of Philadelphia, PRISM Model Documentation (June 2011); FRBNY: Federal Reserve Bank of New York Staff Report 618 (May 2013, revised April 2014).

Manufacturing capacity utilization gap*

Percentage points   Percentage points

May

Apr.
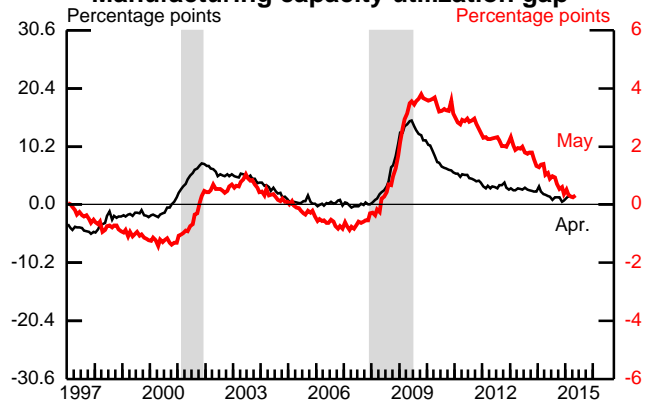
Source: Federal Reserve Board.

Jobs hard to fill gap*

Percentage points   Percentage points

May
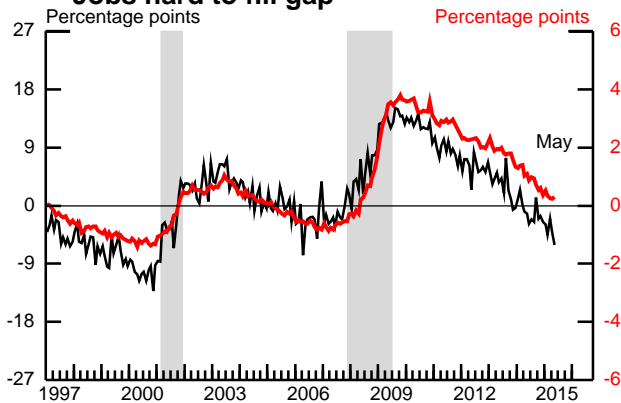
Note: Percent of small businesses surveyed with at least one "hard to fill" job opening. Seasonally adjusted by Federal Reserve Board Staff.
Source: National Federation of Independent Business, Small Business Economic Trends Survey.

Job openings gap*

Percentage points   Percentage points

- Help-wanted advertisements rate
- Private job openings rate

May

May

Apr.
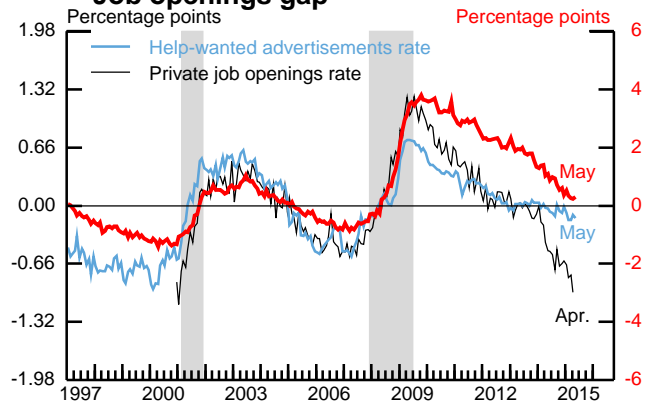
Note: Job openings rate is the number of job openings divided by employment plus job openings.
Source: Job Openings and Labor Turnover Survey; U.S. Department of Labor, Bureau of Labor Statistics, Current Employment Statistics.

Job availability gap*

Percentage points   Percentage points

May
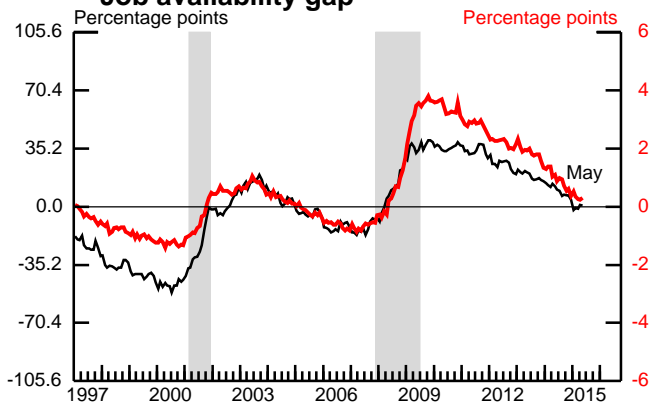
Note: Percent of households believing jobs are plentiful minus the percent believing jobs are hard to get.
Source: Conference Board.

Involuntary part-time employment gap

Percentage points   Percentage points

May
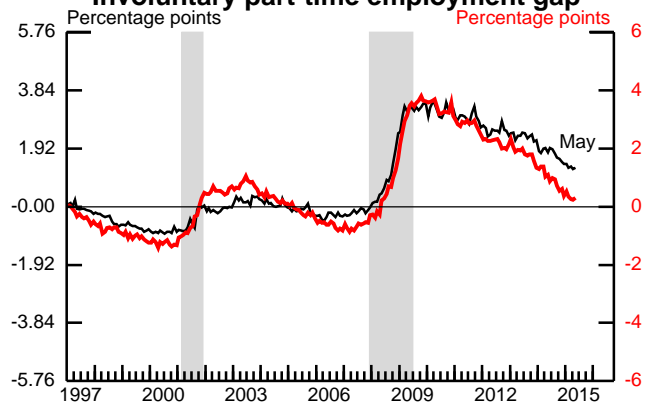
Note: Percent of employment.
Source: U.S. Department of Labor, Bureau of Labor Statistics, Current Population Survey.

* Plots the negative of the gap to have the same sign as the unemployment rate gap.
Note: The shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research. Output gaps are multiplied by -0.44 to facilitate comparison with the unemployment rate gap. Manufacturing capacity utilization gap is constructed by subtracting its average rate from 1972 to 2013. Other gaps were constructed by subtracting each series' average in 2004:Q4 and 2005:Q1.

first quarter to 1½ percent in the second. During the second half of the year, both total and core PCE inflation are expected to step down slightly from the second quarter, reflecting a deceleration in energy prices and a continuation of the pattern in which residual seasonality in core prices tends to boost inflation in the second quarter and reduce it in the second half.

- Our forecast for second-quarter total PCE inflation is ½ percentage point higher than our April projection. The revision is largely attributable to an upward surprise to gasoline prices that we expect to be unwound in coming quarters as margins return to a more normal level.

- Consumer food prices have come in a little lower than expected (to date, we have seen little evidence that drought conditions in California are materially affecting retail food prices). We expect consumer food prices to accelerate over the near term to a pace that is roughly in line with core PCE inflation.

- The most recent readings on core PCE inflation have come in a little below our April Tealbook projection: The *nonmarket* component of the index was distinctly weaker than we had expected, with this surprise only partly offset by a stronger reading on *market-based* core PCE prices. As usual, we have taken little signal from the miss on nonmarket inflation, which tends to be quite erratic. For market-based inflation, the miss was concentrated in categories that we believe are particularly affected by residual seasonality. In response, we slightly revised up our estimate of the contribution that residual seasonality will make to market-based inflation over the next couple of months, and made a corresponding downward revision to our inflation projection later in the year. In total, our forecast for overall core PCE inflation in the second quarter and over the remainder of the year averages 1½ percent at an annual rate, unchanged relative to April.

We continue to project that core PCE price inflation will rise from 1¼ percent this year to 1¾ percent in 2017, as import prices turn back up, the effects on core inflation of previous large declines in energy prices dissipate, and resource utilization tightens further in an environment of well-anchored inflation expectations. With consumer food and energy prices projected to rise roughly in line with core prices after this year, we expect total PCE inflation to run at about the same pace as core inflation throughout most of the medium term.

- Core import prices are expected to decline at an average annual rate of
  4 percent in the first half of this year, reflecting the appreciation of the dollar
  during the past year, net declines in nonfuel commodity prices, and low
  foreign inflation. With our projection that the dollar will peak early next year
  and that foreign CPI inflation will pick up, core import price inflation is
  expected to turn positive by the start of 2016 and to move up to 1½ percent
  in 2017.

- Readings on longer-term inflation expectations have remained stable. The
  final May estimate of expected inflation over the next 5 to 10 years from the
  Michigan survey was 2.8 percent, close to the middle of the range within
  which this measure has fluctuated in recent years. In the second quarter,
  expected PCE price inflation over the next 10 years from the Survey of
  Professional Forecasters remained essentially unchanged at 2 percent for the
  10th quarter in a row. Finally, TIPS-based measures of longer-term inflation
  compensation are little changed, on balance, since the April Tealbook, though
  they remain below levels that prevailed until last summer.

The recent data provide some evidence that labor compensation is accelerating, as
we have expected for some time.

- The employment cost index for private industry workers rose at an annual rate
  of 3 percent over the first quarter; over the past 12 months, the ECI increased
  2¾ percent, noticeably above the 2 percent average pace seen over the past
  few years. Business-sector hourly compensation from the Productivity and
  Costs release rose at an annual rate of 3 percent in the first quarter; in
  addition, the fourth-quarter growth rate was revised up 1½ percentage points,
  to 3 percent.

- As labor markets tighten further over the forecast period, we expect an
  additional slight acceleration in hourly compensation, with the 12-month
  change in the ECI reaching 3 percent in 2016.

THE LONG-TERM OUTLOOK

- The federal funds rate continues to be set according to the prescriptions of an inertial version of the Taylor (1999) rule. This policy rule assumes a long-run equilibrium level of the nominal federal funds rate of 3½ percent.

- The Federal Reserve's holdings of securities will continue to put downward pressure on longer-term interest rates, albeit to a diminishing extent. The process of returning the SOMA portfolio to a normal size is expected to be completed by 2021.

- The natural rate of unemployment is 5.2 percent, and potential GDP rises at a rate of about 1.8 percent per year, on average, from 2018 to 2020.

- As monetary accommodation continues to be withdrawn, real GDP growth eases to 1.9 percent in 2018. Thereafter, real GDP rises at a pace just below the growth rate of potential output. The unemployment rate declines slightly below 5.2 percent in 2018 and 2019 before edging up to its natural rate.

- PCE price inflation remains below the long-run objective of the Committee at the end of 2017 but gradually moves up to 2 percent by 2019.

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Projections of Real GDP and Related Components
(Percent change at annual rate from final quarter
of preceding period except as noted)

Measure	2014	2015	2015		2016	2017
			H1	H2		
Real GDP	**2.4**	**1.6**	**1.0**	**2.1**	**2.4**	**2.2**
Previous Tealbook	2.4	1.8	1.2	2.4	2.4	2.1
Final sales	2.4	1.5	.8	2.3	2.6	2.6
Previous Tealbook	2.4	1.8	1.0	2.7	2.4	2.3
Personal consumption expenditures	2.9	2.9	2.3	3.4	3.3	2.7
Previous Tealbook	2.9	3.6	3.0	4.1	3.3	2.5
Residential investment	2.5	7.6	8.8	6.5	12.0	8.0
Previous Tealbook	2.5	6.2	1.4	11.2	11.5	7.8
Nonresidential structures	6.5	-7.3	-13.8	-.3	.2	.3
Previous Tealbook	6.5	-11.5	-19.5	-2.8	.3	.5
Equipment and intangibles	6.1	3.4	3.0	3.7	4.6	3.6
Previous Tealbook	6.1	2.8	2.1	3.6	4.0	2.6
Federal purchases	.2	-1.1	-.8	-1.4	-1.2	-.8
Previous Tealbook	.2	-2.3	-2.9	-1.7	-1.3	-.9
State and local purchases	1.2	1.3	1.0	1.5	2.0	2.2
Previous Tealbook	1.2	1.2	1.0	1.5	2.0	2.2
Exports	2.4	-.1	-1.5	1.3	1.3	3.2
Previous Tealbook	2.4	-1.2	-2.7	.4	1.1	3.1
Imports	5.6	5.5	5.2	5.8	5.7	3.7
Previous Tealbook	5.6	3.8	1.8	5.9	5.8	3.9
Contributions to change in real GDP (percentage points)						
Inventory change	.0	.0	.2	-.2	-.1	-.3
Previous Tealbook	.0	.0	.3	-.3	.0	-.1
Net exports	-.6	-.9	-1.0	-.7	-.8	-.2
Previous Tealbook	-.6	-.8	-.6	-.8	-.8	-.2

Real GDP
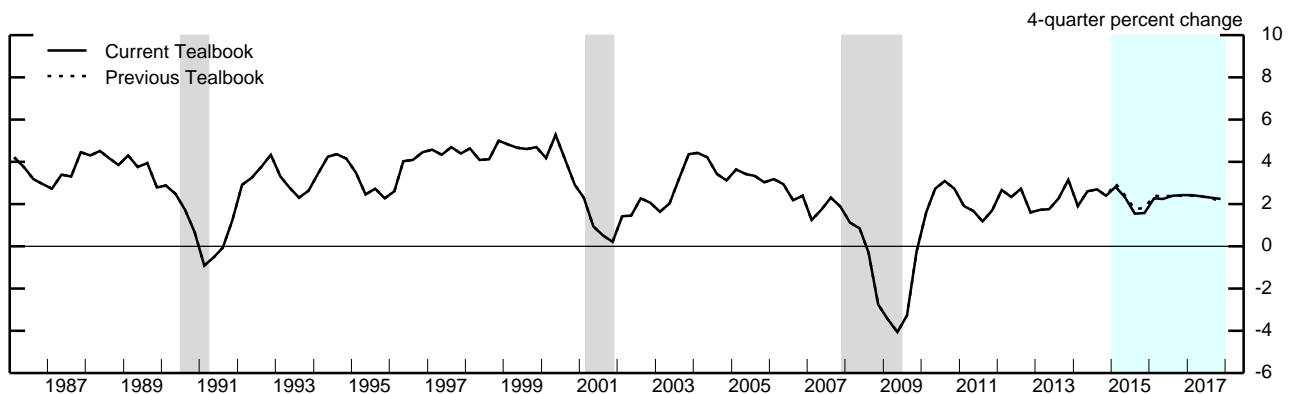
Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

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Components of Final Demand

Personal Consumption Expenditures

4-quarter percent change

- —— Current Tealbook
- ···· Previous Tealbook

Residential Investment

4-quarter percent change

Equipment and Intangibles

4-quarter percent change

Nonresidential Structures

4-quarter percent change
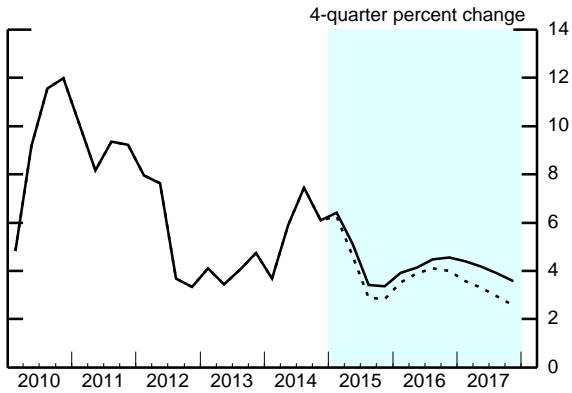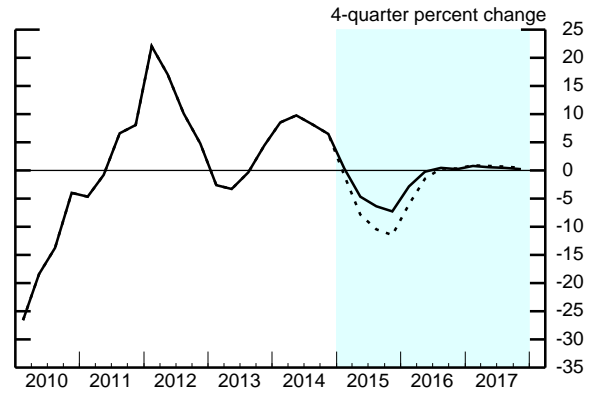
Government Consumption & Investment

4-quarter percent change

Exports and Imports

4-quarter percent change
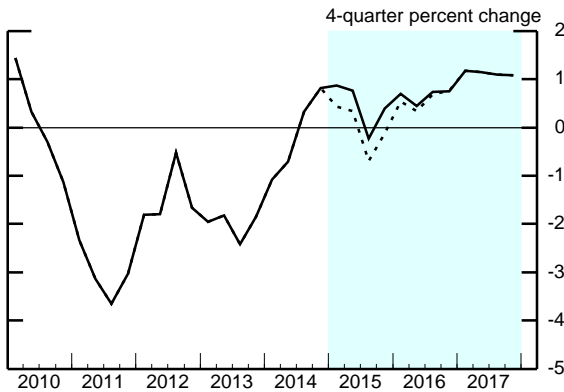
Exports

Imports
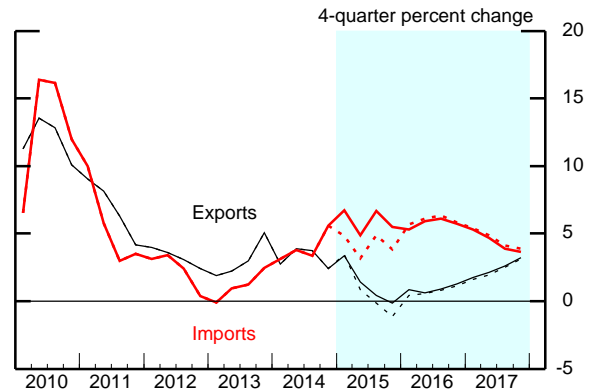
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Aspects of the Medium-Term Projection

Personal Saving Rate

Percent

Current Tealbook
Previous Tealbook

Source: U.S. Dept. of Commerce, Bureau of Economic
Analysis.

Wealth-to-Income Ratio

Ratio

Note: Ratio of household net worth to disposable personal
income.
Source: For net worth, Federal Reserve Board, Financial
Accounts of the United States; for income, U.S. Dept. of
Commerce, Bureau of Economic Analysis.

Single-Family Housing Starts

Millions of units

Source: U.S. Census Bureau.

Equipment and Intangibles Spending

Share of nominal GDP

Source: U.S. Dept. of Commerce, Bureau of Economic
Analysis.

Federal Surplus/Deficit

Share of nominal GDP

4-quarter moving average

Source: *Monthly Treasury Statement.*

Current Account Surplus/Deficit

Share of nominal GDP

Source: U.S. Dept. of Commerce, Bureau of Economic
Analysis.

Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

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Decomposition of Potential GDP
(Percent change, Q4 to Q4, except as noted)

Measure	1974-95	1996-2000	2001-07	2008-10	2011-13	2014	2015	2016	2017
Potential real GDP	3.1	3.4	2.6	1.7	1.6	.5	1.6	1.7	1.7
Previous Tealbook	3.1	3.4	2.6	1.7	1.6	.5	1.6	1.7	1.7
Selected contributions[1]									
Structural labor productivity[2]	1.6	2.9	2.8	1.5	1.2	.5	1.5	1.6	1.6
Previous Tealbook	1.6	2.9	2.8	1.5	1.2	.5	1.5	1.6	1.6
Capital deepening	.7	1.5	.9	.5	.4	.6	.7	.8	.8
Multifactor productivity	.7	1.1	1.6	.9	.7	-.2	.7	.7	.7
Structural hours	1.5	1.0	.7	.2	.7	.7	.3	.3	.3
Previous Tealbook	1.5	1.0	.7	.2	.7	.7	.3	.3	.3
Labor force participation	.4	.0	-.3	-.4	-.5	-.5	-.5	-.5	-.5
Previous Tealbook	.4	.0	-.3	-.4	-.5	-.5	-.5	-.5	-.5
Memo:									
GDP gap[3]	-1.8	2.5	.9	-4.4	-2.8	-1.0	-1.0	-.4	.1
Previous Tealbook	-1.8	2.5	.9	-4.4	-2.8	-1.0	-.8	-.1	.3

Note: For multiyear periods, the percent change is the annual average from Q4 of the year preceding the first year shown to Q4 of the last year shown.
  1. Percentage points.
  2. Total business sector.
  3. Percent difference between actual and potential GDP in the final quarter of the period indicated. A negative number indicates that the economy is operating below potential.

GDP Gap

Note: The GDP gap is the percent difference between actual and potential GDP; a negative number indicates that the economy is operating below potential.
  Source: U.S. Department of Commerce, Bureau of Economic Analysis; staff assumptions.

Unemployment Rate
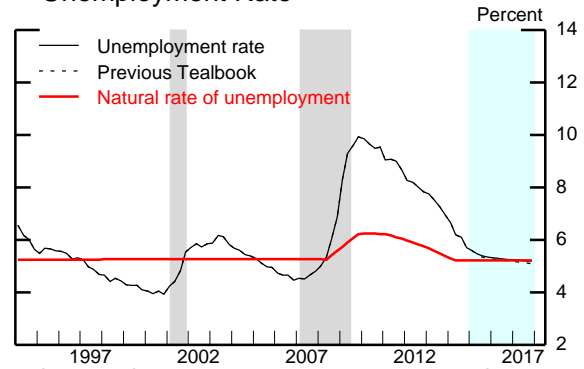
Source: U.S. Department of Labor, Bureau of Labor Statistics; staff assumptions.

Manufacturing Capacity Utilization Rate
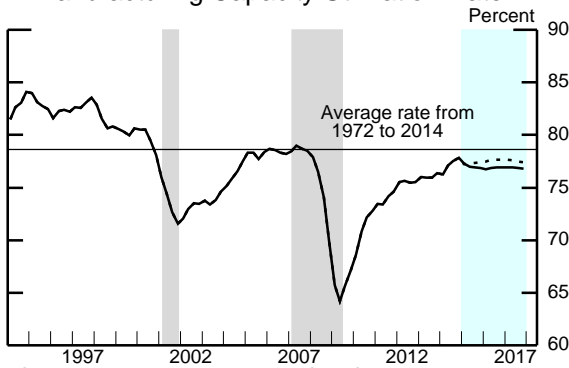
Source: Federal Reserve Board, G.17 Statistical Release, "Industrial Production and Capacity Utilization."

Structural and Actual Labor Productivity
(Business sector)
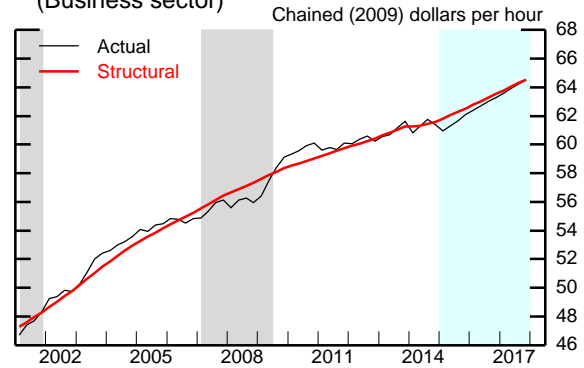
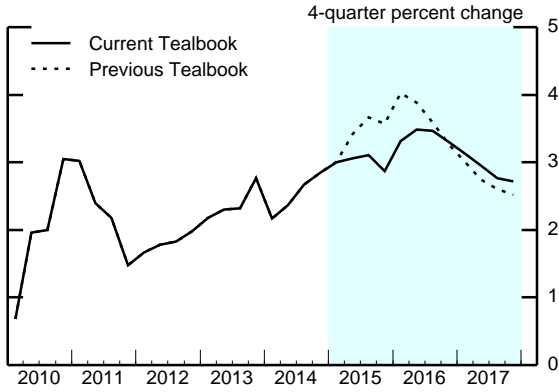Source: U.S. Department of Labor, Bureau of Labor Statistics; U.S. Department of Commerce, Bureau of Economic Analysis; staff assumptions.

Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

The Outlook for the Labor Market
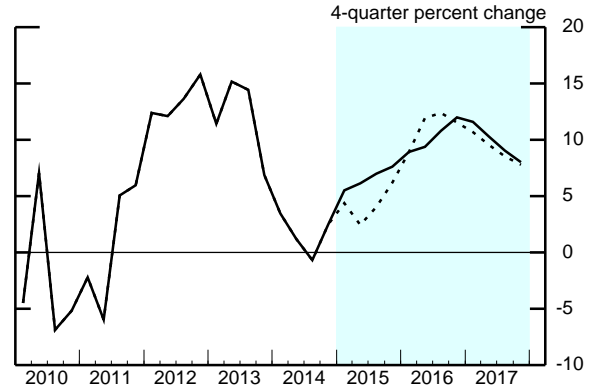
Measure	2014	2015	2015		2016	2017
			H1	H2		
Output per hour, business[1]	-.4	1.1	-.3	2.6	1.9	1.9
Previous Tealbook	-.4	1.4	.4	2.5	1.8	1.8
Nonfarm private employment[2]	254	206	210	202	160	122
Previous Tealbook	254	202	204	200	165	125
Labor force participation rate[3]	62.8	62.7	62.8	62.7	62.6	62.4
Previous Tealbook	62.8	62.7	62.8	62.7	62.6	62.4
Civilian unemployment rate[3]	5.7	5.3	5.5	5.3	5.2	5.2
Previous Tealbook	5.7	5.3	5.4	5.3	5.2	5.1

1. Percent change from final quarter of preceding period at annual rate.
2. Thousands, average monthly changes.
3. Percent, average for the final quarter in the period.
Source: U.S. Department of Labor, Bureau of Labor Statistics; staff assumptions.

Inflation Projections
(Percent change at annual rate from final quarter of preceding period)

Measure	2014	2015	2015		2016	2017
			H1	H2		
PCE chain-weighted price index	1.1	.6	-.1	1.3	1.6	1.8
Previous Tealbook	1.1	.6	-.2	1.5	1.6	1.8
Food and beverages	2.8	.3	-.6	1.1	1.6	1.9
Previous Tealbook	2.8	.6	-.2	1.4	1.6	1.9
Energy	-6.1	-11.3	-19.9	-1.7	2.3	1.3
Previous Tealbook	-6.1	-11.4	-24.4	3.8	2.6	1.6
Excluding food and energy	1.4	1.3	1.2	1.4	1.6	1.8
Previous Tealbook	1.4	1.3	1.2	1.4	1.6	1.8
Prices of core goods imports[1]	.6	-2.3	-4.2	-.4	1.0	1.5
Previous Tealbook	.6	-2.3	-4.0	-.5	.9	1.6

1. Core goods imports exclude computers, semiconductors, oil, and natural gas.
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Domestic Econ Devel & Outlook

Domestic Econ Devel & Outlook

Labor Market Developments and Outlook (1)

Measures of Labor Underutilization
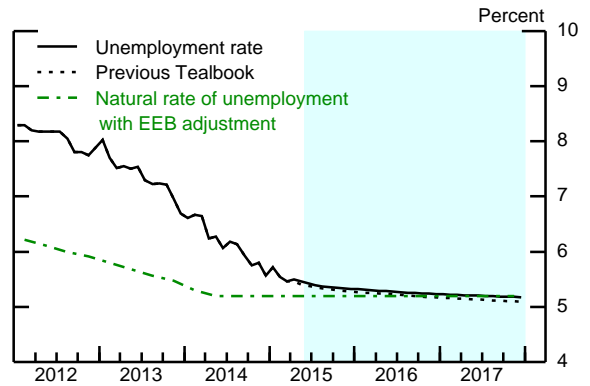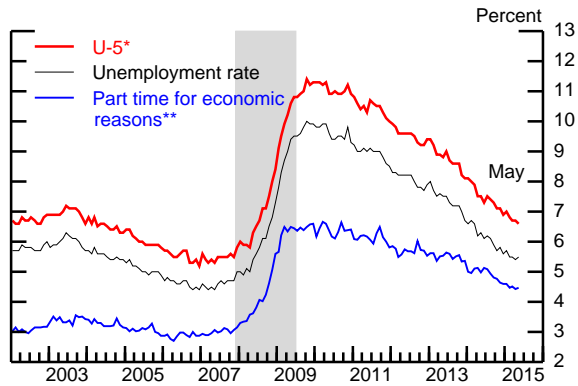
* U-5 measures total unemployed persons plus all marginally attached to the labor force, as a percent of the labor force plus persons marginally attached to the labor force.
** Percent of Current Population Survey employment.
EEB Extended and emergency unemployment benefits.
Source: U.S. Department of Labor, Bureau of Labor Statistics.

Level of Payroll Employment*
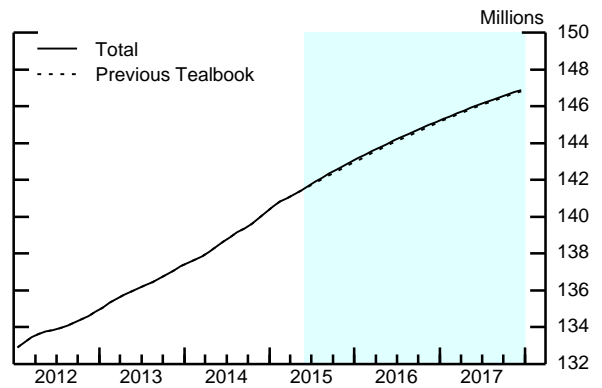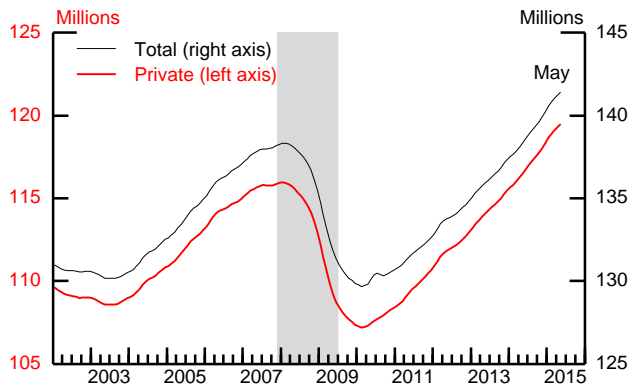
* 3-month moving averages.
Source: U.S. Department of Labor, Bureau of Labor Statistics.

Change in Payroll Employment*
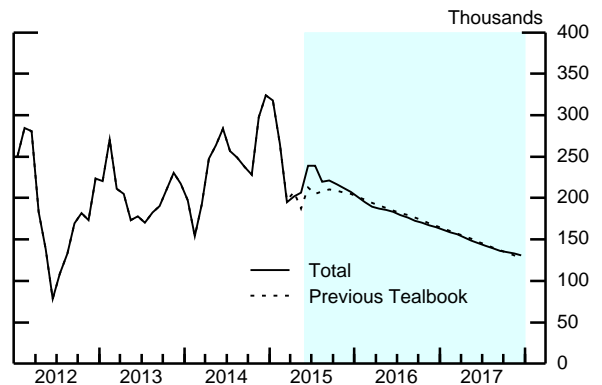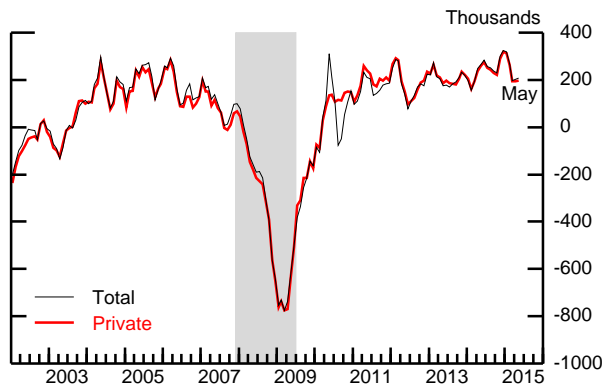
* 3-month moving averages.
Source: U.S. Department of Labor, Bureau of Labor Statistics.

Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

Labor Market Developments and Outlook (2)

Domestic Econ Devel & Outlook

Labor Force Participation Rate*

Percent

- Labor force participation rate
- Estimated trend**

May

Percent

- Labor force participation rate
- Previous Tealbook
- Estimated trend**
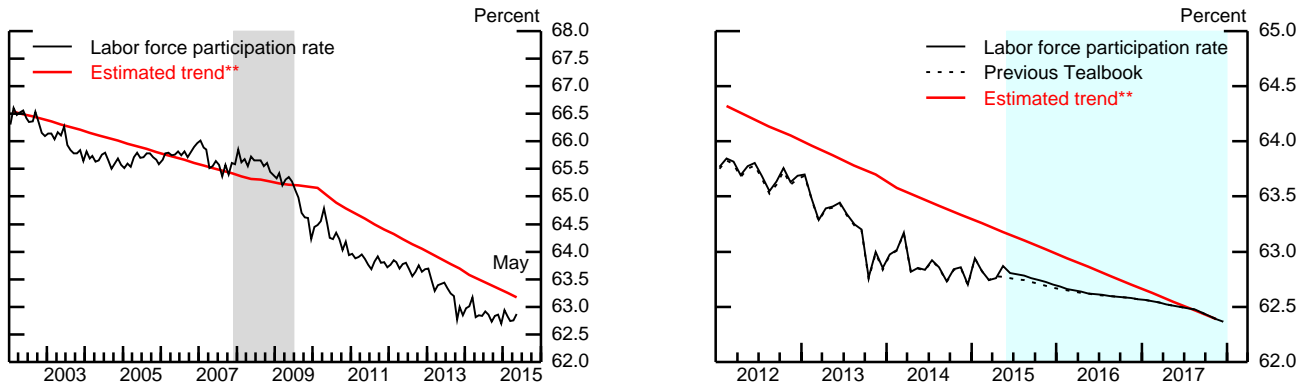
* Published data adjusted by staff to account for changes in population weights.
** Includes staff estimate of the effect of extended and emergency unemployment benefits.
Source: U.S. Department of Labor, Bureau of Labor Statistics; staff assumptions.

Initial Unemployment Insurance Claims*

Thousands

May 30
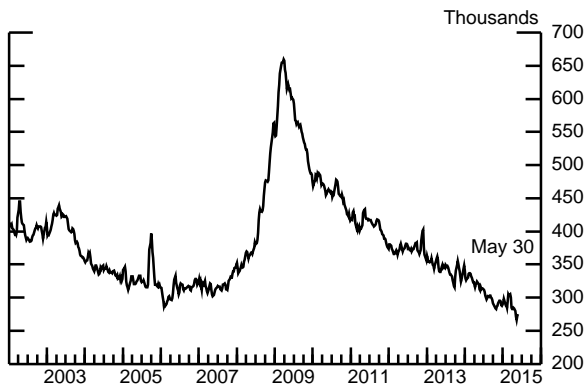
* 4-week moving average.
  Source: U.S. Department of Labor, Employment and Training Administration.

Private Hires, Quits, and Job Openings

Percent

- Hires*
- Openings**
- Quits*

Apr.
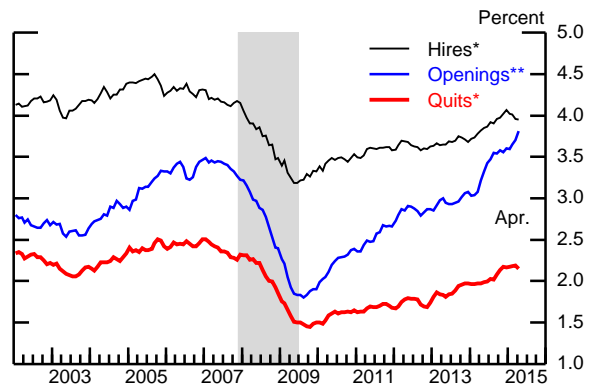
* Percent of private nonfarm payroll employment, 3-month moving average.
** Percent of private nonfarm payroll employment plus unfilled jobs, 3-month moving average.
  Source: Job Openings and Labor Turnover Survey.

Average Monthly Change in Labor Market Conditions Index

Index points

Q2*
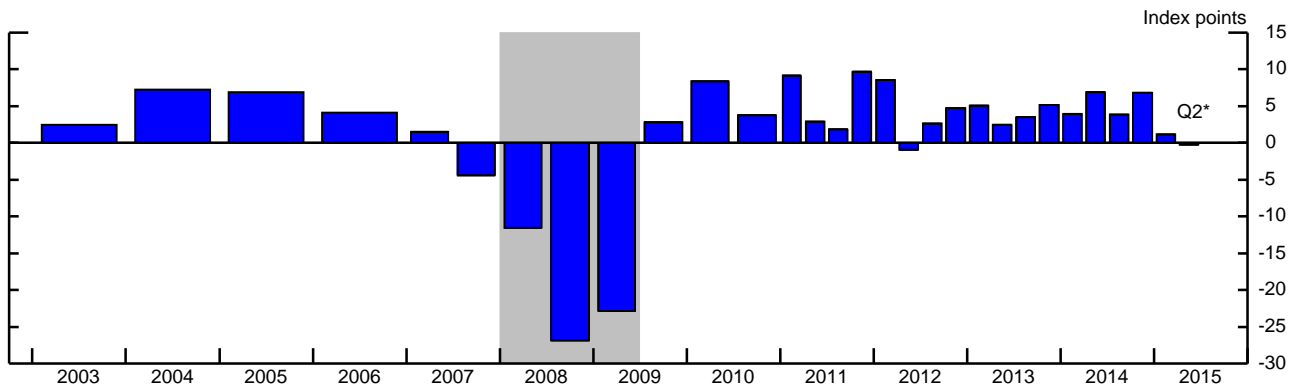
* Value shown for Q2 is an average of May and April data.
  Note: Labor market conditions index estimated by staff.

Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

Domestic Econ Devel & Outlook

Inflation Developments and Outlook (1)
(Percent change from year-earlier period)

Headline Consumer Price Inflation
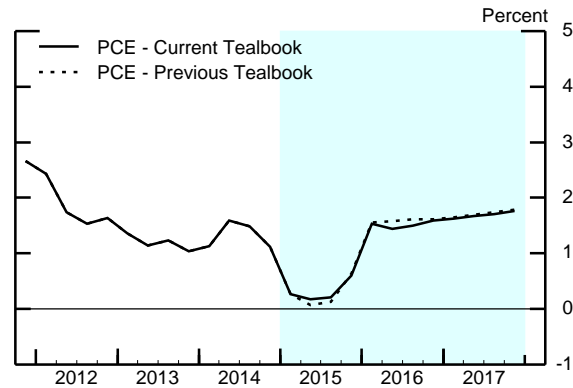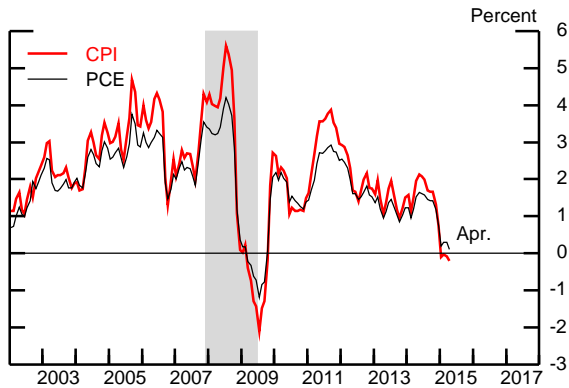
Source: For CPI, U.S. Department of Labor, Bureau of Labor Statistics; for PCE, U.S. Department of Commerce, Bureau of Economic Analysis.

Measures of Underlying PCE Price Inflation
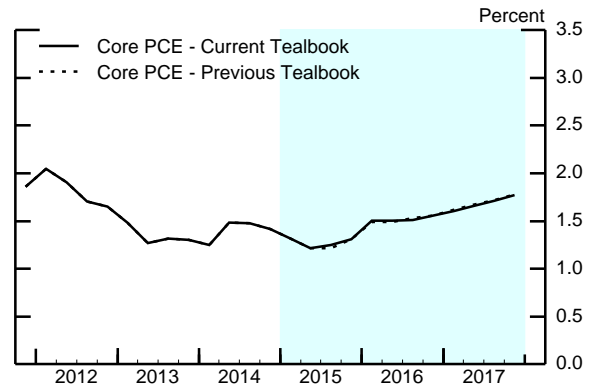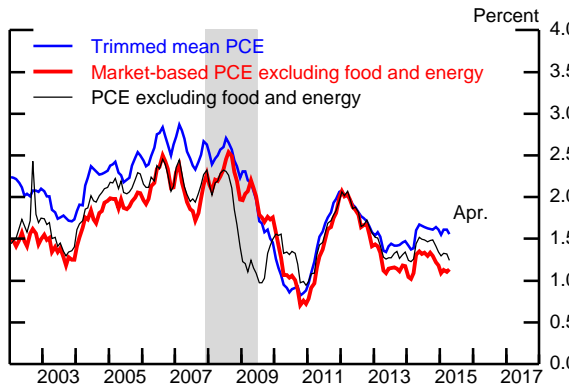
Source: For trimmed mean PCE, Federal Reserve Bank of Dallas; otherwise, U.S. Department of Commerce, Bureau of Economic Analysis.

Labor Cost Growth
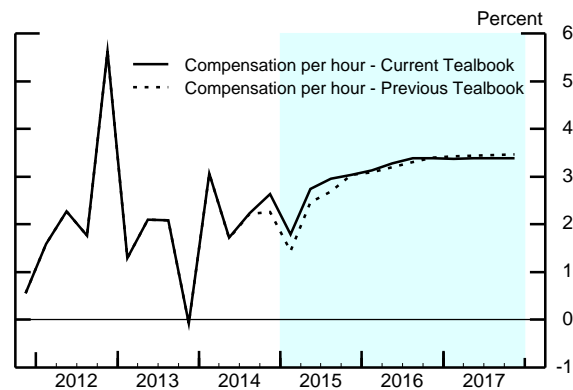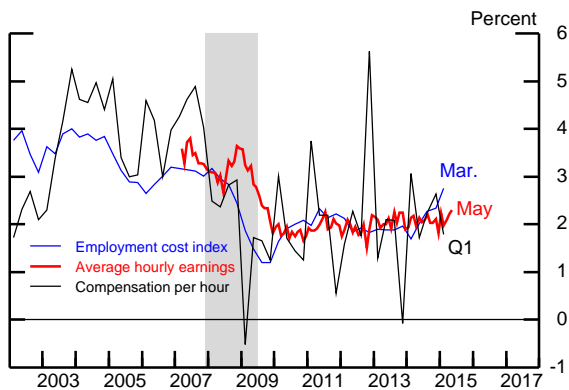
Note: Compensation per hour is for the business sector. Average hourly earnings are for the private nonfarm sector. The employment cost index is for the private sector.
Source: U.S. Department of Labor, Bureau of Labor Statistics.

Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

Inflation Developments and Outlook (2)

(Percent change from year-earlier period, except as noted)

Commodity and Oil Price Levels

Note: Futures prices (dotted lines) are the latest observations on monthly futures contracts.
Source: For oil prices, U.S. Department of Energy, Energy Information Agency; for commodity prices, Commodity Research Bureau (CRB).
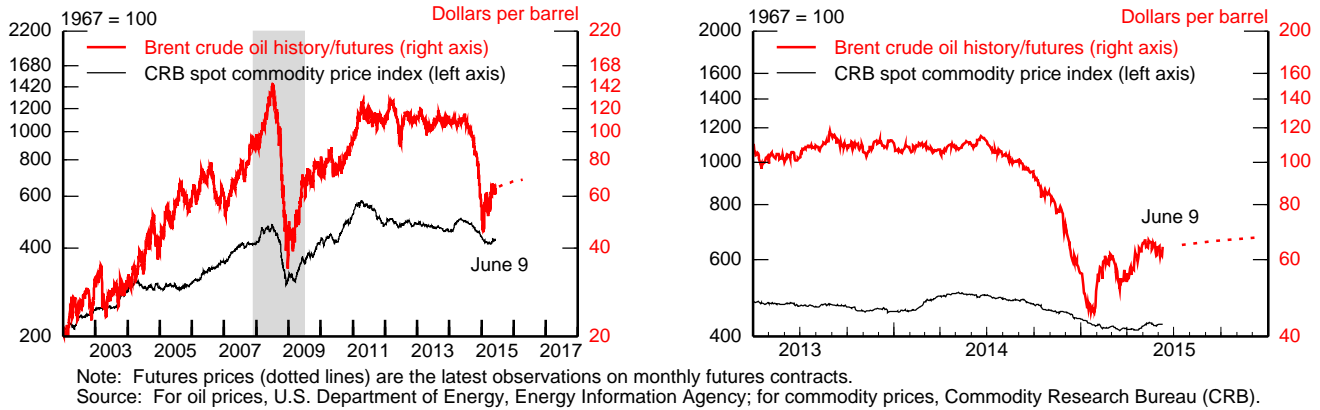
Energy and Import Price Inflation

Source: For core import prices, U.S. Dept. of Labor, Bureau of Labor Statistics; for PCE, U.S. Dept. of Commerce, Bureau of Economic Analysis.

Long-Term Inflation Expectations

Note: Based on a comparison of an estimated TIPS (Treasury Inflation-Protected Securities) yield curve with an estimated nominal off-the-run Treasury yield curve, with an adjustment for the indexation-lag effect.
SPF Survey of Professional Forecasters.
Source: For Michigan, University of Michigan Surveys of Consumers; for SPF, the Federal Reserve Bank of Philadelphia; for TIPS, Federal Reserve Board staff calculations.

Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

Domestic Econ Devel & Outlook

The Long-Term Outlook

(Percent change, Q4 to Q4, except as noted)

Measure	2015	2016	2017	2018	2019	Longer run
Real GDP	1.6	2.4	2.2	1.9	1.7	1.9
Previous Tealbook	1.8	2.4	2.1	1.8	1.7	1.9
Civilian unemployment rate[1]	5.3	5.2	5.2	5.1	5.1	5.2
Previous Tealbook	5.3	5.2	5.1	5.0	5.1	5.2
PCE prices, total	.6	1.6	1.8	1.9	2.0	2.0
Previous Tealbook	.6	1.6	1.8	1.9	2.0	2.0
Core PCE prices	1.3	1.6	1.8	1.9	2.0	2.0
Previous Tealbook	1.3	1.6	1.8	1.9	2.0	2.0
Federal funds rate[1]	.4	1.3	2.1	2.8	3.2	3.5
Previous Tealbook	.4	1.4	2.3	2.9	3.2	3.5
10-year Treasury yield[1]	2.6	3.1	3.6	3.9	4.1	4.3
Previous Tealbook	2.6	3.3	3.7	4.0	4.1	4.3

1. Percent, average for the final quarter of the period.

Real GDP

Unemployment Rate

PCE Prices

Interest Rates
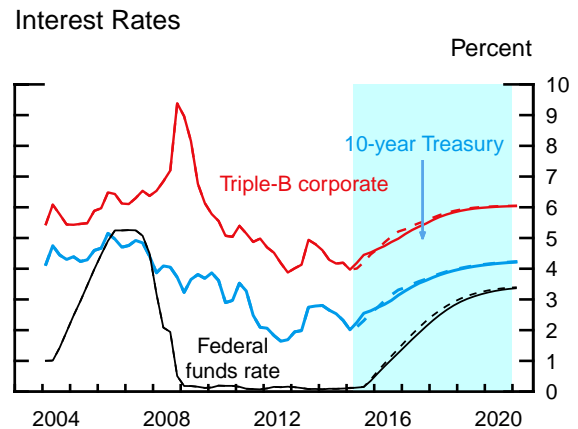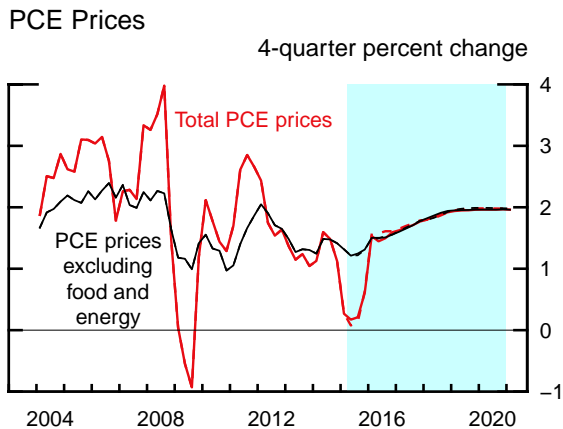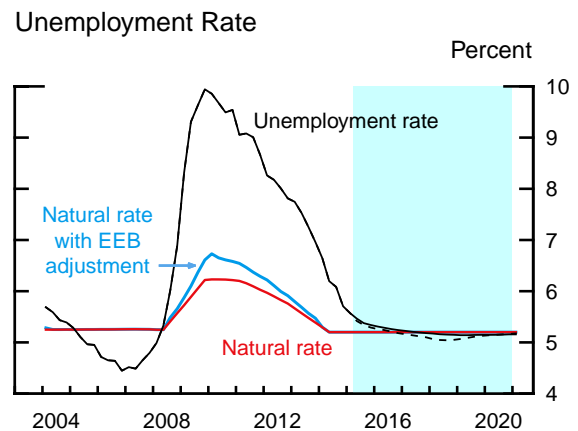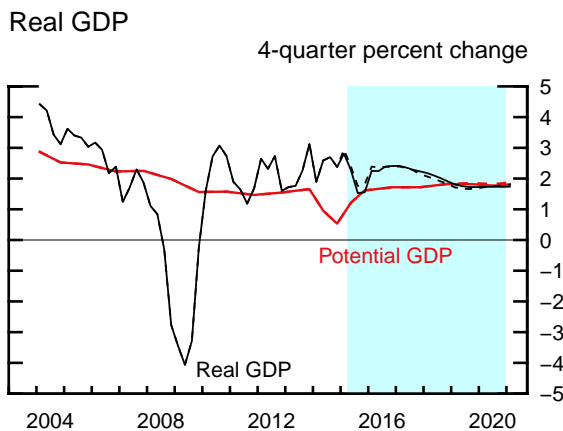
Note: In each panel, shading represents the projection period, and dashed lines are the previous Tealbook.

Evolution of the Staff Forecast

Domestic Econ Devel & Outlook

Change in Real GDP

Percent, Q4/Q4

2015

2014

2016

2017

9/5 10/17 12/5 1/23 3/13 4/24 6/12 7/24 9/11 10/23 12/11 1/22 3/12 4/23 6/11 7/23 9/10 10/22 12/10 1/21 3/11 4/22 6/10
2012   2013   2014   2015
Tealbook publication date

Unemployment Rate

Percent, fourth quarter

2014

2015

2016

2017
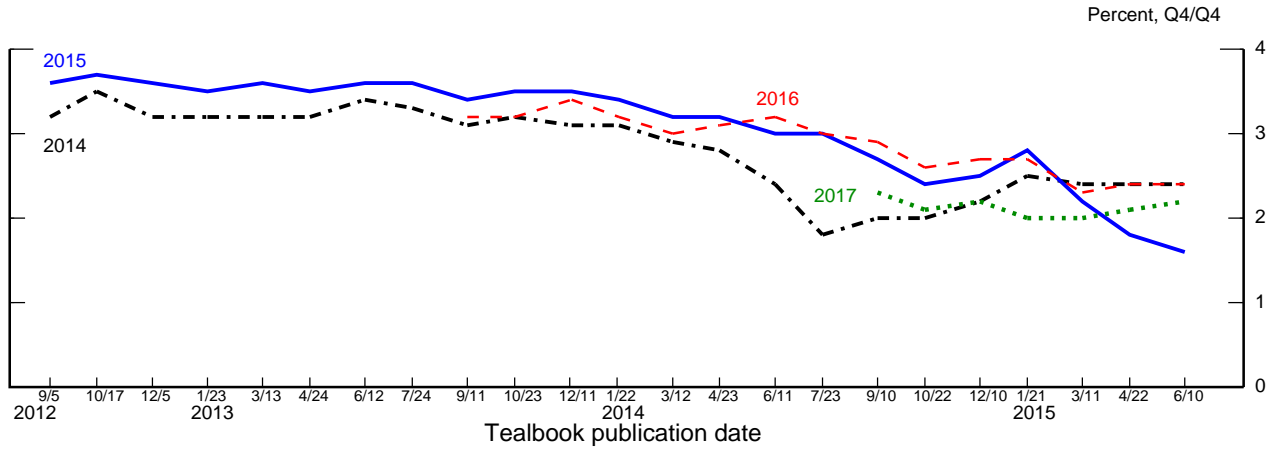
9/5 10/17 12/5 1/23 3/13 4/24 6/12 7/24 9/11 10/23 12/11 1/22 3/12 4/23 6/11 7/23 9/10 10/22 12/10 1/21 3/11 4/22 6/10
2012   2013   2014   2015
Tealbook publication date
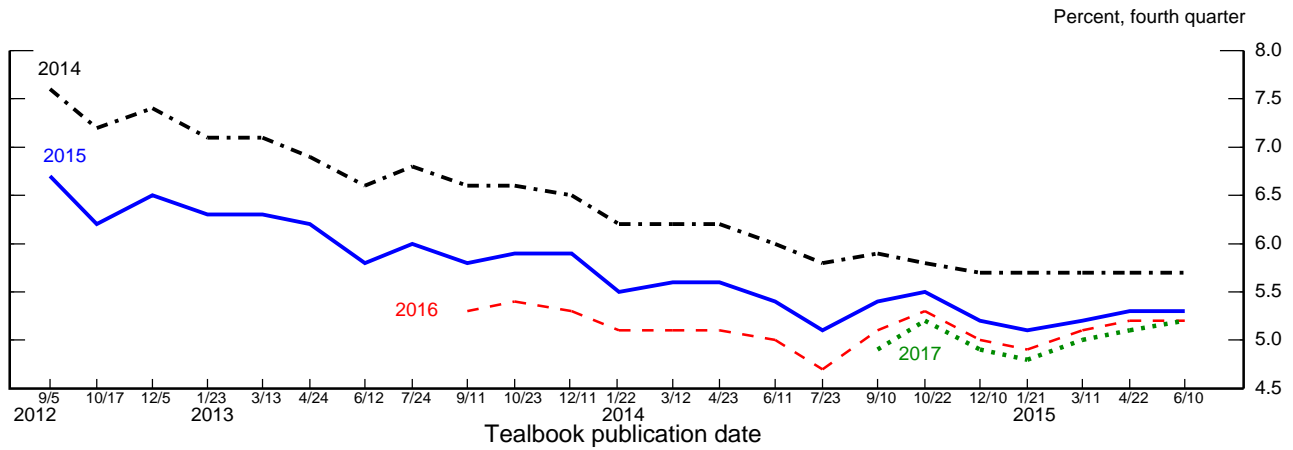
Change in PCE Prices excluding Food and Energy

Percent, Q4/Q4

2015

2014

2016

2017

9/5 10/17 12/5 1/23 3/13 4/24 6/12 7/24 9/11 10/23 12/11 1/22 3/12 4/23 6/11 7/23 9/10 10/22 12/10 1/21 3/11 4/22 6/10
2012   2013   2014   2015
Tealbook publication date

Domestic Econ Devel & Outlook
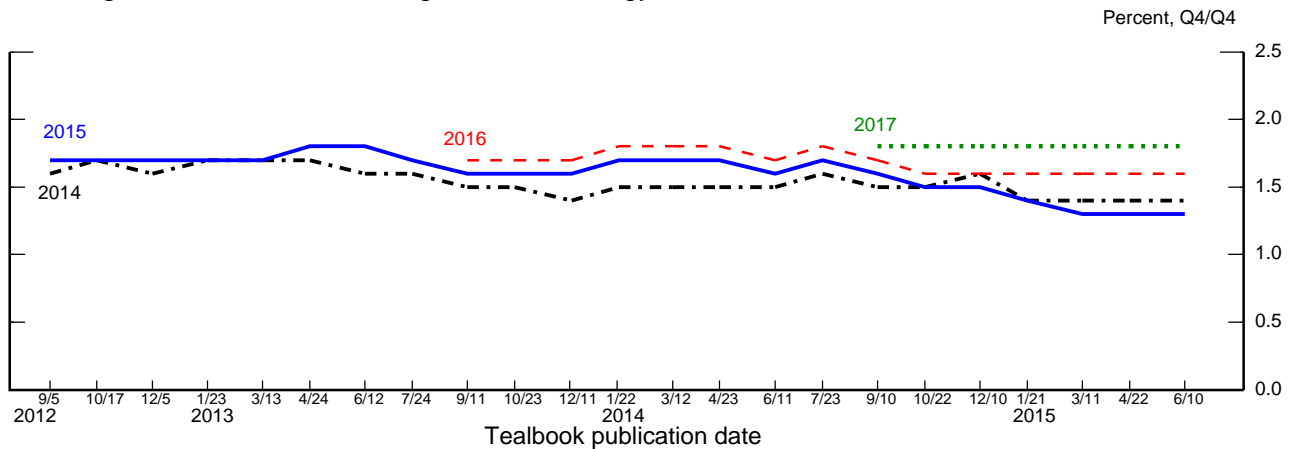
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International Economic Developments and Outlook

Foreign real GDP growth slowed by almost 1 percentage point in the first quarter to 1½ percent, a rate about ¼ percentage point lower than previously estimated. A 0.6 percent contraction in the Canadian economy, where investment has been hard-hit by earlier declines in oil prices, accounted for much of both the slowdown and the downward revision, although there was a significant step-down in growth in several of the emerging market economies (EMEs) as well. Recent indicators of foreign economic activity, including data on PMIs and trade, suggest that total foreign growth is picking up in the second quarter, although not quite as much as we had anticipated, to a rate of 2¼ percent.

Beyond the current quarter, we expect foreign GDP growth to increase to 3 percent by early next year as the Canadian economy shakes off the effect of the lower oil prices and the euro area continues on its moderate recovery path, supported by expansionary monetary policy. We also expect some acceleration in activity in EMEs, supported by policy stimulus in China and stronger demand in the advanced economies. Many foreign economies should also benefit from depreciated currencies. This projection has been revised down slightly since April, reflecting the softer-than-expected tone of recent data, the lower path for U.S. GDP, and some restraint from recent increases in long-term interest rates in the advanced foreign economies (AFEs).

Despite indications that the pace of foreign activity is picking up, there is still a significant risk that growth will not recover as projected, which might also prompt the dollar to appreciate more than we are assuming. We explore the effects of such a scenario on the U.S. economy in the Risks and Uncertainty section. The situation in Greece continues to represent another important risk to our outlook. Our baseline forecast assumes that negotiations between Greece and its creditors will continue to be contentious, and it encompasses the possibility that Greece might be forced to impose capital controls and miss some debt payments. However, it assumes that spillovers to other peripheral countries will remain contained. In the alternative scenario "Greek Exit with Severe Spillovers," we examine the possibility that the situation in Greece deteriorates much more than in the baseline, resulting in a disruptive Greek exit from the euro area that roils global financial markets and pushes Europe back into recession.

Equilibrium Interest Rates in the Advanced Foreign Economies

The equilibrium interest rate—the *real* interest rate consistent with output at potential and inflation at its target—plays a central role in assessing the stance of monetary policy, with policy expansionary (contractionary) if the short-term real interest rate lies below (above) this benchmark. Estimates of the equilibrium interest rate, however, can vary greatly over time as both cyclical and structural developments affect its level, with implications for the path of the policy rate that would be consistent with achieving the objectives of monetary policy. Here we discuss estimates of equilibrium interest rates in the advanced foreign economies (AFEs) based on two alternative approaches.

Our first empirical framework is an estimated dynamic stochastic general equilibrium (DSGE) model. This model consists of a Phillips curve equation (which relates inflation to output gaps), an IS equation (which relates output gaps to the deviation in the real policy interest rate from the equilibrium interest rate), and a Taylor rule (which describes monetary policy). The estimation technique assumes that output growth, inflation, and the policy rate all fluctuate around stable averages, thus helping to identify cyclical fluctuations in potential output and the equilibrium interest rate from those data.[1]

Figure 1 on the following page shows the evolution of the AFE aggregate equilibrium interest rate estimated using this approach. According to our DSGE model, the aggregate AFE equilibrium interest rate declined by an outsized and unprecedented amount during the global financial crisis and the European debt crisis; the rate currently stands about 4 percentage points below its steady-state value of nearly 2 percent. Moreover, the effects of the recession are deemed to be very persistent: Absent additional shocks, the AFE aggregate equilibrium interest rate in 2020 is still projected to be more than ½ percentage point below its nearly 2 percent steady-state value. Thus, this evidence suggests that the slow recovery in AFE aggregate demand should lead to only a very gradual normalization of AFE policy rates toward pre-crisis average levels.

As previously noted, the DSGE-based approach imposes a constant steady-state value on the equilibrium interest rate and abstracts from trend changes in its path. However, Laubach and Williams (2003) provide econometric evidence indicating that the long-run value of the equilibrium interest rate in the United States has drifted down considerably over the past several decades.[2] Their approach is somewhat different, as—starting from an empirical framework that includes an IS equation and a Phillips curve equation—they focus on estimating the link between slow-moving changes in the equilibrium interest rate and the trend growth of output.

Figure 2 presents estimates of this trend concept of the equilibrium interest rate that are based on applying a methodology very similar to that in Laubach and Williams (2003) to data from the

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[1] Our model and estimation follow Vasco Cúrdia, Andrea Ferrero, Ging Cee Ng, and Andrea Tambalotti (2015), "Has U.S. Monetary Policy Tracked the Efficient Interest Rate?" *Journal of Monetary Economics*, vol. 70 (March), pp. 72–83.

[2] Thomas Laubach and John Williams (2003), "Measuring the Natural Rate of Interest," *Review of Economics and Statistics*, vol. 85 (March), pp. 1063–70.

AFE economies.[3] According to this approach, the AFE equilibrium interest rate (shown by the red line) has fallen steadily over the past 15 years and is currently negative. A number of possible structural factors have been put forward to account for this decline in the long-run value of the equilibrium interest rate. For example, potential output growth appears to have stepped down, partly reflecting demographic trends and the effects of the global financial crisis on financial intermediation and productivity. In addition, from an open-economy perspective, the sizable upward shift in global savings in the early to mid-2000s may have contributed to lower world interest rates.

The estimates based on the Laubach and Williams (2003) methodology suggest that, absent developments that would push the long-run equilibrium rate back up, aggregate demand and the associated neutral policy rates in the AFEs are likely to be much lower than in the early 2000s and will not return to pre-crisis levels, as in the first approach. An implication is that, going forward, even shallow recessions may take policy rates in the AFEs to the zero lower bound constraint.

All told, both cyclical and trend estimates suggest that equilibrium interest rates in the AFEs are currently low and will likely remain so for many years. However, the degree to which the decline is due to cyclical versus structural factors—in other words, how low the equilibrium rate will be in the long run—remains difficult to disentangle with confidence. Moreover, in either approach, confidence intervals around estimates of the equilibrium interest rate tend to be very large. Finally, some of the structural factors that may have contributed to lower long-run equilibrium interest rates over the past decade may still unwind. For instance, global savings could conceivably fall going forward, as Asian economies rebalance toward domestic demand somewhat, thus putting upward pressure on global interest rates. Choosing an appropriate path of policy rates over time in AFEs will thus require important judgments related to these uncertainties.

<div style="text-align: right">Int'l Econ Devel & Outlook</div>

1. Estimates of the Cyclical AFE Equilibrium Real Interest Rate
Note: AFE aggregate refers to the GDP-weighted average of estimates for the euro area, Japan, Canada, and the United Kingdom.
Source: Staff calculations using DSGE approach.

2. Estimates of the Long-Run Value of the AFE Equilibrium Real Interest Rate
Note: Estimates for the United States are from the latest update of Laubach and Williams (2003).
Source: Staff calculations using Laubach-Williams approach.

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[3] Our methodology differs from Laubach and Williams (2003) in two respects. First, we use staff estimates of potential output for the AFEs rather than treat this variable as unobserved. Second, we construct real policy rates using survey-based measures of inflation expectations rather than construct inflation expectations using an autoregressive process on estimated inflation data, as these authors do. When we apply our methodology to U.S. data, however, we obtain estimates very similar to the original article, suggesting that these changes have a modest effect on the results.

Quarterly foreign inflation appears to have bottomed out along with oil prices in the first quarter, and it is expected to turn positive in all of the major AFEs in the current quarter. Inflation is projected to reach central bank targets of 2 percent in Canada and the United Kingdom by 2017, and to pick up but remain below the 2 percent objective in both the euro area and Japan at the end of the forecast period. Inflation rates in EMEs also appear to be increasing and are expected to average about 3 percent over the forecast period.

We continue to expect monetary policy to remain quite accommodative in most foreign economies. We assume that both the European Central Bank (ECB) and the Bank of Japan will keep rates constant and continue to implement their plans for further quantitative easing over much of the forecast period. We anticipate that the Bank of England (BOE) will begin to increase its policy rate in early 2016 and that the Bank of Canada (BOC) will do so a quarter later. Nonetheless, even for the BOE and the BOC, we expect only modest increases in policy rates over the forecast period, consistent with the view that equilibrium interest rates in the AFEs will remain low for many years (see the box "Equilibrium Interest Rates in the Advanced Foreign Economies"). Central banks of some major EMEs, including China and India, have loosened monetary policy since the most recent FOMC meeting. A prominent exception is Brazil, where policy rates have been tightened further to contain inflation.

ADVANCED FOREIGN ECONOMIES

- *Euro area.* Real GDP grew 1.5 percent in the first quarter as domestic demand strengthened, and recent indicators, including PMIs and retail sales, are consistent with our estimate of an expansion at about the same pace in the current quarter. We expect GDP growth to rise to 2 percent in 2016 and 2¼ percent in 2017. This forecast is a touch weaker than our April Tealbook projection, reflecting the tightening of financial conditions in recent weeks: As noted in the Financial Developments section, government bond yields in the euro area have risen substantially, and the euro has appreciated about 4 percent in nominal effective terms.

  Twelve-month inflation rose further to 0.3 percent in May, the first positive reading since last November. We expect quarterly inflation to jump to 2 percent at an annual rate in the second quarter from negative 1½ percent in the first quarter, with energy prices contributing positively to total inflation for

the first time since mid-2013. Inflation should settle around 1½ percent by the end of the year and then gradually pick up to 1¾ percent over the remainder of the forecast period as the output gap narrows. We continue to expect ECB asset purchases to total about €1.2 trillion by September 2016 and the ECB's main policy rate to stay near zero through the end of 2017.

Although **Greece** averted default on its obligations to the IMF in early May, its situation remains precarious. Greece and its creditors continue to disagree over the terms of official financial assistance, even as two deadlines for a deal approach. First, after postponing several debt repayments to the IMF due earlier in the month, the Greek government faces a June 30 deadline to repay the IMF about €1.6 billion. Second, the Greek government's eligibility to receive financial assistance from the European Financial Stability Facility (EFSF) is currently set to expire at the end of the month.

Greece and its creditors are working on a deal to extend Greece's EFSF program and to release some of its funds. There is some chance these talks will fail, in which case the Greek government may well miss a debt repayment, the ECB could curtail liquidity support to Greek banks, and Greece might have to impose capital controls. Even in this instance, however, our baseline forecast assumes that the associated financial and political tensions will ultimately motivate Greece and its creditors to put the existing financial assistance program back on track and, subsequently, to cover Greece's medium-term financing needs with a new multiyear program. In addition, our baseline forecast assumes that financial spillovers to the rest of the euro area are contained. However, we cannot rule out the possibility that the Greek situation will spiral out of control, resulting in a Greek exit from the euro area and broader turmoil in global financial markets.

- *Japan.* Real GDP growth picked up to 3.9 percent in the first quarter, almost 3 percentage points above our estimate in the April Tealbook. However, the surprise was partly due to a substantial contribution from inventory investment. Thus, we expect GDP growth to slow to a still above-trend pace of 1½ percent in the current quarter and to remain at about that rate through 2016 before a second hike to the consumption tax rate stalls the expansion in 2017. Consumer prices edged down further in the first quarter, reflecting a drop in energy prices and a slowdown in core price increases. With oil prices

turning up, inflation should increase to ½ percent in the second quarter. Thereafter, as the output gap narrows and inflation expectations rise, we see inflation (excluding the direct effect of the consumption tax hike) rising to almost 1½ percent by the end of 2017.

- *Canada.* Real GDP declined 0.6 percent in the first quarter, as earlier declines in oil prices took a toll on investment in the energy industry. The first-quarter growth rate was considerably weaker than expected, reflecting surprisingly soft private consumption that was due, in part, to the severe winter weather. Recent data point to a modest rebound in economic activity starting in the second quarter; the manufacturing PMI picked up in May, although it remained slightly contractionary. We now expect growth to bounce back to nearly 1½ percent in the second quarter and to increase further to about 2½ percent by the end of the year, supported by the BOC's accommodative monetary policy, a weak Canadian dollar, and firming U.S. growth. This projection has been revised down a little for 2015, as we have carried forward some of the recent weakness in consumption. With oil prices having turned around and projected to move up a little further, we see inflation bouncing back to 1¾ percent in the second quarter and reaching the BOC's 2 percent target by 2017.

- *United Kingdom.* Real GDP growth slowed to a 1.2 percent pace in the first quarter, nearly 1 percentage point below the April Tealbook projection. Domestic demand growth picked up, but exports declined after surging in the fourth quarter, and import growth remained high. With readings on economic sentiment remaining solid and retail sales growth increasing, we expect GDP growth to bounce back to a 2½ percent pace in the second quarter and to maintain that pace through 2016. After falling at a 1.6 percent rate in the first quarter, consumer prices are estimated to have risen nearly 1 percent in the second quarter, reflecting stabilizing energy prices. With labor market slack projected to dissipate slowly and inflation projected to rise only gradually to the BOE's 2 percent target, we continue to expect the BOE to wait until the first quarter of 2016 before raising its policy rate.

EMERGING MARKET ECONOMIES

- *China.* Chinese real GDP growth is estimated to have picked up from just
  5.1 percent in the first quarter to a still-subdued 6 percent in the second. The
  estimate for the second quarter reflects mild improvement across a range of
  indicators. Industrial production and exports strengthened in April following
  a weak first quarter, and exports rose further in May. The pace of house price
  declines has lessened while sales have increased recently, suggesting that the
  drag on activity from the property sector is diminishing. Meanwhile, retail
  sales continued to rise at a healthy rate. We expect GDP growth to increase to
  a 7¼ percent pace in the second half of the year, supported by recent and
  further monetary easing as authorities seek to keep growth near their 7 percent
  target for this year. Financial conditions have become more accommodative
  in recent weeks, as the interbank rate has declined 2 percentage points
  following the 100 basis point cut in banks' reserve requirement ratios in April.
  Economic activity should also be supported beyond the current quarter by a
  strengthening of exports as demand in China's trading partners improves and
  as the drag from last year's appreciation of the real trade-weighted renminbi
  lessens. Over the medium term, we continue to see growth moderating to
  6½ percent, in line with our estimate of declining potential growth.

  We expect consumer price inflation to come in at an annual rate of 1½ percent
  in the current quarter after having dipped below zero in the first quarter in
  response to falling food and fuel prices. We expect inflation to rise further to
  2½ percent by the end of the year and to remain around that rate over the rest
  of the forecast period.

- *Other Emerging Asia.* First-quarter growth was surprisingly weak in several
  emerging Asian economies, due primarily to plummeting exports. The
  disappointing first-quarter outcomes, along with the mixed tone of more
  recent indicators, including exports and PMIs, prompted us to lower our
  estimate for GDP growth in the current quarter by ½ percentage point to
  3¾ percent, up only slightly from the first-quarter rate. Nevertheless, we
  continue to expect growth in the region to move up to 4¼ percent in the
  second half of the year, in response to improved activity in China and in the
  advanced economies, and to remain at roughly that rate, supported by low oil
  prices and accommodative monetary policies. We judge that, for now, the

Int'l Econ Devel & Outlook

outbreak of MERS (Middle East Respiratory Syndrome) in Korea will have little effect on the region's growth, although it poses downside risks. Inflation in the region, which was slightly negative in the first quarter as a result of falling energy prices, is expected to turn positive this quarter and move up to 3¼ percent by 2016.

- *Latin America.* **Mexican** real GDP growth dropped to 1.6 percent in the first quarter, a little below our April Tealbook estimate. Demand-side components will be released later this month, but monthly data indicate weakness in external demand for manufactured goods (in line with the contraction in U.S. production) and in fixed investment, particularly residential housing. In addition, oil production has continued to decline. A rebound in U.S. auto production, along with more-upbeat recent data on exports and PMIs, are consistent with our projection of a pickup in GDP growth to 2½ percent in the current quarter, and we expect further improvement to 3¼ percent over the forecast period. Headline inflation is expected to move up to 3¼ percent later this year from just ¼ percent in the first quarter as the influence of earlier declines in energy and administered telecommunication prices fades.

    In **Brazil**, real GDP contracted at an annual rate of ½ percent in the first quarter, a considerably smaller drop than we had expected, as a sharp decline in private domestic demand in response to tighter monetary policy and weak confidence was partly offset by a surprisingly large jump in exports. However, much of the rise in exports was reversed in April and May, and other recent indicators, including the manufacturing PMI and industrial production, also have been weak. As a result, we now expect GDP to contract 3¼ percent in the current quarter. Despite the weak economy, the substantial depreciation of the *real* and increases in administered prices have kept inflation stubbornly high, at an estimated 9¼ percent annual rate in the current quarter. To restrain inflation, the central bank has raised its policy rate by a cumulative 275 basis points since October 2014, including an increase of 50 basis points on June 3. We expect these moves to support the *real* and bring inflation down to 5¾ percent by the end of this year and to 5½ percent by 2017, allowing policy to begin to ease by mid-2016. The loosening in policy should contribute to an increase in real GDP growth to a still-sluggish 1¾ percent next year and to 2¼ percent in 2017.

Recent Foreign Indicators

Nominal Exports

Jan. 2010 = 100

- Foreign
- AFE
- EME*

* Excludes Venezuela.

Industrial Production

Jan. 2010 = 100

- Foreign
- AFE*
- EME**

* Excludes Australia and Switzerland.
** Excludes Venezuela, Hong Kong, and Colombia.

Retail Sales

12-month percent change

- Foreign
- AFE*
- EME**

* Excludes Australia.
** Includes Brazil, Chile, China, Indonesia, Korea, Mexico, and Taiwan.

Employment

4-quarter percent change

- Foreign
- AFE
- EME*

* Excludes Argentina and China.
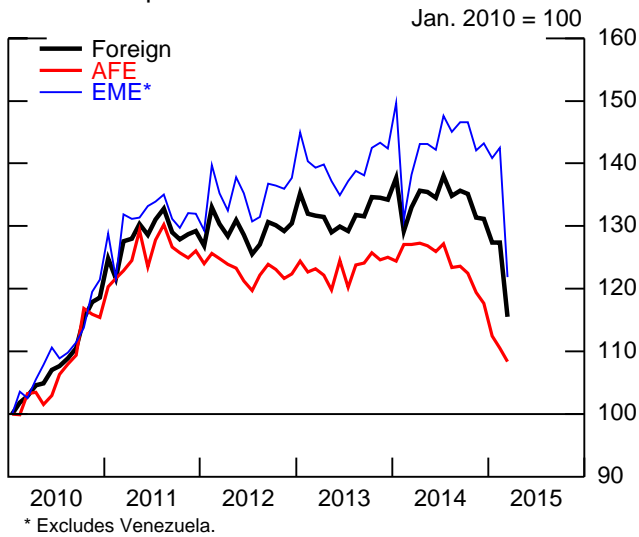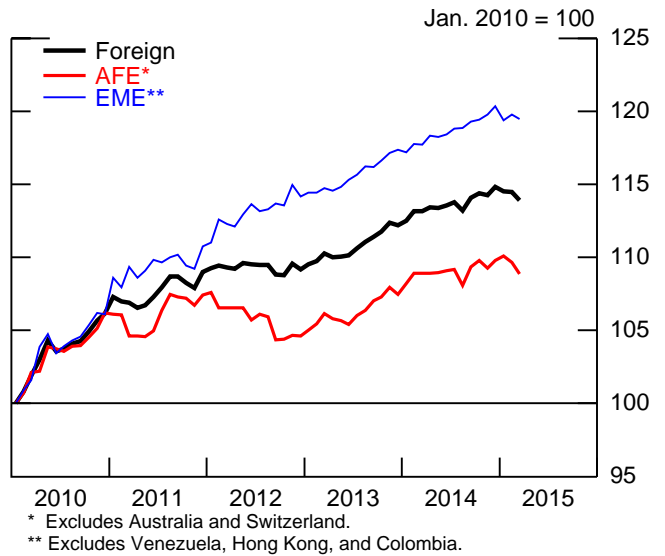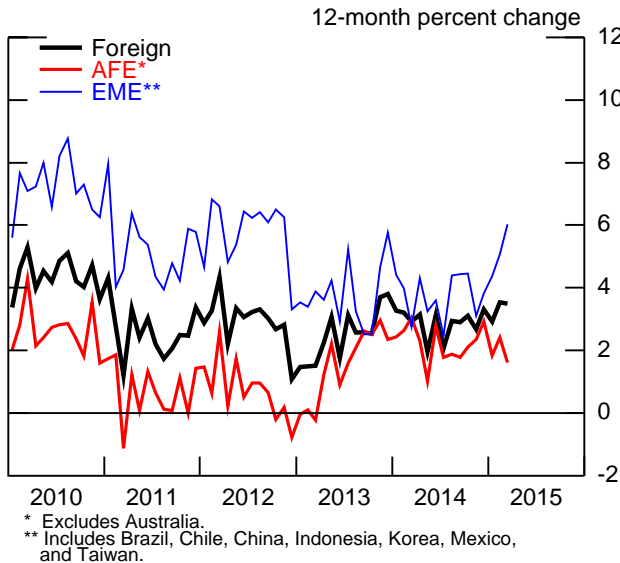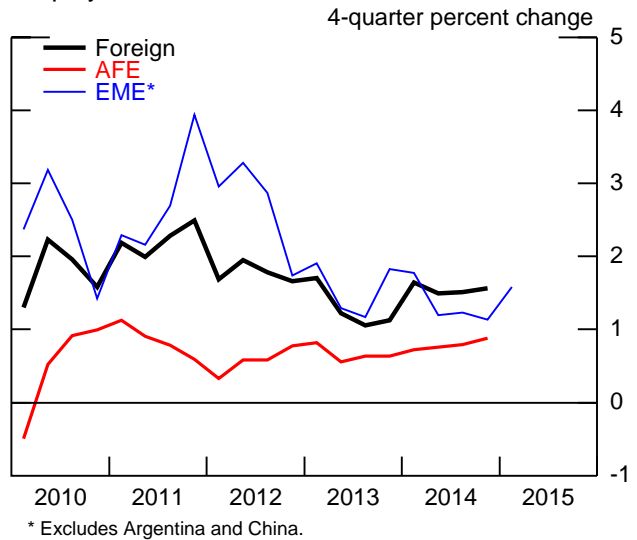
Consumer Prices: Advanced Foreign Economies

12-month percent change

- Headline
- Core*

Note: Excludes Australia, Sweden, and Switzerland.
* Excludes all food and energy; staff calculation.
Source: Haver Analytics and CEIC.
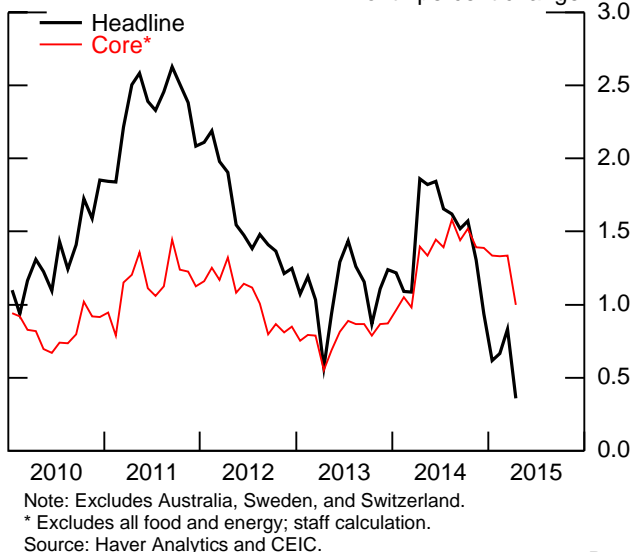
Consumer Prices: Emerging Market Economies

12-month percent change

- Headline
- Ex. food--Emerging Asia*
- Ex. food--Latin America*

* Excludes all food; staff calculation.
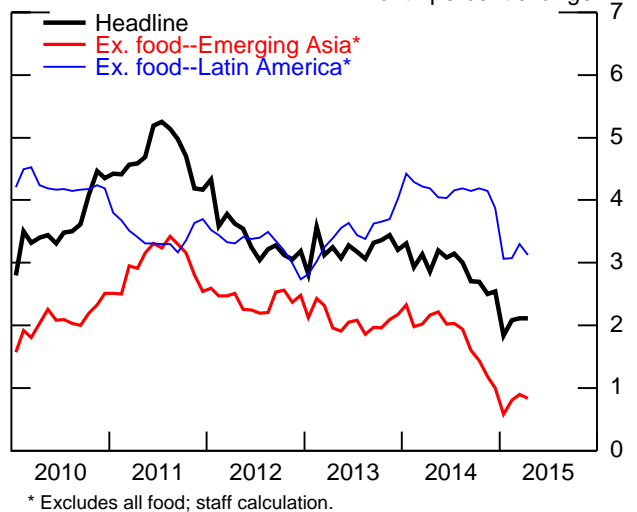
Int'l Econ Devel & Outlook

The Foreign GDP Outlook

Real GDP*

Percent change, annual rate

	2014			2015			2016	2017
	H1	Q3	Q4	Q1	Q2	H2		
1. Total Foreign	**2.2**	**2.8**	**2.4**	**1.6**	**2.2**	**2.8**	**3.0**	**2.9**
Previous Tealbook	*2.2*	*2.6*	*2.7*	*1.8*	*2.4*	*2.9*	*3.1*	*2.9*
2. Advanced Foreign Economies	**1.5**	**1.7**	**1.9**	**0.9**	**1.6**	**2.0**	**2.2**	**1.9**
Previous Tealbook	*1.6*	*1.7*	*2.0*	*1.0*	*1.8*	*2.1*	*2.2*	*1.9*
3. Canada	2.2	3.2	2.2	-0.6	1.4	2.1	2.4	2.0
4. Euro Area	0.7	0.7	1.4	1.5	1.6	1.7	1.9	2.2
5. Japan	-1.4	-2.0	1.2	3.9	1.5	1.6	1.4	-0.2
6. United Kingdom	3.5	2.5	2.5	1.2	2.4	2.5	2.4	2.3
7. Emerging Market Economies	**2.9**	**3.9**	**3.0**	**2.2**	**2.8**	**3.6**	**3.8**	**3.9**
Previous Tealbook	*2.8*	*3.6*	*3.4*	*2.5*	*3.0*	*3.7*	*3.9*	*3.9*
8. China	7.0	8.1	7.0	5.1	6.1	7.2	6.6	6.5
9. Emerging Asia ex. China	3.3	5.1	2.3	3.6	3.8	4.2	4.4	4.2
10. Mexico	2.8	2.1	2.7	1.6	2.6	3.1	3.1	3.2
11. Brazil	-1.4	0.6	1.1	-0.6	-3.2	-0.0	1.8	2.3

* GDP aggregates weighted by shares of U.S. merchandise exports.

Int'l Econ Devel & Outlook

Total Foreign GDP

Percent change, annual rate
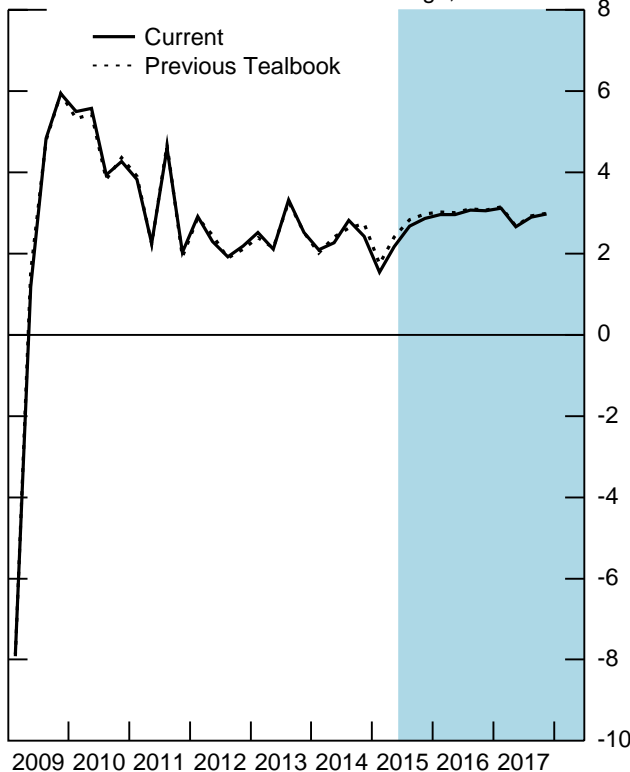
Foreign GDP

Percent change, annual rate
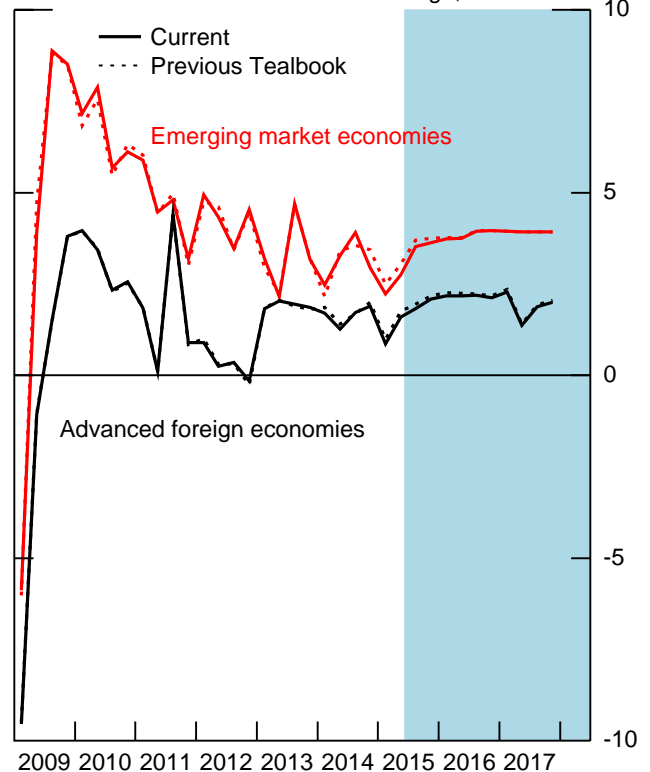
The Foreign Inflation Outlook

Consumer Prices*   Percent change, annual rate

| | 2014 | | | 2015 | | | 2016 | 2017 |
	H1	Q3	Q4	Q1	Q2	H2		
1. Total Foreign	**2.5**	**2.0**	**1.1**	**-0.1**	**2.1**	**2.3**	**2.4**	**2.6**
Previous Tealbook	*2.5*	*2.0*	*1.1*	*-0.1*	*2.0*	*2.3*	*2.4*	*2.6*
2. Advanced Foreign Economies	**2.2**	**0.8**	**-0.4**	**-0.8**	**1.4**	**1.3**	**1.6**	**2.0**
Previous Tealbook	*2.2*	*0.9*	*-0.4*	*-0.8*	*1.1*	*1.4*	*1.6*	*2.0*
3. Canada	3.2	1.2	-0.0	-0.2	1.8	1.8	1.8	2.0
4. Euro Area	0.4	0.4	-0.6	-1.5	1.9	1.4	1.6	1.7
5. Japan	4.9	1.2	-0.6	-0.3	0.5	0.7	1.0	2.6
6. United Kingdom	1.6	1.2	-0.7	-1.6	0.9	1.7	1.8	1.9
7. Emerging Market Economies	**2.7**	**2.9**	**2.3**	**0.5**	**2.6**	**3.0**	**3.1**	**3.1**
Previous Tealbook	*2.7*	*2.9*	*2.3*	*0.4*	*2.7*	*3.0*	*3.1*	*3.1*
8. China	1.4	2.2	1.0	-0.4	1.6	2.4	2.5	2.5
9. Emerging Asia ex. China	2.8	1.9	1.4	-0.2	2.9	3.1	3.2	3.3
10. Mexico	4.1	4.4	4.2	0.3	2.6	3.3	3.3	3.3
11. Brazil	7.0	6.2	6.0	11.1	9.3	5.9	5.6	5.4

* CPI aggregates weighted by shares of U.S. non-oil imports.

Foreign Monetary Policy

AFE Policy Rates

Percent
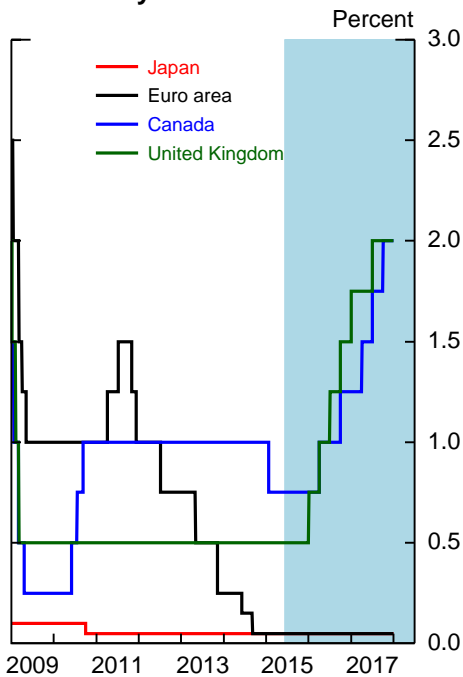
AFE Central Bank Balance Sheets

Percent of GDP

EME Policy Rates

Percent

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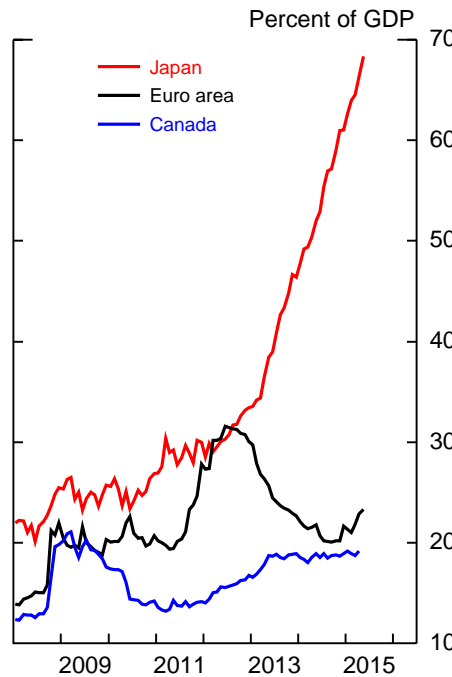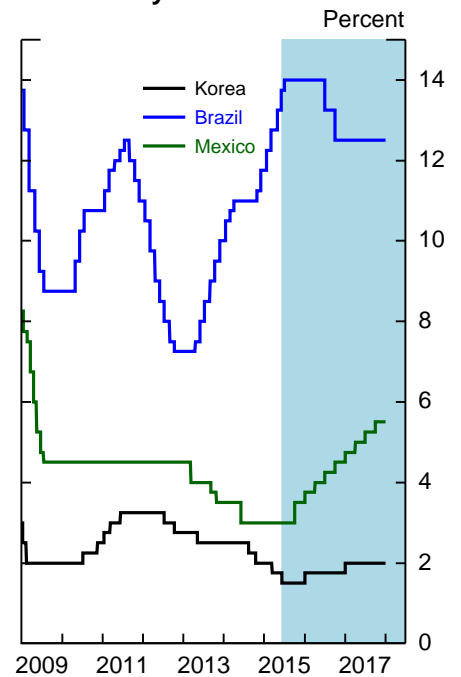
Evolution of Staff's International Forecast

Total Foreign GDP

Percent change, Q4/Q4

Total Foreign CPI

Percent change, Q4/Q4

U.S. Current Account Balance

Percent of GDP

Int'l Econ Devel & Outlook
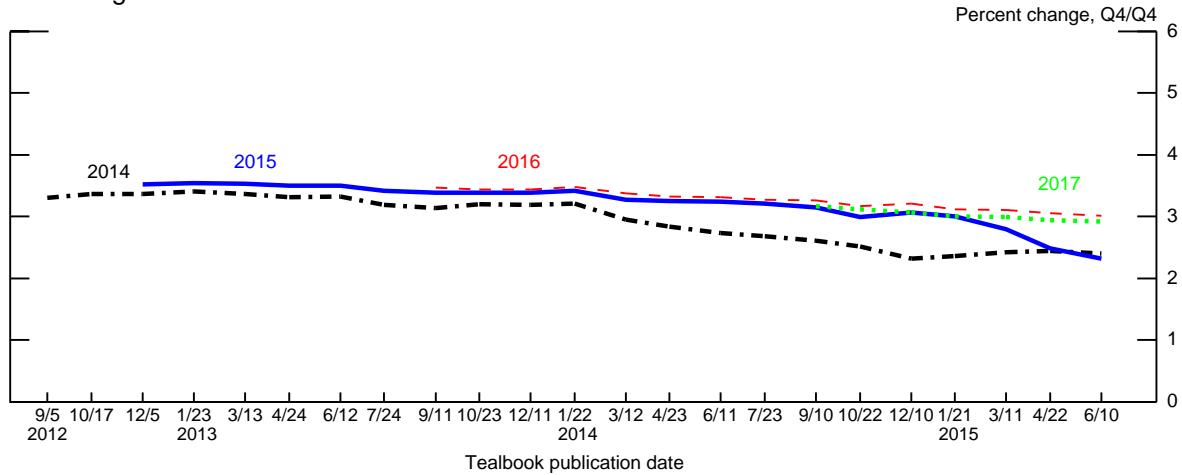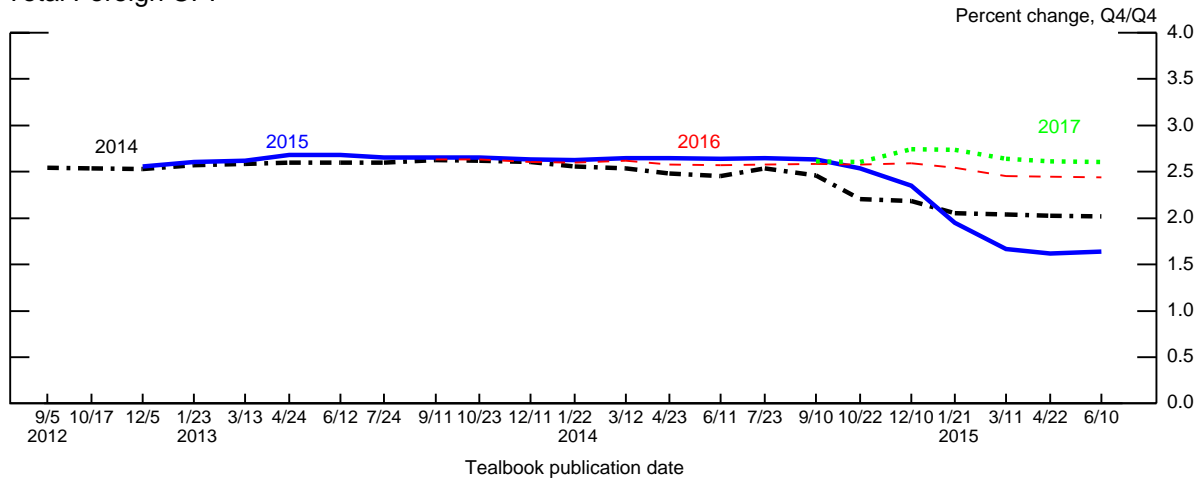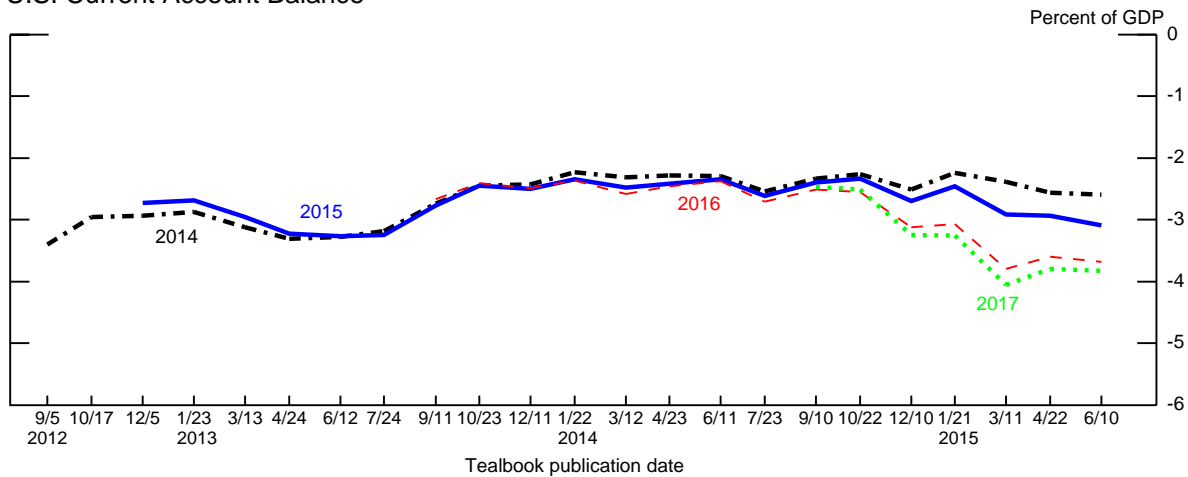
Financial Developments

Over the intermeeting period, longer-term Treasury yields increased notably amid heightened volatility, evidently boosted by rising core euro-area sovereign bond yields and, to a lesser extent, stronger-than-anticipated domestic labor market news late in the period. The sharp rise in core euro-area yields, though difficult to fully explain, appeared to reflect an increase in expected future short-term rates following some positive European economic data releases, as well as a notable rise in term premiums from significantly compressed levels.

- On net, 10-year nominal Treasury and German bund yields rose 43 basis points and 79 basis points, respectively. TIPS-based measures of inflation compensation were little changed over the period.

- Results of the Open Market Desk's surveys of primary dealers and market participants indicated that September remained the most likely time of liftoff, with the expected pace of normalization after the liftoff little changed. The path of the federal funds rates implied by OIS quotes shifted up beyond 2015, likely reflecting in part an increase in term premiums.

- The S&P 500 index moved slightly lower, and the VIX remained near the lower end of its historical range.

- Financing conditions for businesses and households stayed generally accommodative, even as residential mortgage and revolving credit availability continued to be tight for borrowers with lower credit scores.

TREASURY YIELDS AND POLICY EXPECTATIONS

Over the intermeeting period, longer-term Treasury yields rose substantially amid significant volatility. Market participants linked the yield movement primarily to the sharp rise in core euro-area sovereign bond yields, which many anecdotal reports attributed to investors abandoning their views about the profitability of the so-called QE trade, a set of positions designed to benefit from a further decline in core euro-area yields. Treasury yields also rose notably following the stronger-than-expected May employment report. On net, the nominal Treasury yield curve steepened appreciably over

Financial Developments

Treasury Yields and Policy Expectations

Selected Interest Rates

Percent   Percent

Apr. FOMC statement

Apr. ISM nonmanufacturing report

Apr. employment report

Apr. retail sales

Dec. 2016 Eurodollar (left scale)

Apr. FOMC minutes

Apr. CPI

May employment report

10-year Treasury yield (right scale)

Apr. 29   May 4   May 6   May 8   May 13   May 18   May 21   May 26   May 29   June 3   June 8

Note: 5-minute intervals. 8:00 a.m. to 4:00 p.m.
Source: Bloomberg.
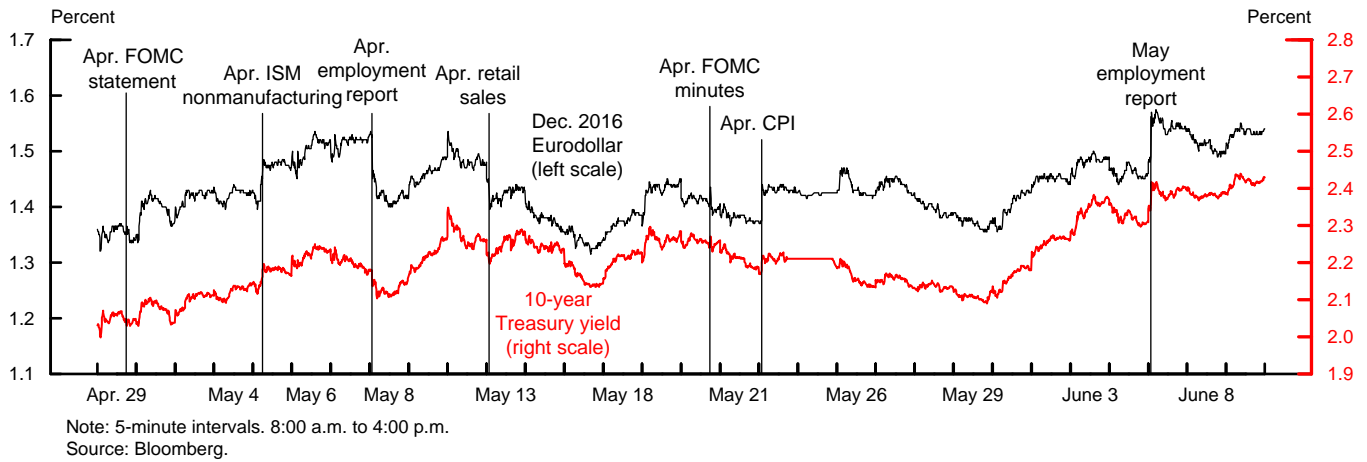
Implied Federal Funds Rate

Percent

Most recent: June 9, 2015
Last FOMC: April 28, 2015

2015   2016   2017   2018   2019

Note: Path is estimated using overnight index swap quotes with a spline approach and a term premium of zero basis points.
Source: Bloomberg; staff estimates.
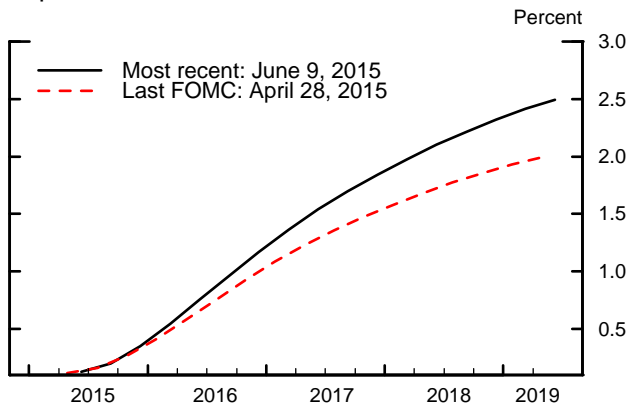
Distribution of Expected Timing of First Rate Increase from the Desk's Primary Dealer Survey

Percent

Recent: 22 respondents
April FOMC: 22 respondents

April   June   July   Sept.   Oct.   Dec.   2016

Note: Average across dealers of their individual probabilities attached to the first tightening occurring at a particular meeting. For 2016, expected timing is during or after that year.
Source: Desk's primary dealer survey from June 8, 2015.

Treasury Yield Curve

Percent

Most recent: June 9, 2015
Last FOMC: April 28, 2015

1   3   5   7   10   20
Years ahead

Note: Smoothed yield curve estimated from off-the-run Treasury coupon securities. Yields shown are those on notional par Treasury securities with semiannual coupons.
Source: Federal Reserve Board.

Inflation Compensation

Percent

Daily

Apr. FOMC

5 to 10 years ahead

Next 5 years*

June 9

2011   2012   2013   2014   2015

Note: Estimates based on smoothed nominal and inflation-indexed Treasury yield curves.
  * Adjusted for lagged indexation of Treasury Inflation-Protected Securities (carry effect).
Source: Barclays PLC; Federal Reserve Bank of New York; staff estimates.

Financial Developments

the intermeeting period, with 2-, 5-, 10-, and 30-year Treasury yields increasing about 15, 34, 43, and 50 basis points, respectively. The changes for the 10- and 30-year Treasury yields stand at the 90th and 95th percentiles, respectively, of the distributions for changes over intermeeting periods since 1990. (For a more detailed discussion of Treasury yield movements, see the box "U.S. Treasury Yields and Global Factors during the Intermeeting Period.")

Most of the increase in nominal yields was attributable to a rise in real yields, as 5-year inflation compensation was little changed and 5-to-10-year inflation compensation rose only a bit.

 Federal Reserve communications following the April FOMC meeting were characterized by investors as generally in line with expectations and elicited limited market reaction. With respect to the FOMC statement and the minutes, market participants reportedly focused on the changes to the Committee's assessment of the economy—in particular, the language that the slower economic growth during the winter months "in part" reflected "transitory factors."

On net, the path of the federal funds rate implied by OIS quotes steepened markedly beyond 2015, with some portion of the increase coming on the heels of the May employment report. A significant portion of the pickup, however, may reflect higher term premiums. Indeed, the modal forecasts of the federal funds rate through 2018 from the Desk's June surveys of dealers and market participants were little changed since the April survey, and respondents again saw the September 2015 meeting as the most likely date for the first increase in the federal funds rate target range. The probability of liftoff at or after the September meeting increased somewhat, with the probability of liftoff at the June 2015 meeting falling to near zero. The expected pace of tightening after the liftoff was little changed relative to the April survey.

FOREIGN DEVELOPMENTS

Since the April FOMC meeting, foreign sovereign bond yields increased, especially at longer maturities, and foreign stock prices generally moved down. The nominal exchange value of the dollar strengthened, on net, over the period.

Benchmark sovereign bond yields in the advanced foreign economies rose sharply starting in late April. After falling back somewhat in late May as Greek concerns became

U.S. Treasury Yields and Global Factors during the Intermeeting Period

Longer-term U.S. Treasury yields rose notably, on net, amid heightened volatility during the intermeeting period. The 10-year Treasury yield (the black line in figure 1 on the next page) increased 30 basis points over the first two weeks of May and reached 2.35 percent on May 13, its highest level since December. After retracing somewhat toward the end of May, Treasury yields again increased sharply in June, leaving the 10-year yield higher by 43 basis points, on net, since the April FOMC meeting. TIPS yields increased nearly as much as nominal yields, leaving inflation compensation little changed on net. Available evidence points to developments in the euro area as the main driver of the rise in Treasury yields, as sharp increases in German yields appeared to spill over into the U.S. Treasury market; by contrast, domestic developments appear to have played a limited role.

The rise in U.S. yields coincided with similar increases in foreign yields (figure 1), and, in particular, the sharp rise in German yields (the green line). The correlation between U.S. and euro-area yields has historically been high, but as shown in figure 2, the correlation between far-forward rates in both countries appears to have increased over the past year. Furthermore, results from a Granger causality test (shown in figure 3) provide some evidence that the probability that movements in far-forward German yields can help predict movements in their U.S. counterparts has increased again recently (the red line), with the probability moving closer to levels last seen during the euro-area debt crisis. Finally, figure 4 shows that staff models attribute the increases in both U.S. yields and German bund yields largely to higher term premiums.

The sharp increase in German term premiums appears to have been mostly the result of a reassessment among market participants of the substantial decline in German yields that began in early 2014. That decline—perhaps predicated on investor perceptions of significant tail risks such as protracted deflation associated with the sharp decline in oil prices and a further worsening of the global growth outlook—gained further momentum when the ECB began its purchase program of euro-area sovereign bonds in March, and pushed German yields with maturities up to eight years below zero. It is possible that the decline in German yields and term premiums was subsequently viewed as excessive, resulting in the rise in yields and premiums we saw during the intermeeting period, although what triggered the revision in investors' views is not entirely clear.

Although the rise in both German and U.S. yields can be primarily attributed to increases in term premiums, the expected rate component rose as well. Some better-than-expected euro-area economic data—in particular, the release of the euro-area CPI for May, as well as some stabilization of oil prices—appear to have boosted primarily the expected rate component of German yields (the red dashed line in figure 4). Meanwhile, although the expected rate component in U.S. yields (the blue dashed line) initially remained stable amid an absence of significant changes in the U.S. economic and monetary policy outlook, the more recent and pronounced increase in expected rates

Financial Developments

appeared to be supported by some better-than-expected domestic economic news, such as the ISM data and the May employment report. Nonetheless, increases in U.S. yields in June again appeared in large part to be driven by the sharp increase in German yields, as the selloff of German bunds resumed, particularly following ECB communications that were interpreted as lacking concern about the recent increase in market volatility.

In summary, the increase in U.S. yields over the intermeeting period does not seem to reflect major changes in the domestic economic or monetary policy outlook but rather a rise in term premiums that was closely linked to yield developments in the euro area, which in turn appeared to be largely driven by investors reassessing the level of valuation in the German bund market.[1] This reassessment appears to have initiated an unwinding of widely held positions in euro-area sovereign bonds, particularly by momentum-driven investors, which may have exacerbated the rise in yields.

1. 10-Year Bond Yields
Source: Bloomberg.
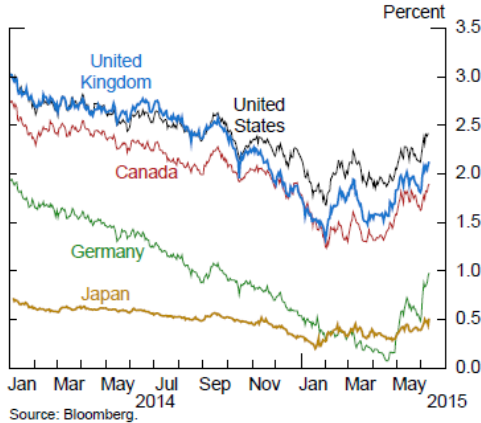
2. 5-Year, 5-Year-Forward Rate Correlations
Source: Bloomberg and staff calculations.
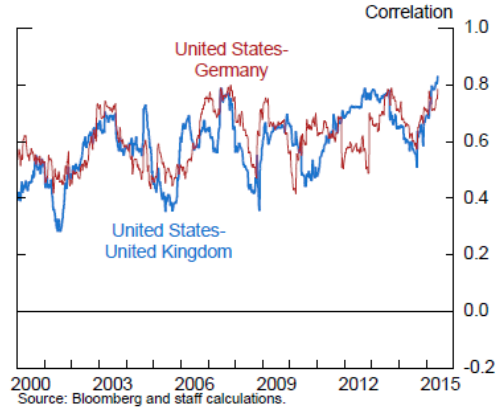
3. Granger Causality Tests*
* Granger test applied to 1-year rates 9 years forward, using weekly data, a 3-year moving window, and with data for October 2008 removed.
Source: Staff calculations.
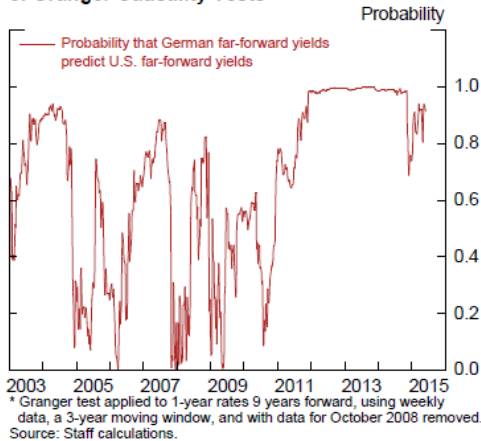
4. 10-Year Yield Decomposition*
* Cumulative changes since April 28, 2015.
Source: Staff calculations.

Financial Developments

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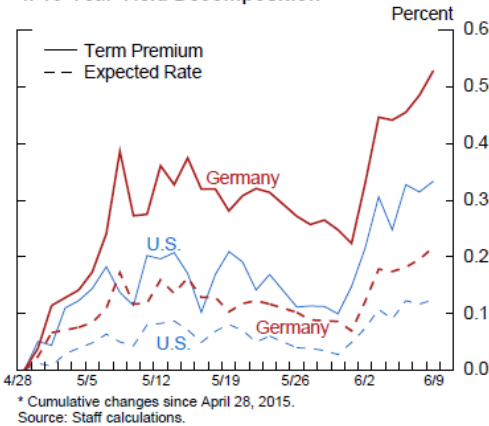
[1] In response to a special question in the June Desk survey, the median dealer attributed more than two-thirds of the 36 basis point increase in the 10-year Treasury yield between late April and early June to higher term premiums. The selloff in core European sovereign bond markets was the most cited factor behind the rise in Treasury yields.

Foreign Developments

AFE and U.S. 10-Year Nominal Benchmark Yields

Daily

Percent

United States

United Kingdom

Germany

Japan

Apr. FOMC

June 9

Sep Oct Nov Dec Jan Feb Mar Apr May Jun
2014 · 2015
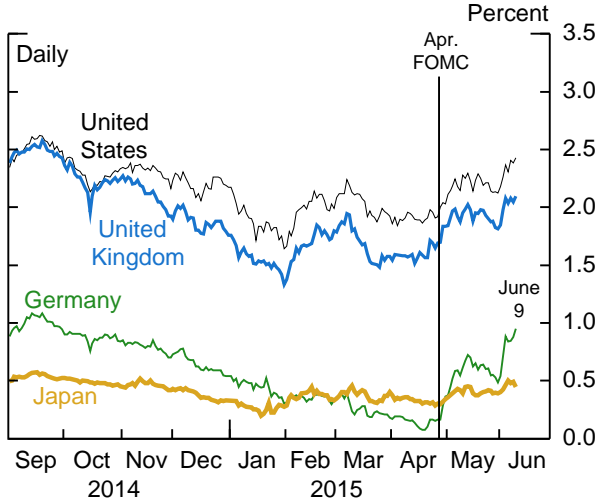
Source: Bloomberg.

36-Month-Ahead Policy Expectations

Daily

Percent

- United Kingdom
- Euro area
- Canada

Apr. FOMC

June 9

Feb Apr Jun Aug Oct Dec Feb Apr Jun
2014 · 2015
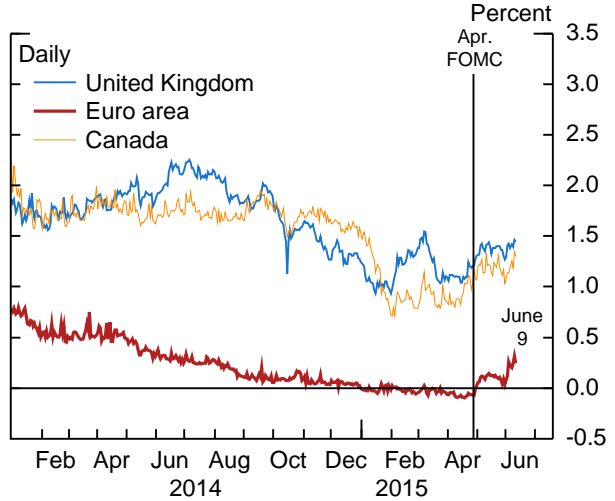
Note: 1-month forward rates from OIS quotes, 3-day moving average.
Source: Bloomberg.

10-Year Peripheral Spreads

Percentage points

Daily

Percentage points

Greece (left scale)

Italy (right scale)

Spain (right scale)

Apr. FOMC

June 9

Sep Oct Nov Dec Jan Feb Mar Apr May Jun
2014 · 2015
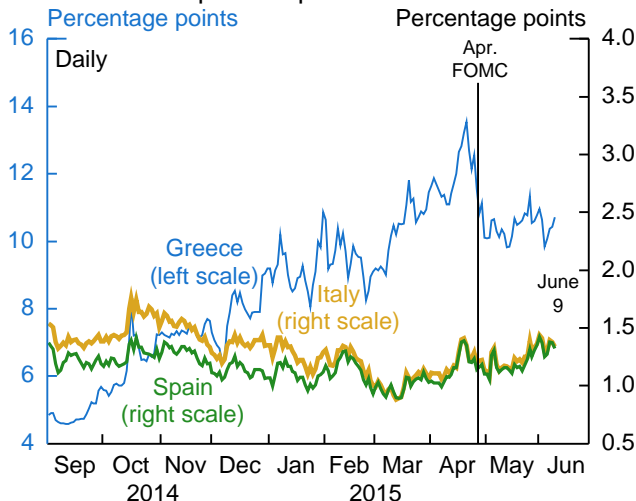
Source: Bloomberg.

Dollar Exchange Rate Indexes

Sept. 1, 2014 = 100

Daily

- EME
- AFE
- Broad
- Euro

Apr. FOMC

June 9

Sep Oct Nov Dec Jan Feb Mar Apr May Jun
2014 · 2015
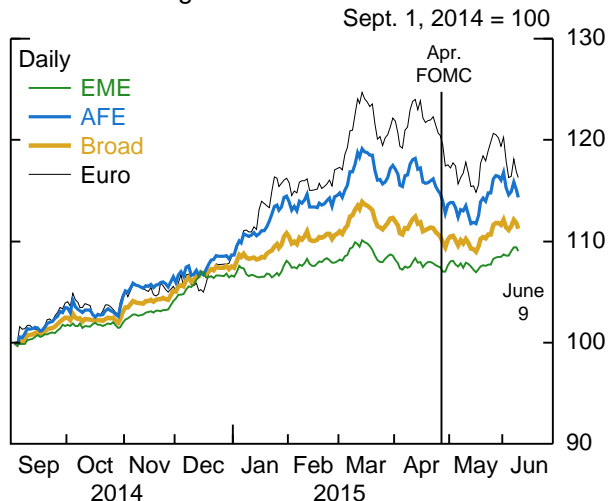
Source: Federal Reserve Board; Bloomberg.

Stock Price Indexes

Sept. 1, 2014 = 100

Daily

- MSCI Emerging Markets
- DJ Euro Stoxx
- Nikkei
- Toronto Stock Index

Apr. FOMC

June 9

Sep Oct Nov Dec Jan Feb Mar Apr May Jun
2014 · 2015
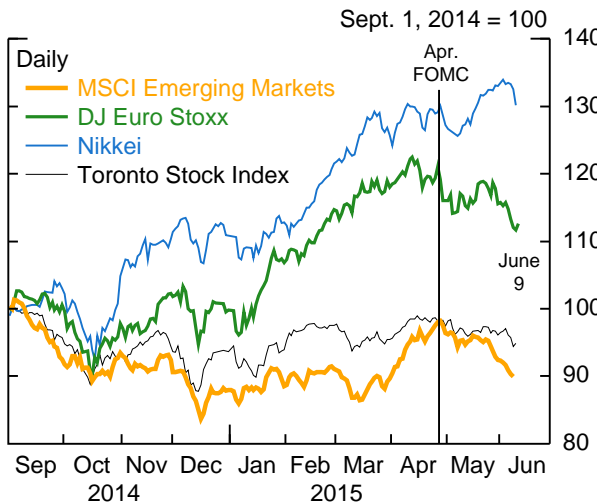
Source: Bloomberg.

Flows to EME-Dedicated Funds

Billions of dollars

Weekly

- Equity funds
- Bond funds

Apr. FOMC

Feb Apr Jun Aug Oct Dec Feb Apr Jun
2014 · 2015
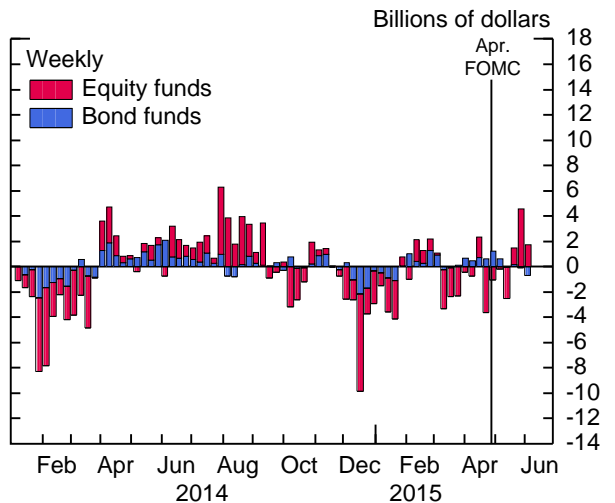
Source: Emerging Portfolio Fund Research.

more prominent, yields resumed their climb following stronger-than-expected euro-area inflation data and comments by ECB President Draghi suggesting that the ECB was willing to tolerate some of the recent volatility in yields. On net, sovereign bond yields are up 79 basis points in Germany since the April FOMC meeting. Some of the move reflects higher expected policy rates; the market-implied policy rate for the euro area three years ahead increased 35 basis points. However, most of the move is attributed to a rise in the term premium, which appears to be a partial correction of an earlier decline. Foreign yields also rose, along with U.S. Treasury yields, following the release of the U.S. labor market data in June and are 15 basis points higher, on net, in Japan and 40 basis points higher in the United Kingdom.

Early in the period, peripheral sovereign spreads narrowed, reflecting a somewhat improved outlook for Greek program negotiations. Subsequently, spreads widened after Greek officials announced they would postpone several debt repayments to the IMF until June 30. On net, spreads for Italy and Spain rose slightly, whereas Greek spreads declined. Nonetheless, continuing difficulties in program negotiations have raised concerns that the Greek government may miss this June 30 payment, and that the ECB could curtail liquidity support to Greek banks (for more details, see the International Economic Developments and Outlook section).

After falling during the first couple of weeks of the period, the foreign exchange (FX) value of the dollar began rising again in mid-May, reflecting higher-than-expected CPI data for April, the strong May employment report, and perhaps some step-up in market concerns over Greece. On net over the period, the dollar gained against most currencies, with the broad dollar index up 1½ percent. However, the dollar declined slightly, on balance, against the euro, which may have reflected the solid incoming data for the euro area and the especially pronounced increase in euro-area yields.

Against the backdrop of rising yields, equity prices in the advanced foreign economies generally moved lower over the period. Stock prices in Canada and Europe declined 4 to 6 percent, with the Canadian market reacting in part to the release of disappointing data for employment in April and GDP in the first quarter. EME equity prices declined substantially, as macroeconomic data in several EMEs came in weaker than had been expected and as global yields moved up sharply.

Financial Developments

Corporate Asset Prices and Business Finance

S&P 500 Stock Price Index

Log scale; Apr. 28, 2015 = 100

Daily

Apr. FOMC

June 9

Source: Bloomberg.

Corporate Bond Spreads

Basis points   Basis points

Daily

Apr. FOMC

10-year high-yield (right scale)

10-year triple-B (left scale)

June 9

Note: Spreads over 10-year Treasury yield.
Source: Staff estimates of smoothed corporate yield curves based on
Merrill Lynch data and smoothed Treasury yield curve.
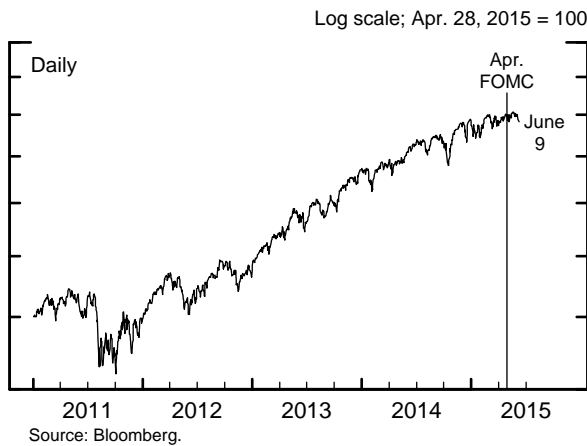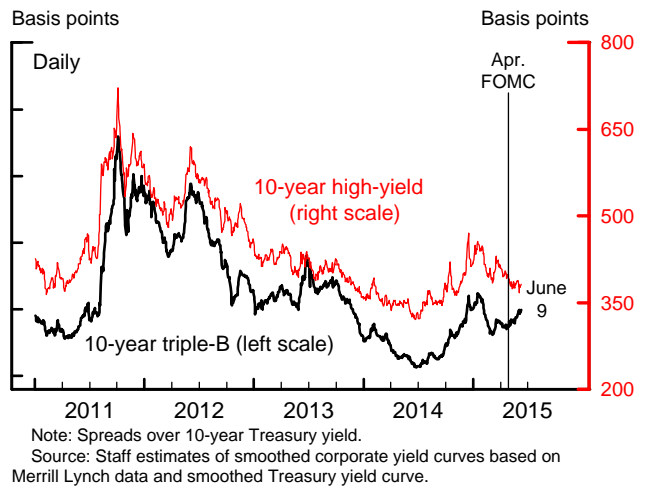
Selected Components of Net Debt Financing, Nonfinancial Firms

Billions of dollars

Monthly rate

May e

H1

H2

Q1

Apr.

Commercial paper*
C&I loans*
Bonds
Total

e Estimate for change in commercial and industrial (C&I) loans.
* Period-end basis, seasonally adjusted.
Source: Depository Trust & Clearing Corporation; Mergent Fixed
Investment Securities Database; Federal Reserve Board.
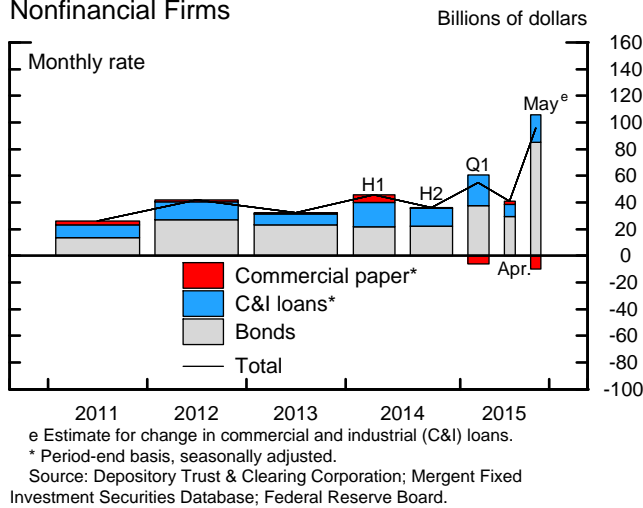
Institutional Leveraged Loan Issuance, by Purpose

Billions of dollars

Monthly rate

May

New money
Refinancings

Q1
Q2
Q3
Q4
Q1
Apr.

Source: Thomson Reuters LPC LoanConnector.
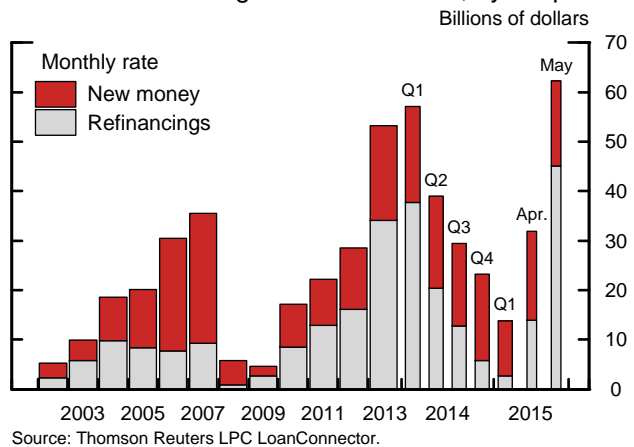
Outstanding Bank Loans to Businesses

Billions of dollars   Billions of dollars

Quarterly

Small loans
(right scale)

Large loans
(left scale)

Q1

Note: Data are annual through 2009 and quarterly thereafter.
Small loans (a proxy for loans to small businesses) are those with
an origination amount of $1 million or less; large loans are those
with an origination amount of more than $1 million.
Source: Call Reports.

CMBS Issuance

Billions of dollars

Monthly rate

Apr.

H2

Q1

H1

May

Note: CMBS is commercial mortgage-backed securities.
Source: Commercial Mortgage Alert.

CORPORATE ASSET PRICES

Over the intermeeting period, broad U.S. equity price indexes moved down a bit, on net, amid mixed macroeconomic news and little earnings news. Option-implied volatility on the S&P 500 index at the one-month horizon—the VIX—edged up, on balance, but remained near the lower end of its historical range. Yield spreads on corporate bonds stayed near their historical median levels outside of recessions. Spreads on 10-year triple-B-rated corporate bonds over comparable-maturity Treasury securities widened somewhat, on balance, while spreads on speculative-grade corporate bonds narrowed slightly.

BUSINESS FINANCE

In April and May, financing conditions for large nonfinancial businesses continued to be accommodative. Firms raised a substantial volume of funds in debt markets, particularly for the refinancing of existing debt and the funding of M&A activity. Gross corporate bond issuance remained quite strong, and institutional leveraged loan issuance picked up significantly. The growth of C&I loans on banks' balance sheets also continued to be solid. Meanwhile, financing conditions for small businesses continued to improve, though the growth of small business loans on banks' books remained subdued, reflecting in part still-tepid demand for credit from small business owners.

CRE prices continued to rise at a fast pace through the first quarter of 2015, supported in part by rising rents and declining vacancy rates as well as by accommodative financing conditions. CMBS issuance continued to be robust, and the spreads of CMBS rates over Treasury swap rates remained narrow. The growth of CRE loans on banks' books slowed in April and May, reportedly driven by sales of loans secured by nonfarm nonresidential properties into CMBS pools.

HOUSEHOLD FINANCE

Credit availability for residential mortgages continued to ease gradually over the intermeeting period. Nevertheless, credit remained tight for borrowers with lower credit scores. Interest rates on 30-year fixed-rate mortgages increased 37 basis points, in line with MBS yields and other longer-term rates.

Financial Developments

Household Finance

Credit Scores at Mortgage Origination

FICO score

Monthly

Median

Mar.

10th percentile
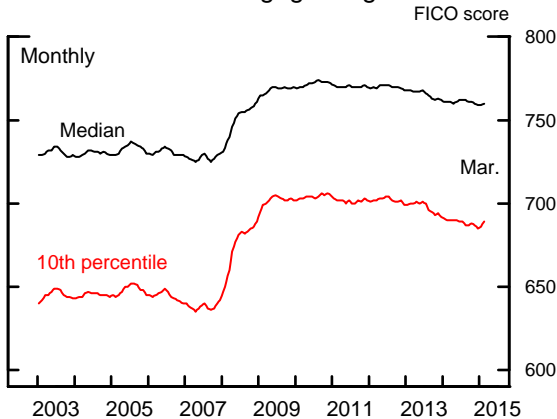
Note: Concerns 30-year GSE-backed purchase mortgages originated in month shown.
Source: For data, LPS Applied Analytics/Black Knight.

Mortgage Rate and MBS Yield

Percent

Daily

30-year conforming fixed mortgage rate

Apr. FOMC

June 9
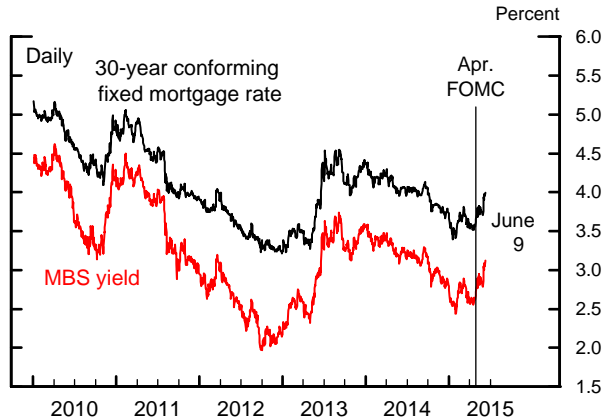
MBS yield

Note: The MBS yield is the Fannie Mae 30-year current-coupon rate.
Source: For MBS yield, Barclays; for mortgage rate, Loansifter.

Mortgage Credit Availability Index

Index points

Monthly

Index points

May

May
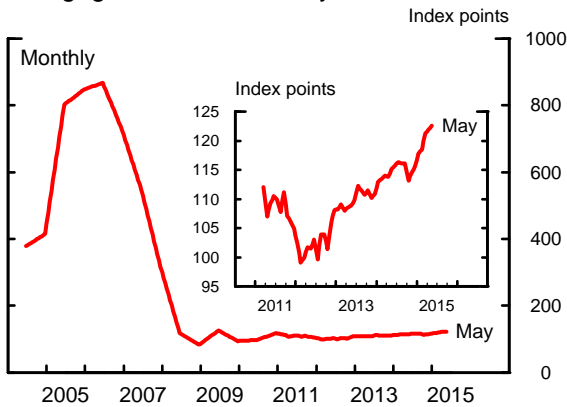
Source: Mortgage Bankers Association.

Consumer Credit

Percent change from a year earlier

Monthly

Student loans

Auto loans

Apr.
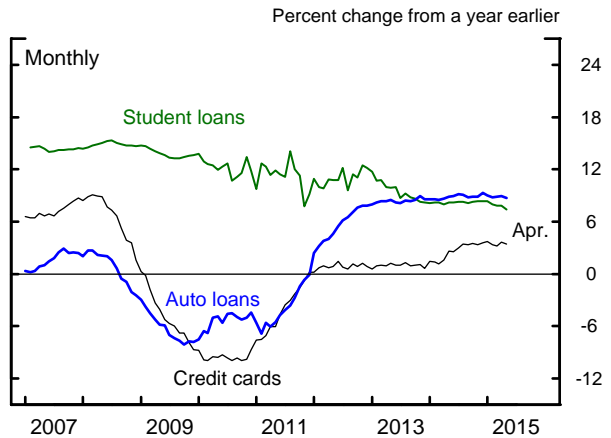
Credit cards

Note: The data are not seasonally adjusted.
Source: Federal Reserve Board.

Real Credit Card Limits per Capita for Nonprime Borrowers

Thousands of dollars   Thousands of dollars

Quarterly

Near prime (right scale)

Subprime (left scale)

Q1
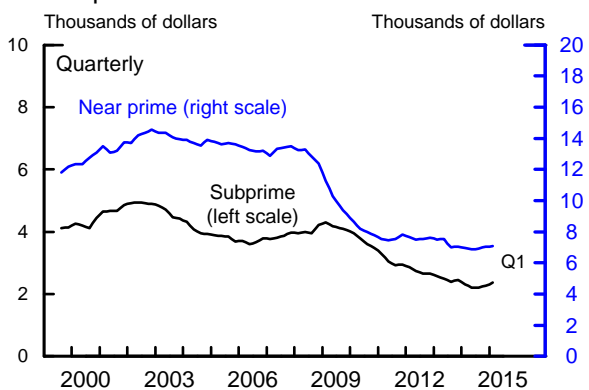
Note: Subprime refers to borrowers with Equifax Risk Scores lower than 620, and near prime, between 620 and 719. Includes those with zero credit limit.
Source: Federal Reserve Bank of New York Consumer Credit Panel/Equifax.

Consumer Delinquency Rates

Percent

Quarterly

Credit cards at commercial banks

Auto loans

Q1
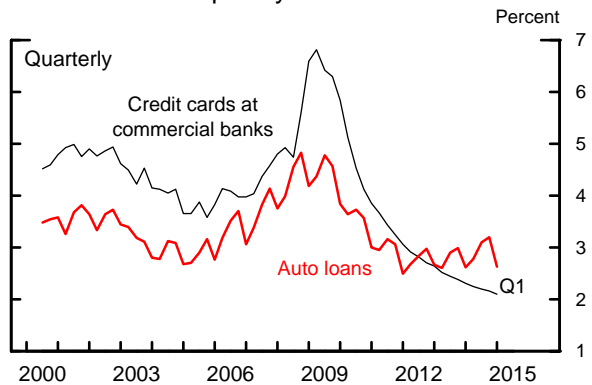
Note: Loans 30 days or more past due.
Source: For credit cards, American Bankers Association; for auto loans, Federal Reserve Bank of New York Consumer Credit Panel/Equifax.

Financial Developments

Financing conditions in consumer credit markets remained generally accommodative in March and April. Outstanding balances of auto and student loans expanded further at a robust pace through April, as such credit continued to be widely available, including to borrowers with subprime credit scores. Revolving credit picked up in March and April after a slow start at the beginning of the year. However, overall, revolving credit lending continued to be tight for borrowers with less-than-pristine credit records: In the first quarter, the distribution of credit scores on new revolving accounts moved sideways, offered credit card interest rates continued to trend up, and credit card limits per capita for nonprime borrowers remained mostly flat at subdued levels.

The credit quality of consumer loans remained mixed on balance. Delinquency rates on credit card loans continued to decline from already low levels, those on student loans moderated somewhat but remained elevated, and those on auto loans remained low. In contrast, delinquency rates on recently originated subprime auto loans continued to edge up, likely reflecting the expansion of lending and easing of standards to such borrowers.

BANKING DEVELOPMENTS AND MONEY

Bank credit decelerated slightly in April and May, as somewhat slower business loan growth was partially offset by a resurgence in consumer lending. Meanwhile, the growth rate of holdings of securities was about in line with its first-quarter pace, as large banks continued to acquire Treasury and government-backed MBS securities.

In the first quarter of 2015, the profitability of BHCs increased slightly but remained well below the levels observed in the decade prior to the financial crisis. Declining net interest margins continued to be a key factor for the relatively low profitability of large banks (see the box "Why Are Net Interest Margins of Large Banks So Compressed?"). In contrast, the trading and investment banking subcomponents of noninterest income increased. Finally, credit quality continued to improve across most major loan types in the first quarter of 2015, and standard measures of reserve adequacy increased modestly.

Stock prices of large domestic BHCs outperformed the broader indexes, reportedly in part because of the steepening of the yield curve, which tends to boost banks' net interest margins. News that three large domestic BHCs had reached

Financial Developments

Banking Developments and Money

Selected Components of Liquid Assets at Large Banks

Percent
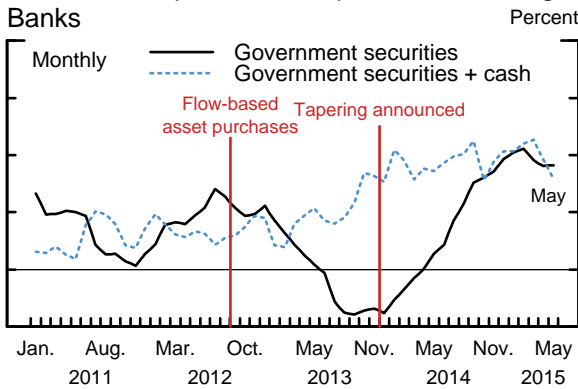
Note: Year-over-year growth rates are shown. Government securities include Treasury and agency debt plus agency mortgage-backed securities.

Source: Federal Reserve Board, FR 2644, Weekly Report of Selected Assets and Liabilities of Domestically Chartered Commercial Banks and U.S. Branches and Agencies of Foreign Banks.

Return on Assets and Return on Equity at BHCs
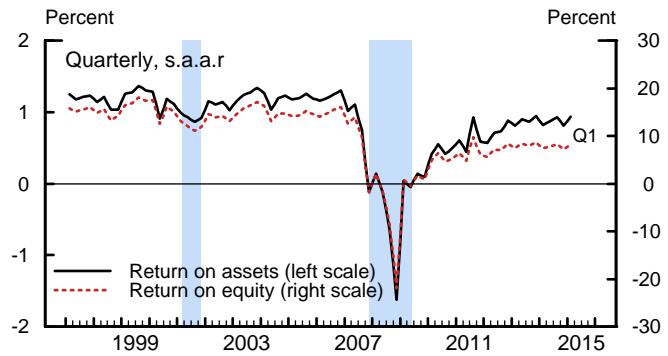
Source: Federal Reserve Board, FR Y-9C, Consolidated Financial Statements for Holding Companies.

S&P 500 Stock Price Indexes

Ratio scale; Apr. 28, 2015 = 100
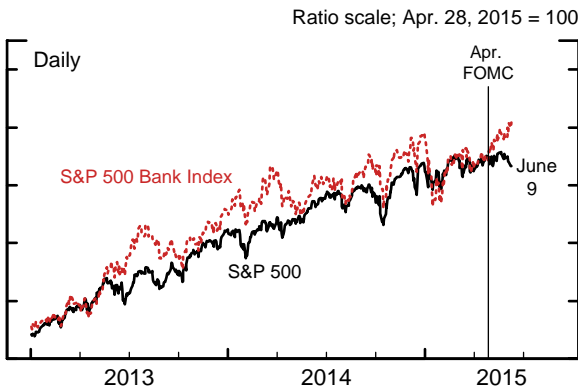
Source: Bloomberg.

CDS Spreads of Large Bank Holding Companies

Basis points
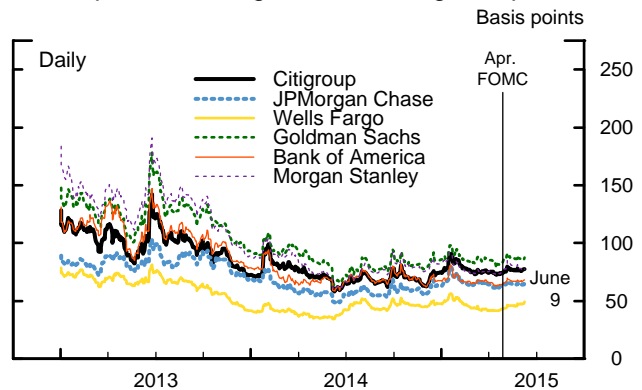
Source: Markit.

KBW Bank Index and Treasury Yields
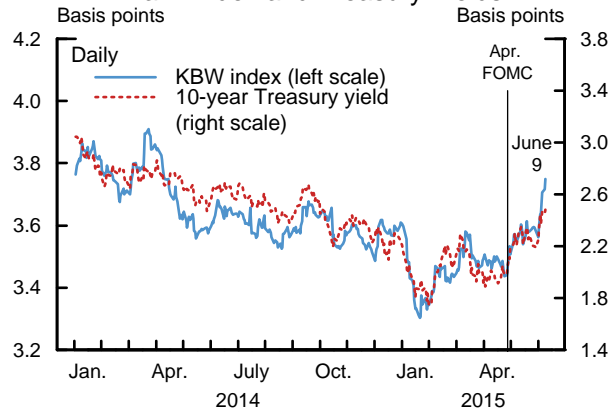
Note: The KBW index is a modified cap-weighted index consisting of 24 exchange-listed National Market System stocks, which represent national money center banks and leading regional institutions. The index is adjusted for the S&P 500.

Source: Bloomberg.

Growth of M2 and Its Components

Percent, s.a.a.r.	M2	Liquid deposits	Small time deposits	Retail MMFs	Curr.
2014	5.7	7.0	-8.0	-2.4	7.5
2014:H1	6.1	7.3	-7.7	-2.8	8.5
2014:H2	5.2	6.5	-8.7	-2.0	6.2
2015:Q1	7.6	9.2	-12.1	-2.7	9.7
Apr. - May	4.4	6.4	-20.6	-5.9	4.2

Note: Retail MMFs are retail money market funds.
Source: Federal Reserve Board.

Note: The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research.

Financial Developments

Why Are Net Interest Margins of Large Banks So Compressed?

The extraordinarily low interest rate environment that has prevailed in the wake of the financial crisis has put downward pressure on the net interest margins (NIMs) of all bank holding companies (banks), but especially the largest ones. In particular, over roughly the past five years, NIMs of large banks have fallen about 80 basis points, while NIMs of small banks have decreased approximately 20 basis points (left panel).[1]

The more pronounced decline in NIMs at large banks is driven by two main factors related to the low interest rate environment. The first factor accounts for the majority of the difference in the behavior of NIMs at the two bank groups and arises from the liability side of banks' balance sheets, namely from a more pronounced decline in deposit costs at small banks. In general, deposit rates tend to move with short-term interest rates and are typically lower at large banks. With the federal funds rate at the zero lower bound since late 2008, the degree to which large banks have been able to boost their profitability by reducing their deposit rates has been more limited relative to small banks. For example, the arithmetic effect of the decline in deposit rates at small banks has pushed up NIMs about 60 basis points, while the corresponding effect of declining rates at large banks has increased NIMs roughly 20 basis points (red portions of the bars, right panel). So far, at least, large domestic banks have been reluctant to charge negative deposit rates, a step that banks in foreign jurisdictions have been more willing to take.[2]

The second factor stems from the asset side of the balance sheet: Large banks have experienced a somewhat bigger decline in the interest income they earn on "other" assets, which includes assets held for trading purposes. Interest income on such assets has declined notably since 2010, and large banks hold more of these assets relative to small banks. This factor explains why interest income fell about 150 basis points at large banks while it moved down roughly 130 basis points at small banks (gray portions of the bars, right panel).

These empirical findings have implications for assessing the monetary transmission mechanism around the time of liftoff.[3] At that time, for example, large banks could try to boost their profitability in the short term by delaying the increase in deposit rates relative to previous tightening cycles. If that happens, more deposits than usual could leave the banking system, putting some downward pressure on the level of short-term interest rates. However, with interest on excess reserves higher than many deposit rates, banks may act to preserve this funding source, accelerating the pass-through to market interest rates relative to previous tightening cycles. That said, this latter effect may be damped because many large banks face balance sheet constraints in light of the new regulatory environment.

Financial Developments

Net interest margins, by bank size

Quarterly, SAAR

Percentage points

2010:Q1

Small banks (< $50B)
Large banks (> $50B)

Note: Net interest margin is the ratio of net interest income—interest income minus interest expense—and interest-earning assets.
Source: FR Y-9C.

Contributions to changes in net interest margins, 2010:Q1-2015:Q1

Basis points

Other interest-bearing liabilities
Interest-bearing deposits
Assets

Large banks   Small banks

Source: FR Y-9C, staff estimates.

[1] Large banks are defined as those with more than $50 billion in consolidated assets.

[2] Some custodial banks in the United States are reportedly currently charging negative rates on nonoperational deposits denominated in euros. Such reports are more common in foreign jurisdictions.

[3] See the box "The Transmission of Monetary Policy to Deposit Rates" in the April 2015 Tealbook, Book B.

Federal Reserve Operations and Short-Term Funding Markets

Outstanding Term Deposits
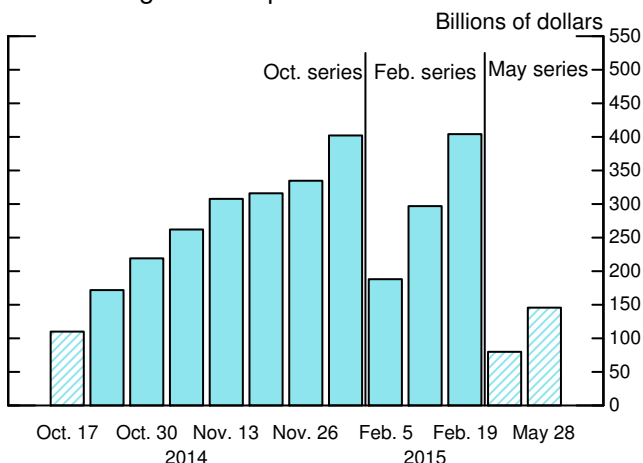
Note: Striped bars denote an offer rate of 1 basis point above the interest on excess reserves and a maximum award amount of $5 billion per counterparty.
Source: Federal Reserve Board.

ON RRP Take-Up, by Type

Note: ON RRP is overnight reverse repurchase agreement; MMF is money market fund.
Source: Federal Reserve Bank of New York.

Expected Overnight Treasury GCF Repo and Federal Funds Rates
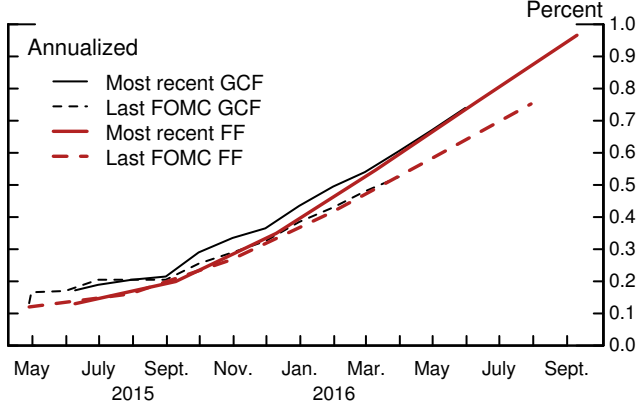
Note: Last FOMC is April 28, 2015; most recent is June 9, 2015. Federal funds (FF) rates are estimated using overnight index swap quotes with a spline approach; General Collateral Finance (GCF) rates are calculated using GCF Treasury repurchase agreement (repo) futures quotes.
Source: Bloomberg; staff estimates.

ON RRP and Term RRP Take-Up

Note: ON RRP is overnight reverse repurchase agreement; term RRP is term reverse repurchase agreement.
Source: Federal Reserve Bank of New York.

Money Market Rates

Note: GCF is General Collateral Finance; ON RRP is overnight reverse repurchase agreement; PD is primary dealer; repo is repurchase agreement.
Source: Federal Reserve Bank of New York.

Agency MBS Issuance and Fed Settlement
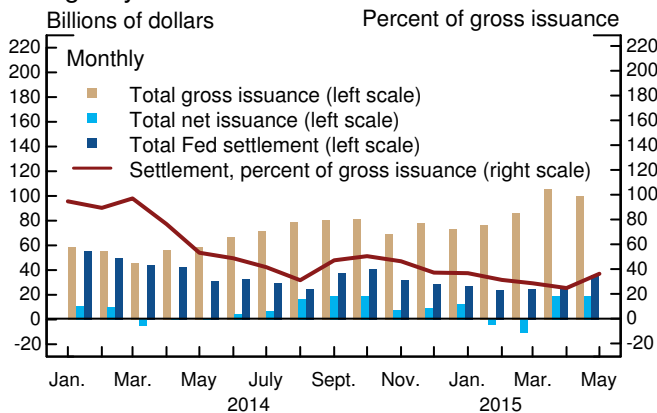
Source: Federal Reserve Bank of New York.

settlement with U.S. authorities regarding investigations into their conduct in FX markets left little imprint on these institutions' stock prices.

M2 expanded at an average annual rate of roughly 4½ percent over April and May. Growth in liquid deposits and currency slowed somewhat from the rates observed in the first quarter of 2015, bringing overall M2 growth more in line with the pace that would be expected based on fundamentals. Small time deposits and retail money market funds continued to run off. The monetary base contracted slightly, on net, as term deposits and the Treasury's General Account balance increased.[1]

FEDERAL RESERVE OPERATIONS AND SHORT-TERM FUNDING MARKETS

Testing of the ON RRP operations continued over the intermeeting period. Daily take-up averaged about $105 billion, with money funds accounting for the majority of participation.[2]

Overall, the ON RRP operations continued to provide a soft floor on money market rates during the intermeeting period. Overnight federal funds and Eurodollar rates stayed above the ON RRP rate, although both rates fell several basis points on the April and May month-ends.[3] The overnight triparty repo rate for Treasury collateral averaged 7 basis points. The overnight GCF repo rate continued to be above the overnight triparty rate. While both rates increased several basis points on the April and May month-ends, in line with expectations, the GCF rate increased more noticeably (for more information about the spread between these two rates, see the box "Market Segmentation in the Treasury Repo Market").

Over the intermeeting period, the Desk purchased $48.6 billion of MBS under the reinvestment program and rolled $1.6 billion in expected settlements. The ratio of the

<div style="text-align: right;">**Financial Developments**</div>

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[1] The Federal Reserve offered a series of two overlapping TDF operations in May. Total take-up over the two operations reached nearly $150 billion.

[2] The Desk announced term RRP operations over the June quarter-end. Specifically, there will be a seven-day operation on June 25 and a two-day operation on June 29, with a combined offer amount of at least $200 billion. The Desk also conducted two small-value repo operations with primary dealers on May 19 and 20 to test operational readiness. Both operations proceeded smoothly.

[3] The effective federal funds rate averaged 12 basis points over the intermeeting period, with the intraday standard deviation averaging 4 basis points.

Market Segmentation in the Treasury Repo Market

Since late 2014, the spread between the overnight Treasury general collateral repo rate observed in the interdealer GCF market and general Treasury triparty repo rate has widened (see the figure on the following page).[1] Here we discuss the segmentation between these two markets, recent regulatory changes that have led to the spread widening, and quarter-end dynamics. The behavior of this spread provides evidence that new bank regulations could be having an effect on money markets and highlights that these changes may differentially affect various aspects of markets for similar money market instruments.

Analysis of supervisory data collected from the two major clearing banks suggests that the GCF rate is higher than the general triparty rate due to market segmentation; this results from differences in counterparty credit quality, which limits the markets in which some participants can borrow. Specifically, some small dealers with low or no credit rating predominantly use the GCF market to borrow Treasury repo in the triparty market. In contrast, large dealers with high credit ratings tend to supply funds to the GCF market and are the primary borrowers in the general triparty market, so they can earn the spread between rates in the GCF and general triparty markets.

While this segmentation has been present for some time, recent regulatory changes may have contributed to a widening of the rate spread. For example, market participants have commented on the reduced attractiveness for large dealers to intermediate repos as the Basel III leverage ratio reportedly provides a disincentive to engage in low-yield, balance-sheet-intensive activities. This regulatory shift has likely contributed to decreasing repo volumes since 2013. The combination of reduced supply from large dealers and stable demand from dealers that depend on the GCF market for funding has contributed to the recent widening of the spread.

This segmentation and widening of the spread becomes particularly noticeable on quarter-ends. Specifically, there have been sharp increases in GCF market rates on recent quarter-ends, especially the December 2014 and March 2015 quarter-ends, as U.S. primary dealers reduce their net GCF lending on those dates relative to the rest of the year (see the table on the following page). At the same time, nonprimary dealers, many of which rely on the GCF market for funding, increase their net borrowing and represent a larger share of overall borrowing.[2] This increase in borrowing may be in response to a contraction in GCF-dependent dealers' alternative funding options on these dates and provides further evidence of GCF-dependent dealers' need to use the GCF market for funding even at higher rates.

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[1] The General Collateral Finance (GCF) repo market is an interdealer market within the overall triparty repo market. It is blind-brokered with a central counterparty, which reduces counterparty risk, making it an attractive funding market for less creditworthy borrowers.

[2] Foreign primary dealers borrow less on net, which could put downward pressure on rates. However, it appears not to be the dominant effect.

Overall, the widening of the spread between the overnight Treasury GCF repo and general Treasury triparty repo rates seems to be explained in part by regulatory changes and market segmentation. The staff will continue to monitor activity in these markets as the time of policy firming approaches.

GCF Rate and GCF − Triparty Spread
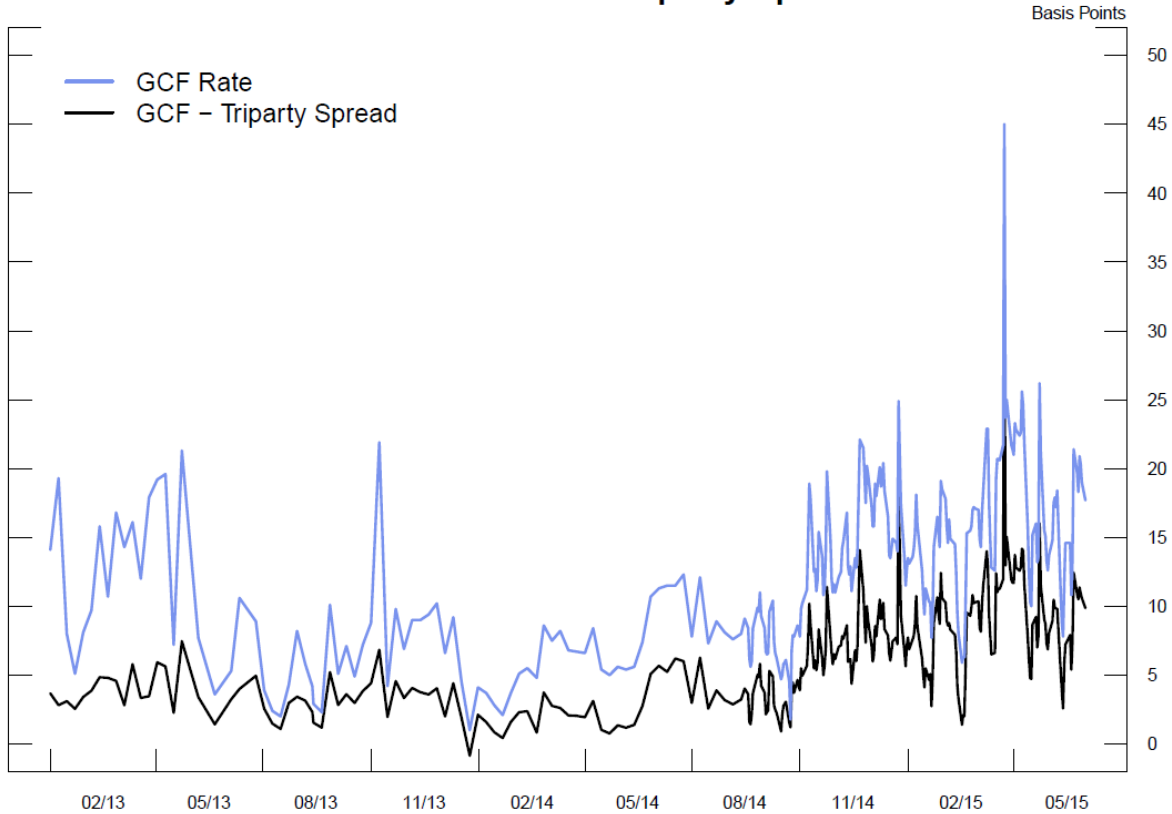
Note: Data are weekly until August 21, 2014, after which data are daily.
Source: Federal Reserve Bank of New York.

Financial Developments

Net Lending in GCF Market from January 2013–March 2015 for Overnight U.S. Treasury Collateral (Billions of dollars)

	U.S. Primary Dealer	Foreign Primary Dealer	U.S. Nonprimary Dealer	Foreign Nonprimary Dealer
Sample mean	$ 19.6	$ -12.1	$ -1.4	$ -6.2
Quarter-end mean	$ 16.7	$ -5.7	$ -2.3	$ -8.8
% Change	**-15%**	**53%**	**-66%**	**-42%**

Desk's MBS settlements to gross issuance of these securities picked up again in May to 36 percent after a decrease in April to 27 percent, its lowest level since late 2012.

TREASURY AND AGENCY FINANCE AND MARKET FUNCTIONING

Various liquidity metrics for Treasury and MBS markets were little changed over the intermeeting period, and they have generally pointed to relatively stable market functioning over the past several years.[4] However, the majority of the June SCOOS respondents indicated that, over the past five years, liquidity and functioning in these markets, especially in Treasury markets, have deteriorated. Respondents attributed the deterioration primarily to securities dealers' decreased willingness to provide balance sheet resources for marketmaking purposes as a result of both regulatory changes and changes in internal risk-management practices.

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[4] Since the March FOMC meeting, the Treasury Department has auctioned $207 billion of Treasury nominal fixed-coupon securities, $13 billion of Treasury Inflation-Protected Securities, and $28 billion of two-year Floating Rate Notes.

Risks and Uncertainty

ASSESSMENT OF RISKS

We continue to view the uncertainty around our projections for real GDP growth and the unemployment rate as roughly in line with the average over the past 20 years (the benchmark used by the FOMC). However, we continue to view the risks to our forecast for real GDP growth as tilted somewhat to the downside. Importantly, neither monetary nor fiscal policy appears well positioned to help the economy withstand adverse shocks. By contrast, we continue to view the risks around our unemployment projection as roughly balanced, with the risk of a higher unemployment rate from adverse demand-side developments roughly offset by the possibility that the surprisingly steep declines in the unemployment rate of recent years will continue.

With regard to inflation, we see significant uncertainty around our projection but do not view the current level of uncertainty as unusually high. At the same time, we continue to view the risks around our inflation projection as tilted to the downside. Despite some recent increases, TIPS-based inflation compensation remains well below its level of a year ago and core PCE price inflation remains below the Committee's target despite a declining unemployment rate and other signs of labor market tightening. One factor that has likely held down U.S. inflation recently has been the increase in the exchange value of the dollar. With other major central banks conducting aggressive policies to fight their own inflation shortfalls, the dollar may be stronger than in the baseline, leading to continued downward pressure on U.S. inflation.

Our view of the risks to the economic outlook is informed by the staff's quarterly quantitative surveillance assessment, which judges the vulnerabilities of the U.S. financial system to adverse shocks as moderate overall. This assessment reflects low levels of leverage and maturity transformation in the banking sector, moderate use of leverage in most parts of the nonbank financial sector, and overall modest debt growth in the private nonfinancial sector. That said, there are pockets of concern: Some indicators suggest stretched valuations in equity and bond markets, and borrowing by lower-rated firms has been quite strong. Commercial real estate valuation pressures, while still moderate, have risen amid weakening underwriting standards. As best as we can determine, leverage in margin accounts employed by hedge funds appears somewhat

Alternative Scenarios

(Percent change, annual rate, from end of preceding period except as noted)

Measure and scenario	2015 H1	2015 H2	2016	2017	2018-19
Real GDP					
Extended Tealbook baseline	1.0	2.1	2.4	2.2	1.8
Lower long-run equilibrium fed funds rate	1.0	1.9	2.2	2.2	1.9
Near-term slowdown in economic activity	1.0	.5	.5	1.6	2.6
Lower natural rate of unemployment	1.0	2.2	2.5	2.4	2.0
Faster growth with higher inflation	1.0	3.3	3.9	2.3	1.5
Weaker foreign growth and stronger dollar	1.0	1.8	1.9	1.8	2.1
Greek exit with severe spillovers	1.0	.2	.8	2.2	2.3
Unemployment rate[1]					
Extended Tealbook baseline	5.5	5.3	5.2	5.2	5.1
Lower long-run equilibrium fed funds rate	5.5	5.4	5.4	5.3	5.2
Near-term slowdown in economic activity	5.5	5.7	6.4	6.7	5.8
Lower natural rate of unemployment	5.5	5.2	4.8	4.6	4.3
Faster growth with higher inflation	5.5	5.1	4.5	4.5	4.8
Weaker foreign growth and stronger dollar	5.5	5.4	5.5	5.6	5.5
Greek exit with severe spillovers	5.5	5.6	6.2	6.3	5.9
Total PCE prices					
Extended Tealbook baseline	-.1	1.3	1.6	1.8	1.9
Lower long-run equilibrium fed funds rate	-.1	1.3	1.6	1.8	2.0
Near-term slowdown in economic activity	-.1	1.3	1.6	1.7	1.8
Lower natural rate of unemployment	-.1	1.3	1.6	1.8	1.9
Faster growth with higher inflation	-.1	1.6	1.9	2.2	2.4
Weaker foreign growth and stronger dollar	-.1	.9	1.0	1.3	1.9
Greek exit with severe spillovers	-.1	.5	.5	1.2	1.7
Core PCE prices					
Extended Tealbook baseline	1.2	1.4	1.6	1.8	2.0
Lower long-run equilibrium fed funds rate	1.2	1.4	1.6	1.8	2.0
Near-term slowdown in economic activity	1.2	1.4	1.5	1.7	1.8
Lower natural rate of unemployment	1.2	1.4	1.6	1.8	1.9
Faster growth with higher inflation	1.2	1.6	1.9	2.2	2.4
Weaker foreign growth and stronger dollar	1.2	1.3	1.2	1.5	1.8
Greek exit with severe spillovers	1.2	1.0	.7	1.2	1.6
Federal funds rate[1]					
Extended Tealbook baseline	.1	.3	1.3	2.1	3.2
Lower long-run equilibrium fed funds rate	.1	.2	.6	1.2	2.1
Near-term slowdown in economic activity	.1	.2	.3	.3	1.5
Lower natural rate of unemployment	.1	.3	1.0	1.8	2.9
Faster growth with higher inflation	.1	.5	2.3	3.9	4.9
Weaker foreign growth and stronger dollar	.1	.3	1.1	1.5	2.5
Greek exit with severe spillovers	.1	.3	.2	.3	2.0

1. Percent, average for the final quarter of the period.

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elevated. Structural vulnerabilities in the mutual fund sector persist, particularly for U.S. money market funds and funds that invest in illiquid assets. And bond market liquidity is reported by some market participants to be more likely to dissipate in the presence of market stress than has historically been the case.

ALTERNATIVE SCENARIOS

To illustrate some of the risks to the outlook, we construct a number of alternatives to the baseline projection using simulations of staff models. In the first scenario, aggregate demand is persistently weaker than in the baseline, such that the long-run equilibrium real interest rate is lower. The second scenario also features weaker aggregate demand than in the baseline; in this case, however, the weakening is more pronounced in the near term but is of shorter duration. The third scenario considers the possibility that the natural rate of unemployment is lower than in the baseline. In the fourth, recent softness in the incoming data proves to be more transitory—and the underlying pace of economic activity stronger—than assumed in the baseline projection, leading to a higher path of inflation. In the fifth scenario, foreign economic growth is significantly weaker than in our baseline outlook, while the dollar appreciates markedly. In the final scenario, a disorderly exit of Greece from the euro-area monetary union causes Europe to plunge into a deep recession with severe adverse effects on global financial conditions and confidence.

We generate the first, second, and third scenarios using the FRB/US model, while the fourth one uses the EDO model. The final two scenarios are generated using the multicountry SIGMA model. Once the federal funds rate has risen above its current target range, its movements are governed—as in the baseline forecast—by an inertial version of the Taylor (1999) rule. The date of liftoff in each scenario is set using a mechanical procedure intended to be broadly consistent with the guidance provided in the Committee's recent statements.[1] In all cases, we assume that the size and composition of the SOMA portfolio follow their baseline paths.

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[1] For the scenarios run in SIGMA, we assume a policy rule broadly similar to the FRB/US and EDO simulations. One key difference relative to the FRB/US and EDO simulations is that the policy rule in SIGMA uses a measure of slack equal to the difference between actual output and the model's estimate of the level of output that would occur in the absence of slow adjustment of wages and prices.

Forecast Confidence Intervals and Alternative Scenarios

Confidence Intervals Based on FRB/US Stochastic Simulations

- **Extended Tealbook baseline** (black)
- **Lower long–run equilibrium fed funds rate** (blue)
- **Near–term slowdown in economic activity** (red)
- **Lower natural rate of unemployment** (pink)
- **Faster growth with higher inflation** (yellow)
- **Weaker foreign growth and stronger dollar** (green)
- **Greek exit with severe spillovers** (light blue)

Real GDP
4-quarter percent change

70 percent interval

90 percent interval

Unemployment Rate
Percent

PCE Prices excluding Food and Energy
4-quarter percent change

Federal Funds Rate
Percent

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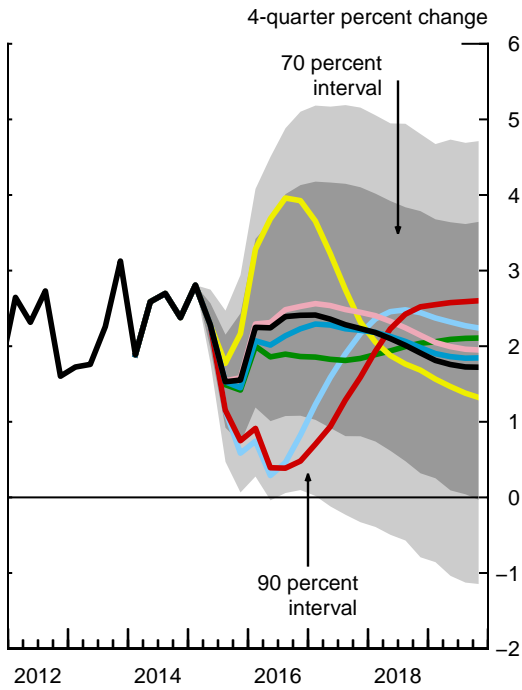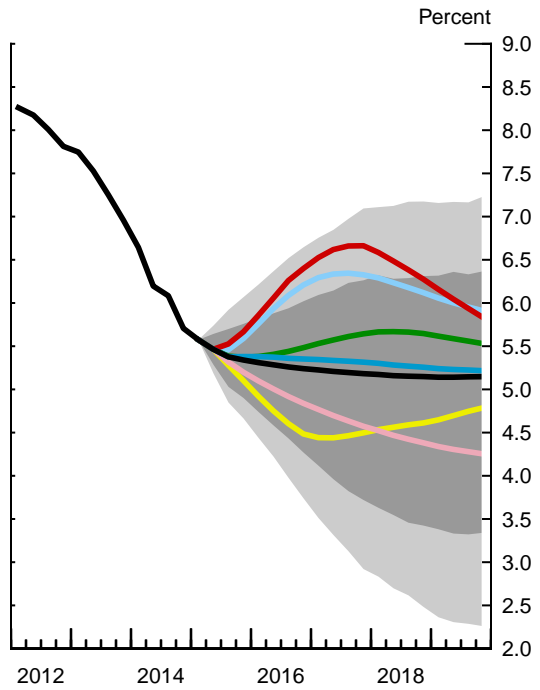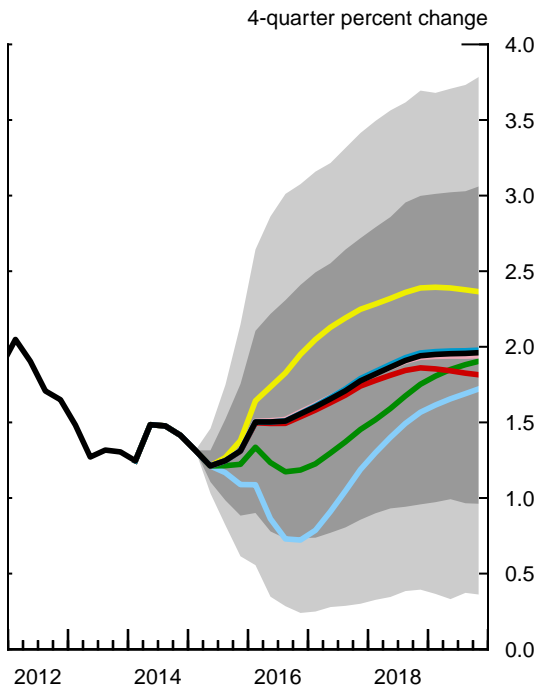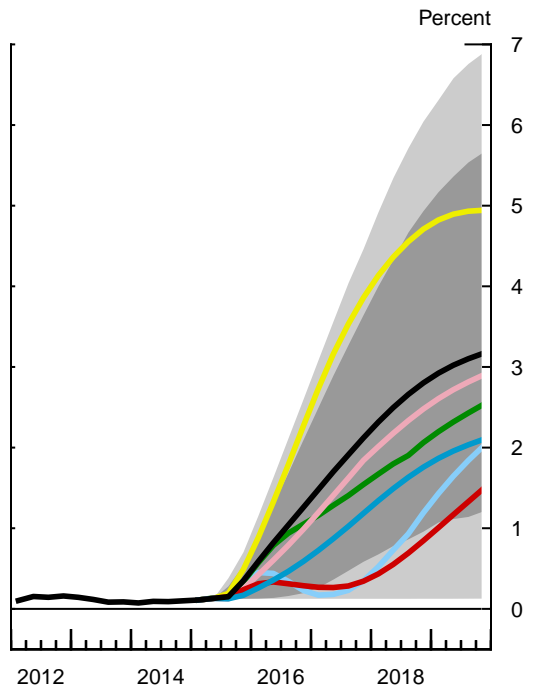
Lower Long-Run Equilibrium Federal Funds Rate

Thus far in the recovery, aggregate demand has been weak, likely reflecting both domestic and global factors. In the baseline, these factors are expected to dissipate, so the equilibrium real federal funds rate is assumed to rise over time. However, some have argued that the factors that have depressed aggregate demand are essentially permanent; accordingly, in this scenario, we assume that the current weakness in aggregate demand continues such that the equilibrium real federal funds rate rises 1 percentage point less over the next decade than in the baseline. We assume that policymakers immediately recognize the lower trajectory of the equilibrium interest rate.

As a result of the lower level of aggregate demand, output expands more slowly than in the baseline until the end of 2017. However, monetary policy is able to offset a significant portion of the shortfall, and real GDP growth in 2016 is just ¼ percentage point lower than in the baseline. The path for the unemployment rate is slightly higher than in the baseline. Because the lower value for the long-run equilibrium federal funds rate is known from the start of the simulation, it affects the setting of monetary policy in the near term, and the initial increase in the federal funds rate is delayed until the first quarter of 2016. Thereafter, the difference between the alternative and the baseline widens, and by 2018, the federal funds rate is 1 percentage point lower than in the baseline.

Near-Term Slowdown in Economic Activity

In the first scenario, the weakness in aggregate demand is assumed to be permanent but modest in magnitude. In this scenario, we assume that the softness in aggregate demand turns out to be less persistent, but much sharper, than in the first scenario. Relative to the baseline, the projected acceleration in consumer demand and housing construction falters. The resulting weaker economy adversely affects profits and business confidence, causing firms to reduce their investment spending.

Real GDP rises only ½ percent in 2016. In 2017, real GDP grows 1½ percent, ½ percentage point less than the baseline. The unemployment rate rises to 6¾ percent at the end of 2017 before gradually moving back toward its assumed natural rate. The path for inflation is lower than in the baseline projection. Given this weaker outlook, liftoff is delayed until the first quarter of 2016 and the federal funds rate remains at or below 50 basis points until early 2018. The federal funds rate reaches 1½ percent by the end of 2019, about 1¾ percentage points below baseline.

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**Selected Tealbook Projections and 70 Percent Confidence Intervals Derived
from Historical Tealbook Forecast Errors and FRB/US Simulations**

Measure	2015	2016	2017	2018	2019
Real GDP					
(percent change, Q4 to Q4)					
Projection	1.6	2.4	2.2	1.9	1.7
Confidence interval					
Tealbook forecast errors	.2–3.1	.2–4.0	-.1–3.8	. . .	. . .
FRB/US stochastic simulations	.7–2.4	1.1–4.1	.8–4.1	.3–3.8	.0–3.6
Civilian unemployment rate					
(percent, Q4)					
Projection	5.3	5.2	5.2	5.1	5.1
Confidence interval					
Tealbook forecast errors	4.9–5.6	4.3–6.3	3.9–6.8	. . .	. . .
FRB/US stochastic simulations	4.9–5.8	4.3–6.0	3.7–6.3	3.4–6.3	3.3–6.4
PCE prices, total					
(percent change, Q4 to Q4)					
Projection	.6	1.6	1.8	1.9	2.0
Confidence interval					
Tealbook forecast errors	-.1–1.2	.8–3.3	.8–3.4	. . .	. . .
FRB/US stochastic simulations	.1–1.2	.7–2.6	.7–2.8	.8–3.1	.8–3.1
PCE prices excluding					
food and energy					
(percent change, Q4 to Q4)					
Projection	1.3	1.6	1.8	1.9	2.0
Confidence interval					
Tealbook forecast errors	.9–1.6	.8–2.4	. . .	. . .	. . .
FRB/US stochastic simulations	.9–1.8	.7–2.4	.9–2.7	1.0–3.0	1.0–3.1
Federal funds rate					
(percent, Q4)					
Projection	.4	1.3	2.1	2.8	3.2
Confidence interval					
FRB/US stochastic simulations	.1–.5	.2–2.1	.6–3.6	1.0–4.9	1.2–5.7

  Note: Shocks underlying FRB/US stochastic simulations are randomly drawn from the 1969–2014 set of
model equation residuals. Intervals derived from Tealbook forecast errors are based on projections made
from 1980 to 2014 for real GDP and unemployment and from 1998 to 2014 for PCE prices. The intervals
for real GDP, unemployment, and total PCE prices are extended into 2017 using information from the
Blue Chip survey and forecasts from the CBO and CEA.
  . . . Not applicable.

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Prediction Intervals Derived from Historical Tealbook Forecast Errors

Forecast Error Percentiles

Historical Distributions

Unemployment Rate — Q4 Level, Percent

Historical revisions | Tealbook forecasts | Augmented Tealbook [1]

- median
- 15% to 85%
- 5% to 95%
- data/forecast
- range

2012　2013　2014　2015　2016　2017　　1980 to 2014

PCE Inflation — Q4/Q4, Percent

2012　2013　2014　2015　2016　2017　　1998 to 2014

Real GDP Growth — Q4/Q4, Percent

2012　2013　2014　2015　2016　2017　　1980 to 2014

Core PCE Inflation — Q4/Q4, Percent

2012　2013　2014　2015　2016　2017　　1998 to 2014

Historical Distributions

Unemployment Rate — Annual, Percent

- median
- 15% to 85%
- 5% to 95%
- 2.5% to 97.5%
- range

1930 to 2014 | 1947 to 2014 | 1980 to 2014

Real GDP Growth — Annual, Percent

1930 to 2014 | 1947 to 2014 | 1980 to 2014

PCE Inflation — Annual, Percent

1930 to 2014 | 1947 to 2014 | 1998 to 2014

Core PCE Inflation — Annual, Percent

1930 to 2014 | 1947 to 2014 | 1998 to 2014

Note: See the technical note in the appendix for more information on this exhibit.

1. Augmented Tealbook prediction intervals use 1- and 2-year-ahead forecast errors from Blue Chip, CBO, and CEA to extend the Tealbook prediction intervals through 2017.

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Lower Natural Rate of Unemployment

While the unemployment rate has come down substantially over the past few years, inflation has not picked up, with core PCE inflation averaging less than 1½ percent since 2012. One reason inflation has remained subdued despite falling unemployment may be that the natural rate of unemployment is lower than generally thought. A lower trajectory for the natural rate would also help reconcile the rapid decrease in unemployment seen in recent years with the modest increases in GDP. In this scenario, we assume that the natural rate of unemployment has fallen faster over the past five years than assumed by the staff, to 4.2 percent in the current quarter, 1 percentage point less than in the baseline.

The higher level of potential output in this scenario implies that the output gap is initially wider than in the baseline and that the first increase in the federal funds rate is delayed until the last quarter of 2015. As a result of more-accommodative monetary policy, real GDP growth picks up, averaging about 2¼ percent over the 2015–19 period, about 15 basis points higher than in the baseline. The unemployment rate declines faster than in the baseline and does not approach its natural rate until the end of 2019. Given that the Phillips curve is very flat, the path for inflation is essentially unchanged.

Faster Growth with Higher Inflation

While some incoming data have been soft, other indicators have been more encouraging. Real GDI rose 1½ percent in the first quarter, auto sales surged in May, and some indicators of residential investment have been more positive. Job openings are elevated, and initial claims for unemployment insurance are at historical lows. In this scenario, households and businesses are more confident about the underlying strength of the economy, and that greater confidence leads them to be more willing to spend and hire than in the baseline, supporting a much faster economic expansion. We also assume that inflation is more sensitive to reductions in resource slack than in the standard version of the EDO model, consistent with the estimates of some other DSGE models.[2]

Real GDP growth averages about 3¼ percent in the second half of 2015 and 4 percent in 2016, compared with 2 percent and 2½ percent, respectively, in the baseline projection. The unemployment rate falls below 5 percent by early 2016, bottoms out at

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[2] We make inflation more sensitive to slack by reducing the adjustment cost parameters for prices and wages in EDO. In particular, we use values that are two standard deviations below the EDO point estimates of these two parameters.

4½ percent at the beginning of 2017, and then increases slowly for the remainder of the forecast period. With resource utilization running tighter, inflation rises faster than in the baseline, reaching 2¼ percent by the end of 2017. The federal funds rate lifts off at the same time as in the baseline but rises more steeply thereafter, passing 4 percent in 2018 and approaching 5 percent by the end of 2019. Given enough time, this path for the federal funds rate would eventually drive the unemployment rate up to its assumed natural rate and bring inflation back down to 2 percent.

Weaker Foreign Growth and Stronger Dollar

In our baseline forecast, we project that foreign output growth will pick up noticeably from its languid pace over the past two years, especially in the EMEs, and that this pickup in foreign growth will contribute to a modest depreciation of the broad real dollar in 2016 and 2017. However, foreign growth may continue to disappoint for a number of reasons: China could experience a more pronounced slowdown than in our baseline if the property market weakens further and lending conditions tighten; growth in EME exports and investment spending may remain subdued rather than bounce back as in our baseline; or the BOJ's and ECB's large-scale quantitative easing programs may fail to deliver much of a boost to output and inflation. In this scenario, we assume that a weakening of household and business confidence abroad and a modest tightening of credit conditions cause foreign GDP growth to run 1 percentage point below the baseline over the forecast period, with the negative growth surprises somewhat more concentrated in the EMEs. Given the heightened divergence between monetary policy abroad and in the United States, the gradual removal of policy accommodation in the United States is assumed to generate substantial flows toward dollar-denominated assets, causing the broad real dollar to appreciate 7 percent relative to baseline.

The slower foreign growth and stronger dollar cause U.S. real net exports to fall relative to the baseline. All told, U.S. real GDP expands by less than 2 percent in 2016, about ½ percentage point less than in the baseline, and the unemployment rate remains above 5½ percent until 2019. Weaker U.S. economic activity and lower import price inflation hold core inflation to about 1¼ percent through 2016. The federal funds rate

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lifts off at the same time as in the baseline, but U.S. monetary policy removes accommodation more gradually going forward.[3]

Greek Exit with Severe Spillovers

Our baseline assumption is that spillovers from developments in Greece will be contained, even in the event that debt negotiations break down completely and Greece's crisis deepens. However, it is far from assured that the firewalls erected during the past few years and actions that the authorities would presumably take to limit contagion will succeed, especially if Greece actually leaves the euro area. In this scenario, we consider a direr outcome in which Greece abandons the euro and the related disruptions cause the euro area to plunge into a deep recession, with severe adverse effects on global financial conditions and confidence.

Specifically, our scenario assumes that financial conditions in the euro area tighten sharply and that confidence plummets amid rising unemployment and heightened disinflationary pressures. Peripheral sovereign spreads rise 400 basis points above baseline, while euro-area corporate borrowing spreads rise more than 200 basis points. As a result, euro-area real GDP falls about 6 percent relative to the baseline by early 2017. The euro-area crisis has substantial adverse spillovers to the United States. U.S. corporate bond spreads are assumed to rise about 100 basis points, while flight-to-safety flows help push the trade-weighted dollar up nearly 8 percent and depress 10-year Treasury yields about 25 basis points.

Weaker foreign activity and the stronger dollar cause U.S. real net exports to fall relative to the baseline. U.S. domestic demand also declines relative to the baseline as a result of lower confidence and tighter credit conditions, and U.S. real GDP nearly stalls in the second half of 2015 and expands only ¾ percent in 2016. Lower domestic demand and lower import price inflation cause U.S. core inflation to run at ¾ percent in 2016, about 1 percentage point below baseline. The inertial Taylor rule prescribes a substantially shallower path for the federal funds rate than in the baseline.

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[3] The box "Alternative View: The Risk of Significant Macroeconomic Imbalances over the Medium Term" in the Domestic Economic Developments and Outlook section considers a scenario in which the broad real dollar appreciates by 20 percent, and raises the possibility that the much lower path of the federal funds rate prescribed by the inertial Taylor rule in this scenario (relative to the staff's baseline) could pose financial stability risks.

Alternative Models
(Percent change, Q4 to Q4, except as noted)

Measure and projection	2015		2016		2017	
	March Tealbook	Current Tealbook	March Tealbook	Current Tealbook	March Tealbook	Current Tealbook
Real GDP						
Staff	2.2	1.6	2.3	2.4	2.0	2.2
FRB/US	2.8	1.9	2.5	2.6	2.2	2.2
EDO	2.7	1.7	2.5	2.4	2.5	2.6
Unemployment rate[1]						
Staff	5.2	5.3	5.1	5.2	5.0	5.2
FRB/US	5.3	5.4	5.2	5.4	5.3	5.5
EDO	5.7	5.7	5.8	5.9	5.9	5.9
Total PCE prices						
Staff	.6	.6	1.7	1.6	1.9	1.8
FRB/US	.7	.7	1.7	1.7	1.5	1.5
EDO	.7	.9	1.8	2.1	2.0	2.1
Core PCE prices						
Staff	1.3	1.3	1.6	1.6	1.8	1.8
FRB/US	1.3	1.5	1.6	1.7	1.5	1.5
EDO	1.4	1.6	1.8	2.1	2.0	2.1
Federal funds rate[1]						
Staff	.7	.4	1.8	1.3	2.7	2.1
FRB/US	.9	.6	1.6	1.2	1.8	1.1
EDO	1.4	1.0	2.4	2.1	2.9	2.7

1. Percent, average for Q4.

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Assessment of Key Macroeconomic Risks (1)

Probability of Inflation Events
(4 quarters ahead—2016:Q2)

Probability that the 4-quarter change in total PCE prices will be ...	Staff	FRB/US	EDO	BVAR
Greater than 3 percent				
Current Tealbook	.04	.07	.14	.08
Previous Tealbook	.06	.06	.15	.00
Less than 1 percent				
Current Tealbook	.29	.19	.22	.16
Previous Tealbook	.24	.21	.22	.64

Probability of Unemployment Events
(4 quarters ahead—2016:Q2)

Probability that the unemployment rate will ...	Staff	FRB/US	EDO	BVAR
Increase by 1 percentage point				
Current Tealbook	.05	.04	.25	.01
Previous Tealbook	.03	.02	.24	.00
Decrease by 1 percentage point				
Current Tealbook	.10	.04	.04	.35
Previous Tealbook	.13	.09	.04	.40

Probability of Near-Term Recession

Probability that real GDP declines in each of 2015:Q3 and 2015:Q4	Staff	FRB/US	EDO	BVAR	Factor Model
Current Tealbook	.04	.03	.03	.03	.41
Previous Tealbook	.05	.02	.03	.03	.30

Note: "Staff" represents Tealbook forecast errors applied to the Tealbook baseline; baselines for FRB/US, BVAR, EDO, and the factor model are generated by those models themselves, up to the current-quarter estimate. Data for the current quarter are taken from the staff estimate for the second Tealbook in each quarter; if the second Tealbook for the current quarter has not yet been published, the preceding quarter is taken as the latest historical observation.

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Assessment of Key Macroeconomic Risks (2)

Probability that Total PCE Inflation Is above 3 Percent
(4 quarters ahead)
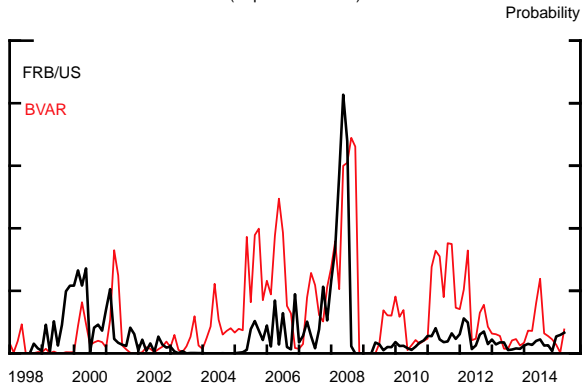
Probability that Total PCE Inflation Is below 1 Percent
(4 quarters ahead)
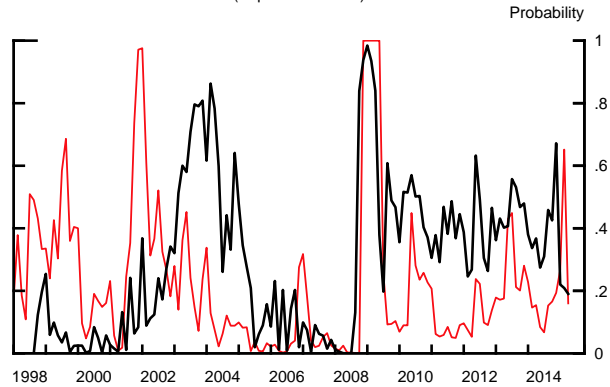
Probability that the Unemployment Rate Increases 1 ppt
(4 quarters ahead)
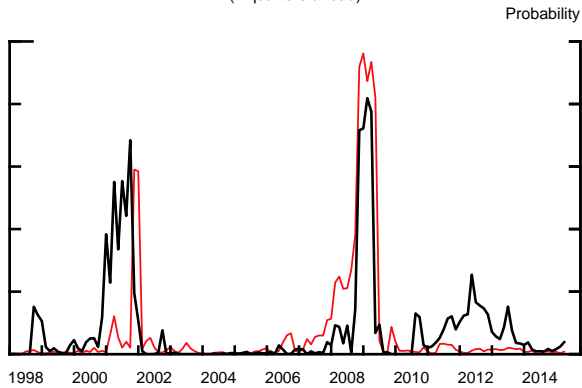
Probability that the Unemployment Rate Decreases 1 ppt
(4 quarters ahead)
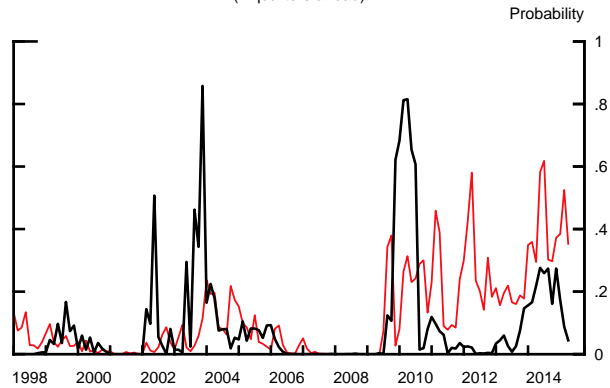
Probability that Real GDP Declines in Each of the Next Two Quarters
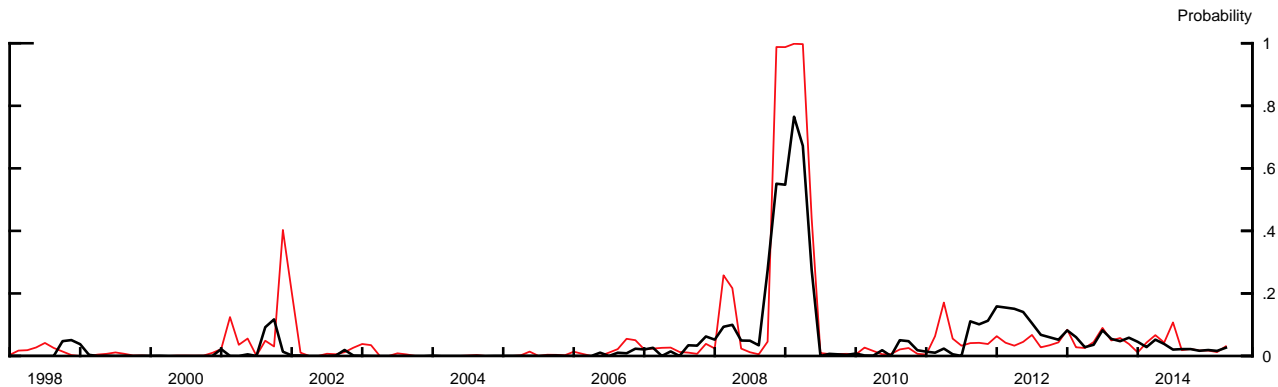
Note: See notes on facing page. Recession and inflation probabilities for FRB/US and the BVAR are real-time estimates. See Robert J. Tetlow and Brian Ironside (2007), "Real–Time Model Uncertainty in the United States: The Fed, 1996–2003," *Journal of Money, Credit and Banking*, vol. 39 (October), pp. 1533–61.

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Appendix

Technical Note on "Prediction Intervals Derived from Historical Tealbook Forecast Errors"

This technical note provides additional details about the exhibit "Prediction Intervals Derived from Historical Tealbook Forecast Errors." In the four large fan charts, the black dotted lines show staff projections and current estimates of recent values of four key economic variables: average unemployment rate in the fourth quarter of each year and the Q4/Q4 percent change for real GDP, total PCE prices, and core PCE prices. (The GDP series is adjusted to use GNP for those years when the staff forecast GNP and to strip out software and intellectual property products from the currently published data for years preceding their introduction. Similarly, the core PCE inflation series is adjusted to strip out the "food away from home" component for years before it was included in core.)

The historical distributions of the corresponding series (with the adjustments described above) are plotted immediately to the right of each of the fan charts. The thin black lines show the highest and lowest values of the series during the indicated time period. At the bottom of the page, the distributions over three different time periods are plotted for each series. To enable the use of data for years prior to 1947, we report annual-average data in this section. The annual data going back to 1930 for GDP growth, PCE inflation, and core PCE inflation are available in the conventional national accounts; we used estimates from Lebergott (1957) for the unemployment rate from 1930 to 1946.[1]

The prediction intervals around the current and one-year-ahead forecasts are derived from historical staff forecast errors, comparing staff forecasts with the latest published data. For the unemployment rate and real GDP growth, errors were calculated for 1980 through 2014, yielding percentiles of the sizes of the forecast errors. For PCE and core PCE inflation, errors for 1998 through 2014 were used. This shorter range reflects both more limited data on staff forecasts of PCE inflation and the staff judgment that the distribution of inflation since the mid-1990s is more appropriate for the projection period than distributions of inflation reaching further back. In all cases, the prediction intervals are computed by adding the percentile bands of the errors onto the forecast. The blue bands encompass 70 percent prediction-interval ranges; adding the green bands expands this range to 90 percent. The dark blue line plots the median of the prediction intervals. There is not enough historical forecast data to calculate meaningful 90 percent ranges for the two inflation series. A median line above the staff forecast means that forecast errors were positive more than half of the time.

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[1] Stanley Lebergott (1957), "Annual Estimates of Unemployment in the United States, 1900–1954," in National Bureau of Economic Research, *The Measurement and Behavior of Unemployment* (Princeton, N.J.: Princeton University Press), pp. 213–41.

Risks & Uncertainty

Because the staff has produced two-year-ahead forecasts for only a few years, the intervals around the two-year-ahead forecasts are constructed by augmenting the staff projection errors with information from outside forecasters: the Blue Chip consensus, the Council of Economic Advisers, and the Congressional Budget Office. Specifically, we calculate prediction intervals for outside forecasts in the same manner as for the staff forecasts. We then calculate the change in the error bands from outside forecasts from one year ahead to two years ahead and apply the average change to the staff's one-year-ahead error bands. That is, we assume that any deterioration in the performance between the one- and two-year-ahead projections of the outside forecasters would also apply to the Tealbook projections. Limitations on the availability of data mean that a slightly shorter sample is used for GDP and unemployment, and the outside projections may only be for a similar series, such as total CPI instead of total PCE prices or annual growth rates of GDP instead of four-quarter changes. In particular, because data on forecasts for core inflation by these outside forecasters are much more limited, we did not extrapolate the staff's errors for core PCE inflation two years ahead.

The intervals around the historical data in the four fan charts are based on the history of data revisions for each series. The previous-year, two-year-back, and three-year-back values as of the current Tealbook forecast are subtracted from the corresponding currently published estimates (adjusted as described earlier) to produce revisions, which are then combined into distributions and revision intervals in the same way that the prediction intervals are created.

June 10, 2015

Changes in GDP, Prices, and Unemployment
(Percent, annual rate except as noted)

Interval	Nominal GDP		Real GDP		PCE price index		Core PCE price index		Unemployment rate[1]	
	04/22/15	06/10/15	04/22/15	06/10/15	04/22/15	06/10/15	04/22/15	06/10/15	04/22/15	06/10/15
Quarterly										
2014:Q1	-.8	-.8	-2.1	-2.1	1.4	1.4	1.2	1.2	6.6	6.6
Q2	6.8	6.8	4.6	4.6	2.3	2.3	2.0	2.0	6.2	6.2
Q3	6.4	6.4	5.0	5.0	1.2	1.2	1.4	1.4	6.1	6.1
Q4	2.4	2.4	2.2	2.2	-.4	-.4	1.1	1.1	5.7	5.7
2015:Q1	.3	-.6	.1	-.5	-2.0	-2.0	.8	.8	5.6	5.6
Q2	4.6	5.0	2.4	2.5	1.5	1.9	1.6	1.6	5.4	5.5
Q3	3.7	3.0	2.4	1.9	1.5	1.4	1.4	1.5	5.3	5.4
Q4	4.2	3.6	2.4	2.3	1.6	1.2	1.4	1.3	5.3	5.3
2016:Q1	4.3	4.2	2.4	2.3	1.6	1.6	1.6	1.6	5.3	5.3
Q2	4.1	4.1	2.3	2.5	1.6	1.6	1.6	1.6	5.2	5.3
Q3	4.2	4.2	2.4	2.5	1.6	1.6	1.6	1.6	5.2	5.3
Q4	4.2	4.0	2.5	2.4	1.6	1.6	1.5	1.5	5.2	5.2
Two-quarter[2]										
2014:Q2	2.9	2.9	1.2	1.2	1.9	1.9	1.6	1.6	-.8	-.8
Q4	4.4	4.4	3.6	3.6	.4	.4	1.2	1.2	-.5	-.5
2015:Q2	2.4	2.2	1.2	1.0	-.2	-.1	1.2	1.2	-.3	-.2
Q4	3.9	3.3	2.4	2.1	1.5	1.3	1.4	1.4	-.1	-.2
2016:Q2	4.2	4.2	2.3	2.4	1.6	1.6	1.6	1.6	-.1	.0
Q4	4.2	4.1	2.4	2.4	1.6	1.6	1.6	1.5	.0	-.1
Four-quarter[3]										
2013:Q4	4.6	4.6	3.1	3.1	1.0	1.0	1.3	1.3	-.8	-.8
2014:Q4	3.7	3.7	2.4	2.4	1.1	1.1	1.4	1.4	-1.3	-1.3
2015:Q4	3.2	2.7	1.8	1.6	.6	.6	1.3	1.3	-.4	-.4
2016:Q4	4.2	4.1	2.4	2.4	1.6	1.6	1.6	1.6	-.1	-.1
2017:Q4	4.0	4.1	2.1	2.2	1.8	1.8	1.8	1.8	-.1	.0
Annual										
2013	3.7	3.7	2.2	2.2	1.2	1.2	1.3	1.3	7.4	7.4
2014	3.9	3.9	2.4	2.4	1.3	1.3	1.4	1.4	6.2	6.2
2015	3.3	3.0	2.2	2.0	.3	.3	1.3	1.3	5.4	5.4
2016	4.2	4.0	2.4	2.3	1.6	1.5	1.5	1.5	5.2	5.3
2017	4.1	4.1	2.3	2.3	1.7	1.7	1.7	1.7	5.1	5.2

1. Level, except for two-quarter and four-quarter intervals.
2. Percent change from two quarters earlier; for unemployment rate, change is in percentage points.
3. Percent change from four quarters earlier, for unemployment rate, change is in percentage points.

Greensheets

Greensheets

Changes in Real Gross Domestic Product and Related Items
(Percent, annual rate except as noted)

Item	2014 Q2	2014 Q3	2014 Q4	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2014[1]	2015[1]	2016[1]	2017[1]
Real GDP	4.6	5.0	2.2	-.5	2.5	1.9	2.3	2.3	2.5	2.5	2.4	2.4	1.6	2.4	2.2
Previous Tealbook	4.6	5.0	2.2	.1	2.4	2.4	2.4	2.4	2.3	2.4	2.5	2.4	1.8	2.4	2.1
Final sales	3.2	5.0	2.3	-.9	2.4	2.0	2.6	2.2	2.7	2.6	2.7	2.4	1.5	2.6	2.6
Previous Tealbook	3.2	5.0	2.3	-.3	2.2	2.6	2.8	2.5	2.6	2.4	2.3	2.4	1.8	2.4	2.3
Priv. dom. final purch.	3.8	4.1	4.5	1.3	2.8	3.3	3.6	3.9	3.9	3.8	3.3	3.3	2.8	3.7	3.0
Previous Tealbook	3.8	4.1	4.5	.9	3.1	4.0	4.3	4.0	3.9	3.5	3.0	3.3	3.1	3.6	2.7
Personal cons. expend.	2.5	3.2	4.4	1.8	2.8	3.4	3.5	3.6	3.5	3.3	2.8	2.9	2.9	3.3	2.7
Previous Tealbook	2.5	3.2	4.4	1.9	4.2	4.2	4.0	3.7	3.6	3.1	2.7	2.9	3.6	3.3	2.5
Durables	14.1	9.2	6.2	1.1	6.7	7.6	7.7	7.1	7.0	6.7	5.3	8.1	5.7	6.5	4.2
Nondurables	2.2	2.5	4.1	.1	2.3	3.8	2.9	2.6	2.9	2.8	2.5	2.2	2.3	2.7	2.5
Services	.9	2.5	4.3	2.5	2.3	2.6	3.0	3.3	3.1	3.0	2.5	2.2	2.6	3.0	2.5
Residential investment	8.8	3.2	3.8	6.3	11.3	6.8	6.2	11.6	13.1	12.4	10.8	2.5	7.6	12.0	8.0
Previous Tealbook	8.8	3.2	3.8	1.8	1.1	9.6	12.9	12.6	12.7	11.4	9.3	2.5	6.2	11.5	7.8
Nonres. priv. fixed invest.	9.7	8.9	4.7	-2.8	1.0	2.0	3.6	3.3	3.9	3.8	3.6	6.2	.9	3.7	2.9
Previous Tealbook	9.7	8.9	4.7	-4.3	-1.9	1.0	3.6	3.3	3.2	3.4	3.2	6.2	-.4	3.3	2.1
Equipment & intangibles	8.9	10.1	4.4	2.4	3.7	3.2	4.2	4.7	4.5	4.6	4.5	6.1	3.4	4.6	3.6
Previous Tealbook	8.9	10.1	4.4	1.8	2.3	3.0	4.2	4.5	3.7	3.9	3.8	6.1	2.8	4.0	2.6
Nonres. structures	12.6	4.8	5.9	-18.9	-8.3	-2.2	1.7	-2.1	1.6	.8	.4	6.5	-7.3	.2	.3
Previous Tealbook	12.6	4.8	5.9	-22.7	-16.0	-6.5	1.0	-1.6	1.1	1.0	.8	6.5	-11.5	.3	.5
Net exports[2]	-460	-431	-471	-546	-554	-591	-617	-667	-699	-738	-746	-453	-577	-712	-785
Previous Tealbook[2]	-460	-431	-471	-497	-524	-558	-596	-635	-673	-710	-730	-453	-544	-687	-766
Exports	11.1	4.5	4.5	-5.9	3.0	.5	2.2	-2.1	2.0	1.5	3.7	2.4	-.1	1.3	3.2
Imports	11.3	-.9	10.4	6.7	3.7	6.0	5.5	5.8	6.3	6.8	4.0	5.6	5.5	5.7	3.7
Gov't. cons. & invest.	1.7	4.4	-1.9	-.6	1.3	.3	.5	.6	.3	1.6	.6	.8	.4	.8	1.1
Previous Tealbook	1.7	4.4	-1.9	-2.3	1.3	.2	.3	.3	.5	1.6	.7	.8	-.1	.8	1.1
Federal	-.9	9.9	-7.3	.1	-1.6	-1.5	-1.2	-1.2	-2.4	.8	-2.0	.2	-1.1	-1.2	-.8
Defense	.9	16.0	-12.2	-1.0	-2.0	-2.2	-1.6	-2.0	-3.9	1.3	-3.3	-.3	-1.7	-2.0	-1.5
Nondefense	-3.8	.4	1.5	2.0	-1.0	-.5	-.6	.0	.0	.0	.0	1.1	.0	.0	.1
State & local	3.4	1.1	1.6	-1.1	3.2	1.5	1.6	1.8	1.9	2.0	2.1	1.2	1.3	2.0	2.2
Change in priv. inventories[2]	85	82	80	98	100	96	88	92	84	80	67	71	95	81	39
Previous Tealbook[2]	85	82	80	95	103	96	81	77	66	68	76	71	94	72	69

1. Change from fourth quarter of previous year to fourth quarter of year indicated.
2. Billions of chained (2009) dollars.

Changes in Real Gross Domestic Product and Related Items
(Change from fourth quarter of previous year to fourth quarter of year indicated, unless otherwise noted)

Item	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Real GDP	-2.8	-.2	2.7	1.7	1.6	3.1	2.4	1.6	2.4	2.2
Previous Tealbook	-2.8	-.2	2.7	1.7	1.6	3.1	2.4	1.8	2.4	2.1
Final sales	-2.1	-.4	2.0	1.5	2.1	2.6	2.4	1.5	2.6	2.6
Previous Tealbook	-2.1	-.4	2.0	1.5	2.1	2.6	2.4	1.8	2.4	2.3
Priv. dom. final purch.	-4.1	-2.4	3.5	2.6	2.6	3.2	3.3	2.8	3.7	3.0
Previous Tealbook	-4.1	-2.4	3.5	2.6	2.6	3.2	3.3	3.1	3.6	2.7
Personal cons. expend.	-2.0	-.2	3.1	1.5	2.0	2.8	2.9	2.9	3.3	2.7
Previous Tealbook	-2.0	-.2	3.1	1.5	2.0	2.8	2.9	3.6	3.3	2.5
Durables	-12.9	2.5	9.3	4.8	7.5	5.9	8.1	5.7	6.5	4.2
Nondurables	-2.7	.2	3.3	.4	1.0	2.5	2.2	2.3	2.7	2.5
Services	.3	-.8	2.0	1.4	1.5	2.4	2.2	2.6	3.0	2.5
Residential investment	-24.3	-10.8	-5.2	6.0	15.8	6.9	2.5	7.6	12.0	8.0
Previous Tealbook	-24.3	-10.8	-5.2	6.0	15.8	6.9	2.5	6.2	11.5	7.8
Nonres. priv. fixed invest.	-8.9	-12.2	8.1	9.0	3.7	4.7	6.2	.9	3.7	2.9
Previous Tealbook	-8.9	-12.2	8.1	9.0	3.7	4.7	6.2	-.4	3.3	2.1
Equipment & intangibles	-11.8	-6.0	12.0	9.2	3.3	4.8	6.1	3.4	4.6	3.6
Previous Tealbook	-11.8	-6.0	12.0	9.2	3.3	4.8	6.1	2.8	4.0	2.6
Nonres. structures	-1.2	-27.1	-4.0	8.0	4.8	4.4	6.5	-7.3	.2	.3
Previous Tealbook	-1.2	-27.1	-4.0	8.0	4.8	4.4	6.5	-11.5	.3	.5
Net exports[1]	-558	-395	-459	-459	-452	-420	-453	-577	-712	-785
Previous Tealbook[1]	-558	-395	-459	-459	-452	-420	-453	-544	-687	-766
Exports	-2.8	.8	10.1	4.2	2.4	5.1	2.4	-.1	1.3	3.2
Imports	-6.0	-6.2	12.0	3.5	.4	2.5	5.6	5.5	5.7	3.7
Gov't. cons. & invest.	3.3	2.3	-1.1	-3.0	-1.7	-1.9	.8	.4	.8	1.1
Previous Tealbook	3.3	2.3	-1.1	-3.0	-1.7	-1.9	.8	-.1	.8	1.1
Federal	8.4	3.9	3.2	-4.0	-2.6	-6.3	.2	-1.1	-1.2	-.8
Defense	9.4	3.6	2.0	-4.1	-4.9	-6.1	-.3	-1.7	-2.0	-1.5
Nondefense	6.5	4.6	5.5	-3.9	1.4	-6.6	1.1	.0	.0	.1
State & local	.2	1.3	-4.0	-2.3	-1.0	1.2	1.2	1.3	2.0	2.2
Change in priv. inventories[1]	-34	-148	58	38	57	64	71	95	81	39
Previous Tealbook[1]	-34	-148	58	38	57	64	71	94	72	69

1. Billions of chained (2009) dollars.

Greensheets

Greensheets

Contributions to Changes in Real Gross Domestic Product
(Percentage points, annual rate except except as noted)

Item	2014 Q2	2014 Q3	2014 Q4	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2014[1]	2015[1]	2016[1]	2017[1]
Real GDP	4.6	5.0	2.2	-.5	2.5	1.9	2.3	2.3	2.5	2.5	2.4	2.4	1.6	2.4	2.2
Previous Tealbook	4.6	5.0	2.2	.1	2.4	2.4	2.4	2.4	2.3	2.4	2.5	2.4	1.8	2.4	2.1
Final sales	3.2	5.0	2.3	-.9	2.4	2.0	2.5	2.2	2.6	2.6	2.7	2.4	1.5	2.5	2.6
Previous Tealbook	3.2	5.0	2.3	-.3	2.2	2.5	2.8	2.5	2.6	2.4	2.3	2.4	1.8	2.4	2.3
Priv. dom. final purch.	3.2	3.5	3.7	1.1	2.4	2.8	3.0	3.3	3.3	3.2	2.8	2.8	2.3	3.2	2.6
Previous Tealbook	3.2	3.5	3.7	.8	2.6	3.3	3.6	3.3	3.3	2.9	2.6	2.8	2.6	3.1	2.3
Personal cons. expend.	1.8	2.2	3.0	1.2	1.9	2.3	2.4	2.5	2.4	2.3	1.9	1.9	2.0	2.3	1.9
Previous Tealbook	1.8	2.2	3.0	1.3	2.8	2.9	2.8	2.5	2.5	2.1	1.9	1.9	2.4	2.3	1.8
Durables	1.0	.7	.5	.1	.5	.6	.6	.5	.5	.5	.4	.6	.4	.5	.3
Nondurables	.3	.4	.6	.0	.3	.5	.4	.4	.4	.4	.4	.3	.3	.4	.4
Services	.4	1.2	1.9	1.1	1.1	1.2	1.4	1.5	1.5	1.4	1.2	1.0	1.2	1.4	1.2
Residential investment	.3	.1	.1	.2	.4	.2	.2	.4	.4	.4	.4	.1	.2	.4	.3
Previous Tealbook	.3	.1	.1	.1	.0	.3	.4	.4	.4	.4	.3	.1	.2	.4	.3
Nonres. priv. fixed invest.	1.2	1.1	.6	-.4	.1	.3	.5	.4	.5	.5	.5	.8	.1	.5	.4
Previous Tealbook	1.2	1.1	.6	-.6	-.2	.1	.4	.4	.4	.4	.4	.8	-.1	.4	.3
Equipment & intangibles	.8	1.0	.4	.2	.4	.3	.4	.5	.4	.5	.4	.6	.3	.5	.4
Previous Tealbook	.8	1.0	.4	.2	.2	.3	.4	.4	.4	.4	.4	.6	.3	.4	.3
Nonres. structures	.4	.1	.2	-.6	-.2	-.1	.0	-.1	.0	.0	.0	.2	-.2	.0	.0
Previous Tealbook	.4	.1	.2	-.7	-.5	-.2	.0	.0	.0	.0	.0	.2	-.3	.0	.0
Net exports	-.3	.8	-1.0	-1.8	-.2	-.9	-.6	-1.2	-.7	-.9	-.2	-.6	-.9	-.8	-.2
Previous Tealbook	-.3	.8	-1.0	-.6	-.6	-.8	-.9	-.9	-.9	-.9	-.4	-.6	-.8	-.8	-.2
Exports	1.4	.6	.6	-.8	.4	.1	.3	-.3	.3	.2	.5	.3	.0	.2	.4
Imports	-1.8	.2	-1.6	-1.0	-.6	-.9	-.9	-.9	-1.0	-1.1	-.6	-.9	-.9	-.9	-.6
Gov't. cons. & invest.	.3	.8	-.4	-.1	.2	.1	.1	.1	.1	.3	.1	.1	.1	.1	.2
Previous Tealbook	.3	.8	-.4	-.4	.2	.0	.1	.1	.1	.3	.1	.1	.0	.1	.2
Federal	-.1	.7	-.5	.0	-.1	-.1	-.1	-.1	-.2	.1	-.1	.0	-.1	-.1	-.1
Defense	.0	.7	-.6	.0	-.1	-.1	-.1	-.1	-.2	.1	-.1	.0	-.1	-.1	-.1
Nondefense	-.1	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	-.1	-.0
State & local	.4	.1	.2	-.1	.3	.2	.2	.2	.2	.2	.2	.1	.1	.2	.2
Change in priv. inventories	1.4	.0	-.1	.4	.1	-.1	-.2	.1	-.2	-.1	-.3	.0	.0	-.1	-.3
Previous Tealbook	1.4	.0	-.1	.4	.2	-.2	-.4	-.1	-.3	.1	.2	.0	.0	.0	-.1

1. Change from fourth quarter of previous year to fourth quarter of year indicated.

Changes in Prices and Costs
(Percent, annual rate except as noted)

Item	2014 Q2	2014 Q3	2014 Q4	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2014[1]	2015[1]	2016[1]	2017[1]
GDP chain-wt. price index	2.1	1.4	.1	-.1	2.5	1.1	1.2	1.9	1.7	1.7	1.6	1.2	1.2	1.7	1.8
Previous Tealbook	2.1	1.4	.1	.3	2.2	1.3	1.7	1.9	1.7	1.7	1.7	1.2	1.4	1.8	1.8
PCE chain-wt. price index	2.3	1.2	-.4	-2.0	1.9	1.4	1.2	1.6	1.6	1.6	1.6	1.1	.6	1.6	1.8
Previous Tealbook	2.3	1.2	-.4	-2.0	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.1	.6	1.6	1.8
Energy	5.2	-4.0	-26.0	-44.5	15.6	-.7	-2.8	3.2	2.3	2.1	1.6	-6.1	-11.3	2.3	1.3
Previous Tealbook	5.2	-4.0	-26.0	-45.0	3.9	3.0	4.5	3.5	2.7	2.3	2.0	-6.1	-11.4	2.6	1.6
Food	4.5	3.1	2.1	-.2	-.9	.8	1.4	1.5	1.6	1.7	1.8	2.8	.3	1.6	1.9
Previous Tealbook	4.5	3.1	2.1	-.2	-.3	1.3	1.5	1.5	1.6	1.7	1.8	2.8	.6	1.6	1.9
Ex. food & energy	2.0	1.4	1.1	.8	1.6	1.5	1.3	1.6	1.6	1.6	1.5	1.4	1.3	1.6	1.8
Previous Tealbook	2.0	1.4	1.1	.8	1.6	1.4	1.4	1.6	1.6	1.6	1.5	1.4	1.3	1.6	1.8
Ex. food & energy, market based	1.8	1.4	.7	.5	1.8	1.5	1.3	1.6	1.6	1.6	1.5	1.2	1.3	1.6	1.8
Previous Tealbook	1.8	1.4	.7	.5	1.5	1.4	1.4	1.6	1.6	1.6	1.5	1.2	1.2	1.6	1.8
CPI	2.4	1.2	-.9	-3.1	3.0	1.7	1.4	2.0	2.0	2.0	2.0	1.2	.7	2.0	2.1
Previous Tealbook	2.4	1.2	-.9	-3.1	2.0	1.9	2.0	2.1	2.0	2.0	2.0	1.2	.7	2.0	2.1
Ex. food & energy	2.2	1.4	1.5	1.7	2.6	1.9	1.7	2.0	2.0	2.0	2.0	1.7	2.0	2.0	2.1
Previous Tealbook	2.2	1.4	1.5	1.7	2.2	1.8	1.9	2.0	2.0	2.0	2.0	1.7	1.9	2.0	2.1
ECI, hourly compensation[2]	3.4	2.7	2.0	3.0	2.5	2.6	2.6	2.9	2.9	2.9	2.9	2.3	2.7	2.9	2.9
Previous Tealbook[2]	3.4	2.7	2.3	2.6	2.6	2.6	2.6	2.9	2.9	2.9	2.9	2.3	2.6	2.9	3.0
Business sector															
Output per hour	2.9	3.3	-2.3	-2.8	2.3	2.2	2.9	2.0	2.0	1.9	1.8	-.4	1.1	1.9	1.9
Previous Tealbook	2.9	3.3	-2.4	-1.8	2.8	2.7	2.3	1.9	1.8	1.8	1.8	-.4	1.4	1.8	1.8
Compensation per hour	-1.0	2.1	3.1	3.1	2.7	2.9	3.4	3.5	3.3	3.4	3.4	2.6	3.0	3.4	3.4
Previous Tealbook	-1.1	2.1	1.6	3.2	3.0	3.0	3.0	3.4	3.4	3.4	3.4	2.3	3.0	3.4	3.5
Unit labor costs	-3.9	-1.2	5.5	6.1	.4	.7	.5	1.5	1.3	1.4	1.5	3.0	1.9	1.4	1.4
Previous Tealbook	-3.9	-1.2	4.0	5.1	.2	.3	.7	1.5	1.5	1.6	1.6	2.7	1.6	1.5	1.7
Core goods imports chain-wt. price index[3]	.2	.5	-.8	-4.3	-4.0	-.6	-.2	.5	1.0	1.2	1.2	.6	-2.3	1.0	1.5
Previous Tealbook[3]	.2	.5	-.8	-4.0	-4.0	-.8	-.1	.4	.9	1.2	1.2	.6	-2.3	.9	1.6

1. Change from fourth quarter of previous year to fourth quarter of year indicated.
2. Private-industry workers.
3. Core goods imports exclude computers, semiconductors, oil, and natural gas.

Greensheets

Greensheets
Changes in Prices and Costs
(Change from fourth quarter of previous year to fourth quarter of year indicated, unless otherwise noted)

Item	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
GDP chain-wt. price index	1.9	.4	1.8	1.9	1.8	1.4	1.2	1.2	1.7	1.8
Previous Tealbook	1.9	.4	1.8	1.9	1.8	1.4	1.2	1.4	1.8	1.8
PCE chain-wt. price index	1.5	1.2	1.3	2.7	1.6	1.0	1.1	.6	1.6	1.8
Previous Tealbook	1.5	1.2	1.3	2.7	1.6	1.0	1.1	.6	1.6	1.8
Energy	-8.2	2.3	6.4	12.0	2.1	-2.6	-6.1	-11.3	2.3	1.3
Previous Tealbook	-8.2	2.3	6.4	12.0	2.1	-2.6	-6.1	-11.4	2.6	1.6
Food	6.9	-1.8	1.3	5.1	1.2	.7	2.8	.3	1.6	1.9
Previous Tealbook	6.9	-1.8	1.3	5.1	1.2	.7	2.8	.6	1.6	1.9
Ex. food & energy	1.6	1.4	1.0	1.9	1.6	1.3	1.4	1.3	1.6	1.8
Previous Tealbook	1.6	1.4	1.0	1.9	1.6	1.3	1.4	1.3	1.6	1.8
Ex. food & energy, market based	2.2	1.8	.7	1.9	1.5	1.2	1.2	1.3	1.6	1.8
Previous Tealbook	2.2	1.8	.7	1.9	1.5	1.2	1.2	1.2	1.6	1.8
CPI	1.6	1.5	1.2	3.3	1.9	1.2	1.2	.7	2.0	2.1
Previous Tealbook	1.6	1.5	1.2	3.3	1.9	1.2	1.2	.7	2.0	2.1
Ex. food & energy	2.0	1.8	.6	2.2	1.9	1.7	1.7	2.0	2.0	2.1
Previous Tealbook	2.0	1.8	.6	2.2	1.9	1.7	1.7	1.9	2.0	2.1
ECI, hourly compensation[1]	2.4	1.2	2.1	2.2	1.8	2.0	2.3	2.7	2.9	2.9
Previous Tealbook[1]	2.4	1.2	2.1	2.2	1.8	2.0	2.3	2.6	2.9	3.0
Business sector										
Output per hour	-.2	5.6	1.7	.0	.2	2.3	-.4	1.1	1.9	1.9
Previous Tealbook	-.2	5.6	1.7	.0	.2	2.3	-.4	1.4	1.8	1.8
Compensation per hour	2.9	1.3	1.2	.6	5.6	-.1	2.6	3.0	3.4	3.4
Previous Tealbook	2.9	1.3	1.2	.6	5.6	-.1	2.3	3.0	3.4	3.5
Unit labor costs	3.2	-4.2	-.4	.6	5.4	-2.3	3.0	1.9	1.4	1.4
Previous Tealbook	3.2	-4.2	-.4	.6	5.4	-2.3	2.7	1.6	1.5	1.7
Core goods imports chain-wt. price index[2]	3.9	-1.9	2.3	4.3	.2	-1.0	.6	-2.3	1.0	1.5
Previous Tealbook[2]	3.9	-1.9	2.3	4.3	.2	-1.0	.6	-2.3	.9	1.6

1. Private-industry workers.
2. Core goods imports exclude computers, semiconductors, oil, and natural gas.

Class II FOMC - Restricted (FR) June 10, 2015

Other Macroeconomic Indicators

Item	2014 Q2	2014 Q3	2014 Q4	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2014[1]	2015[1]	2016[1]	2017[1]
Employment and production															
Nonfarm payroll employment[2]	.8	.7	.9	.8	.6	.7	.6	.6	.6	.5	.5	2.9	2.7	2.2	1.7
Unemployment rate[3]	6.2	6.1	5.7	5.6	5.5	5.4	5.3	5.3	5.3	5.3	5.2	5.7	5.3	5.2	5.2
Previous Tealbook[3]	6.2	6.1	5.7	5.6	5.4	5.3	5.3	5.3	5.2	5.2	5.2	5.7	5.3	5.2	5.1
Natural rate of unemployment[3]	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Previous Tealbook[3]	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Employment-to-Population Ratio[3]	58.9	59.0	59.2	59.3	59.4	59.4	59.4	59.3	59.3	59.3	59.3	59.2	59.4	59.3	59.2
Employment-to-Population Trend[3]	60.2	60.1	60.0	60.0	59.9	59.8	59.7	59.7	59.6	59.5	59.4	60.0	59.7	59.4	59.1
GDP gap[4]	-2.3	-1.3	-1.0	-1.5	-1.3	-1.2	-1.0	-.9	-.7	-.5	-.4	-1.0	-1.0	-.4	.1
Previous Tealbook[4]	-2.3	-1.3	-1.0	-1.3	-1.2	-1.0	-.8	-.6	-.5	-.3	-.1	-1.0	-.8	-.1	.3
Industrial production[5]	5.7	4.1	4.6	-.7	-1.8	1.3	-.5	1.2	2.6	1.8	1.7	4.6	-.4	1.8	1.9
Previous Tealbook[5]	5.7	4.1	4.6	-1.0	-.8	.7	.6	2.4	2.9	2.0	1.5	4.6	-.1	2.2	1.5
Manufacturing industr. prod.[5]	7.0	4.4	3.8	-1.0	.1	1.3	1.1	1.2	2.4	2.1	2.0	4.1	.4	1.9	1.7
Previous Tealbook[5]	7.0	4.4	3.8	-1.2	1.8	1.9	2.0	2.3	2.6	2.1	1.8	4.1	1.1	2.2	1.5
Capacity utilization rate - mfg.[3]	77.1	77.5	77.8	77.3	77.0	76.9	76.8	76.7	76.9	76.9	76.9	77.8	76.8	76.9	76.8
Previous Tealbook[3]	77.1	77.5	77.8	77.2	77.3	77.3	77.4	77.5	77.6	77.7	77.7	77.8	77.4	77.7	77.4
Housing starts[6]	1.0	1.0	1.1	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.0	1.1	1.3	1.5
Light motor vehicle sales[6]	16.5	16.7	16.7	16.6	17.0	16.9	16.8	16.8	16.8	16.8	16.8	16.4	16.8	16.8	16.7
Income and saving															
Nominal GDP[5]	6.8	6.4	2.4	-.6	5.0	3.0	3.6	4.2	4.1	4.2	4.0	3.7	2.7	4.1	4.1
Real disposable pers. income[5]	3.1	2.4	4.1	5.4	2.3	2.1	2.0	3.6	2.4	2.5	2.6	3.3	2.9	2.8	2.5
Previous Tealbook[5]	3.1	2.4	3.6	6.5	2.0	2.1	2.2	3.4	2.5	2.6	2.8	3.1	3.2	2.8	2.5
Personal saving rate[3]	5.1	4.8	4.7	5.5	5.3	5.0	4.6	4.7	4.4	4.2	4.2	4.7	4.6	4.2	4.0
Previous Tealbook[3]	5.1	4.8	4.6	5.6	5.1	4.6	4.2	4.1	3.9	3.8	3.8	4.6	4.2	3.8	3.8
Corporate profits[7]	38.3	12.8	-5.5	-23.0	17.1	-5.2	-1.5	-3.7	1.8	1.9	6.3	-.2	-4.2	1.5	.5
Profit share of GNP[3]	12.0	12.2	12.0	11.2	11.6	11.3	11.2	11.0	10.9	10.8	10.9	12.0	11.2	10.9	10.5
Gross national saving rate[3]	17.9	18.1	18.2	18.4	18.0	17.6	17.5	17.2	17.3	17.1	17.2	18.2	17.5	17.2	17.0
Net national saving rate[3]	2.9	3.1	3.2	3.4	3.0	2.5	2.4	2.0	2.1	1.8	1.9	3.2	2.4	1.9	1.5

1. Change from fourth quarter of previous year to fourth quarter of year indicated, unless otherwise indicated.
2. Change, millions.
3. Percent; annual values are for the fourth quarter of the year indicated.
4. Percent difference between actual and potential GDP; a negative number indicates that the economy is operating below potential.
   Annual values are for the fourth quarter of the year indicated.
5. Percent change, annual rate.
6. Level, millions; annual values are annual averages.
7. Percent change, annual rate, with inventory valuation and capital consumption adjustments.

Greensheets

Class II FOMC - Restricted (FR)　　　　　　　　　　　　　　　　　　June 10, 2015

Greensheets
Other Macroeconomic Indicators
(Change from fourth quarter of previous year to fourth quarter of year indicated, unless otherwise noted)

Item	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Employment and production										
Nonfarm payroll employment[1]	-2.8	-5.6	.8	2.0	2.2	2.5	2.9	2.7	2.2	1.7
Unemployment rate[2]	6.9	9.9	9.5	8.7	7.8	7.0	5.7	5.3	5.2	5.2
Previous Tealbook[2]	6.9	9.9	9.5	8.7	7.8	7.0	5.7	5.3	5.2	5.1
Natural rate of unemployment[2]	5.6	6.2	6.2	6.0	5.8	5.4	5.2	5.2	5.2	5.2
Previous Tealbook[2]	5.6	6.2	6.2	6.0	5.8	5.4	5.2	5.2	5.2	5.2
Employment-to-Population Ratio[2]	61.4	58.4	58.3	58.5	58.7	58.5	59.2	59.4	59.3	59.2
Employment-to-Population Trend[2]	62.0	61.3	60.9	60.6	60.3	60.2	60.0	59.7	59.4	59.1
GDP gap[3]	-3.8	-5.5	-4.4	-4.2	-4.1	-2.8	-1.0	-1.0	-.4	.1
Previous Tealbook[3]	-3.8	-5.5	-4.4	-4.2	-4.1	-2.8	-1.0	-.8	-.1	.3
Industrial production[4]	-8.9	-5.5	6.2	3.2	3.2	3.3	4.6	-.4	1.8	1.9
Previous Tealbook[4]	-8.9	-5.5	6.2	3.2	3.2	3.3	4.6	-.1	2.2	1.5
Manufacturing industr. prod.[4]	-11.6	-6.1	6.4	3.1	3.5	2.9	4.1	.4	1.9	1.7
Previous Tealbook[4]	-11.6	-6.1	6.4	3.1	3.5	2.9	4.1	1.1	2.2	1.5
Capacity utilization rate - mfg.[2]	70.0	67.1	72.7	74.6	75.5	76.4	77.8	76.8	76.9	76.8
Previous Tealbook[2]	70.0	67.1	72.7	74.6	75.5	76.4	77.8	77.4	77.7	77.4
Housing starts[5]	.9	.6	.6	.6	.8	.9	1.0	1.1	1.3	1.5
Light motor vehicle sales[5]	13.1	10.4	11.5	12.7	14.4	15.5	16.4	16.8	16.8	16.7
Income and saving										
Nominal GDP[4]	-.9	.1	4.6	3.6	3.5	4.6	3.7	2.7	4.1	4.1
Real disposable pers. income[4]	1.1	-.7	2.6	1.7	5.0	-1.9	3.3	2.9	2.8	2.5
Previous Tealbook[4]	1.1	-.7	2.6	1.7	5.0	-1.9	3.1	3.2	2.8	2.5
Personal saving rate[2]	6.1	5.6	5.5	5.8	8.6	4.4	4.7	4.6	4.2	4.0
Previous Tealbook[2]	6.1	5.6	5.5	5.8	8.6	4.4	4.6	4.2	3.8	3.8
Corporate profits[6]	-30.8	53.7	18.0	6.8	3.8	4.7	-.2	-4.2	1.5	.5
Profit share of GNP[2]	6.9	10.6	12.0	12.3	12.4	12.4	12.0	11.2	10.9	10.5
Gross national saving rate[2]	14.9	14.6	15.2	16.1	17.8	17.9	18.2	17.5	17.2	17.0
Net national saving rate[2]	-1.6	-1.7	-.4	.8	2.8	3.0	3.2	2.4	1.9	1.5

1. Change, millions.
2. Percent; values are for the fourth quarter of the year indicated.
3. Percent difference between actual and potential GDP; a negative number indicates that the economy is operating below potential. Values are for the fourth quarter of the year indicated.
4. Percent change.
5. Level, millions; values are annual averages.
6. Percent change, with inventory valuation and capital consumption adjustments.

Staff Projections of Federal Sector Accounts and Related Items
(Billions of dollars except as noted)

Item	Fiscal year 2014	2015	2016	2017	2014 Q1a	Q2a	Q3a	Q4a	2015 Q1a	Q2	Q3	Q4	2016 Q1	Q2	Q3	Q4
					Not seasonally adjusted											
Unified budget																
Receipts	3,021	3,257	3,419	3,550	656	938	760	739	680	1,025	812	753	719	1,082	865	803
Outlays	3,504	3,697	3,863	4,020	897	890	877	916	943	945	894	991	949	951	971	969
Surplus/deficit	-482	-441	-444	-470	-241	47	-117	-177	-263	81	-82	-239	-230	130	-106	-166
Previous Tealbook	*-482*	*-453*	*-472*	*-491*	*-241*	*47*	*-117*	*-177*	*-263*	*76*	*-90*	*-249*	*-235*	*124*	*-112*	*-173*
Means of financing:																
Borrowing	798	327	551	589	262	-46	211	240	67	-37	57	249	252	-80	129	193
Cash decrease	-70	-52	13	1	20	3	-19	-65	123	-131	20	19	8	-21	7	3
Other[1]	-245	166	-120	-120	-42	-4	-74	1	73	87	5	-30	-30	-30	-30	-30
Cash operating balance, end of period	158	211	197	196	158	139	158	223	142	231	211	191	183	204	197	194
					Seasonally adjusted annual rates											
NIPA federal sector																
Receipts	3,267	3,430	3,574	3,715	3,243	3,277	3,342	3,349	3,401	3,469	3,500	3,532	3,544	3,587	3,632	3,680
Expenditures	3,844	3,977	4,150	4,356	3,803	3,875	3,953	3,901	3,907	4,030	4,068	4,061	4,158	4,161	4,219	4,274
Consumption expenditures	963	961	966	981	957	956	988	961	963	961	960	960	968	966	971	970
Defense	617	612	612	617	610	610	641	614	613	612	610	610	614	611	613	611
Nondefense	346	349	354	364	347	345	347	347	350	350	350	350	355	356	357	359
Other spending	2,882	3,015	3,184	3,376	2,846	2,920	2,965	2,940	2,944	3,069	3,108	3,102	3,190	3,195	3,249	3,304
Current account surplus	-577	-547	-576	-641	-560	-599	-611	-552	-506	-562	-568	-529	-613	-575	-587	-594
Gross investment	256	254	249	248	251	255	254	256	254	253	252	251	250	248	249	248
Gross saving less gross investment[2]	-561	-522	-541	-598	-539	-580	-589	-532	-482	-535	-539	-498	-580	-537	-550	-553
Fiscal indicators																
High-employment (HEB) surplus/deficit[3]	-404.2	-452.1	-494.3	-587.6	-342.8	-427.0	-488.7	-457.3	-403.9	-469.9	-477.3	-439.1	-526.3	-493.6	-518.1	-532.2
Change in HEB, percent of potential GDP	-1.0	.2	.2	.4	-.1	.5	.3	-.2	-.3	.3	.0	-.2	.4	-.2	.1	.1
Fiscal impetus (FI), percent of GDP[4]	-.1	.2	.3	.3	-.6	.0	.7	-.4	-.1	.4	.3	.3	.2	.2	.4	.2
Previous Tealbook	*-.1*	*.2*	*.3*	*.3*	*-.6*	*.0*	*.7*	*-.4*	*-.4*	*.4*	*.3*	*.3*	*.1*	*.2*	*.4*	*.2*
Federal purchases	.0	-.1	-.1	-.1	.0	-.1	.1	-.5	.0	-.1	-.1	-.1	-.1	-.2	.1	-.1
State and local purchases	.1	.1	.2	.2	-.1	.4	.1	.2	-.1	.3	.2	.2	.2	.2	.2	.2
Taxes and transfers	-.2	.2	.1	.1	-.5	-.3	-.1	-.1	.0	.2	.2	.2	.1	.1	.1	.1

1. Other means of financing include checks issued less checks paid, accrued items, and changes in other financial assets and liabilities.
2. Gross saving is the current account surplus plus consumption of fixed capital of the general government as well as government enterprises.
3. HEB is gross saving less gross investment (NIPA) of the federal government in current dollars, with cyclically sensitive receipts and outlays adjusted to the staff's measure of potential output and the natural rate of unemployment. The sign on Change in HEB, as a percent of nominal potential GDP, is reversed. Quarterly figures for change in HEB are not at annual rates.
4. Fiscal impetus measures the contribution to growth of real GDP from fiscal policy actions at the general government level (excluding multiplier effects). It equals the sum of the direct contributions to real GDP growth from changes in federal purchases and state and local purchases, plus the estimated contribution from real consumption and investment that is induced by discretionary policy changes in transfers and taxes.
a Actual.

Greensheets

Foreign Real GDP and Consumer Prices: Selected Countries
(Quarterly percent changes at an annual rate)

			2014		----Projected----					2016		
						2015						
Measure and country	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Real GDP[1]												
Total foreign	2.1	2.3	2.8	2.4	1.6	2.2	2.7	2.9	3.0	3.0	3.1	3.1
Previous Tealbook	*2.0*	*2.4*	*2.6*	*2.7*	*1.8*	*2.4*	*2.8*	*3.0*	*3.0*	*3.0*	*3.1*	*3.1*
Advanced foreign economies	1.7	1.3	1.7	1.9	.9	1.6	1.8	2.1	2.2	2.2	2.2	2.1
Canada	1.0	3.4	3.2	2.2	-.6	1.4	1.9	2.4	2.5	2.5	2.4	2.2
Japan	4.4	-6.8	-2.0	1.2	3.9	1.5	1.6	1.5	1.5	1.4	1.3	1.4
United Kingdom	3.6	3.4	2.5	2.5	1.2	2.4	2.5	2.5	2.4	2.4	2.4	2.4
Euro area	.9	.4	.7	1.4	1.5	1.6	1.7	1.8	1.8	1.9	2.0	2.0
Germany	3.1	-.3	.3	2.8	1.1	1.7	1.7	1.8	1.9	1.9	2.1	2.1
Emerging market economies	2.5	3.3	3.9	3.0	2.2	2.8	3.5	3.6	3.7	3.7	3.9	4.0
Asia	4.4	4.9	6.2	4.0	4.1	4.7	5.4	5.3	5.2	5.2	5.2	5.2
Korea	4.4	2.0	3.2	1.1	3.3	3.3	3.9	4.0	4.0	4.0	4.1	4.1
China	6.4	7.6	8.1	7.0	5.1	6.1	7.5	7.0	6.6	6.6	6.6	6.6
Latin America	.8	2.1	2.1	1.9	.9	1.2	2.1	2.3	2.5	2.6	2.9	2.9
Mexico	2.0	3.7	2.1	2.7	1.6	2.6	3.1	3.1	3.1	3.1	3.2	3.2
Brazil	2.9	-5.5	.6	1.1	-.6	-3.2	-.8	.8	1.6	1.7	1.8	2.0
Consumer prices[2]												
Total foreign	2.0	3.0	2.0	1.1	-.1	2.1	2.2	2.4	2.4	2.4	2.5	2.5
Previous Tealbook	*2.0*	*3.0*	*2.0*	*1.1*	*-.1*	*2.0*	*2.2*	*2.4*	*2.4*	*2.4*	*2.5*	*2.5*
Advanced foreign economies	1.4	3.1	.8	-.4	-.8	1.4	1.3	1.4	1.5	1.5	1.6	1.6
Canada	3.2	3.3	1.2	.0	-.2	1.8	1.7	1.8	1.8	1.8	1.9	1.9
Japan	.7	9.3	1.2	-.6	-.3	.5	.7	.8	.9	1.0	1.1	1.2
United Kingdom	1.5	1.6	1.2	-.7	-1.6	.9	1.6	1.8	1.8	1.7	1.8	1.8
Euro area	.4	.4	.4	-.6	-1.5	1.9	1.3	1.5	1.6	1.6	1.6	1.6
Germany	.4	.3	1.5	-.5	-1.7	2.2	1.6	1.6	1.7	1.7	1.7	1.8
Emerging market economies	2.5	2.9	2.9	2.3	.5	2.6	3.0	3.1	3.1	3.1	3.1	3.1
Asia	1.4	2.4	2.1	1.2	-.3	2.0	2.5	2.7	2.8	2.8	2.8	2.8
Korea	1.4	2.2	.6	-.2	-.3	1.9	2.6	2.9	3.1	3.2	3.2	3.2
China	.8	2.0	2.2	1.0	-.4	1.6	2.2	2.5	2.5	2.5	2.5	2.5
Latin America	5.3	4.3	4.9	4.8	1.7	3.7	4.0	3.9	3.9	3.9	3.9	3.8
Mexico	4.8	3.3	4.4	4.2	.3	2.6	3.3	3.3	3.3	3.3	3.3	3.3
Brazil	6.5	7.4	6.2	6.0	11.1	9.3	6.2	5.7	5.7	5.7	5.7	5.6

[1] Foreign GDP aggregates calculated using shares of U.S. exports.
[2] Foreign CPI aggregates calculated using shares of U.S. non-oil imports.

Foreign Real GDP and Consumer Prices: Selected Countries
(Percent change, Q4 to Q4)

Measure and country	2009	2010	2011	2012	2013	2014	2015	2016	2017
								Projected	
Real GDP¹									
Total foreign	.9	4.8	3.2	2.3	2.6	2.4	2.3	3.0	2.9
Previous Tealbook	*.9*	*4.7*	*3.2*	*2.3*	*2.6*	*2.4*	*2.5*	*3.1*	*2.9*
Advanced foreign economies	-1.5	3.1	1.8	.3	1.9	1.6	1.6	2.2	1.9
Canada	-1.4	3.6	3.0	1.0	2.7	2.5	1.3	2.4	2.0
Japan	-.6	3.6	.3	.0	2.3	-.9	2.1	1.4	-.2
United Kingdom	-1.5	2.2	1.5	.4	2.4	3.0	2.2	2.4	2.3
Euro area	-2.4	2.3	.6	-.9	.5	.9	1.6	1.9	2.2
Germany	-3.0	4.4	2.4	.1	1.1	1.5	1.6	2.0	2.2
Emerging market economies	3.7	6.7	4.6	4.3	3.3	3.2	3.0	3.8	3.9
Asia	7.5	8.4	4.9	5.7	5.2	4.9	4.9	5.2	5.0
Korea	4.9	6.1	2.9	2.1	3.4	2.7	3.6	4.0	3.8
China	11.4	9.7	8.7	7.8	7.5	7.3	6.4	6.6	6.5
Latin America	.0	4.7	4.2	3.4	1.5	1.7	1.6	2.7	3.0
Mexico	-1.2	4.4	4.2	3.4	1.0	2.6	2.6	3.1	3.2
Brazil	5.2	5.8	2.5	2.3	2.1	-.3	-1.0	1.8	2.3
Consumer prices²									
Total foreign	1.2	3.2	3.4	2.3	2.3	2.0	1.6	2.4	2.6
Previous Tealbook	*1.2*	*3.2*	*3.4*	*2.3*	*2.4*	*2.0*	*1.6*	*2.4*	*2.6*
Advanced foreign economies	.2	1.7	2.2	1.3	1.0	1.2	.8	1.6	2.0
Canada	.8	2.2	2.7	1.0	1.0	1.9	1.3	1.8	2.0
Japan	-2.0	-.3	-.3	-.2	1.4	2.5	.4	1.0	2.6
United Kingdom	2.2	3.4	4.6	2.6	2.1	.9	.7	1.8	1.9
Euro area	.4	2.0	2.9	2.3	.8	.2	.8	1.6	1.7
Germany	.3	1.6	2.6	2.0	1.3	.4	.9	1.7	1.8
Emerging market economies	2.0	4.3	4.3	3.1	3.4	2.7	2.3	3.1	3.1
Asia	1.2	4.3	4.5	2.6	3.1	1.8	1.7	2.8	2.8
Korea	2.4	3.2	3.9	1.7	1.1	1.0	1.8	3.2	3.2
China	.6	4.6	4.6	2.1	2.9	1.5	1.5	2.5	2.5
Latin America	3.9	4.4	4.0	4.3	4.0	4.8	3.3	3.9	3.7
Mexico	4.0	4.3	3.5	4.1	3.7	4.2	2.4	3.3	3.3
Brazil	4.3	5.6	6.7	5.6	5.9	6.5	8.1	5.6	5.4

¹ Foreign GDP aggregates calculated using shares of U.S. exports.
² Foreign CPI aggregates calculated using shares of U.S. non-oil imports.

Greensheets

Greensheets

U.S. Current Account

Quarterly Data

Billions of dollars, s.a.a.r.

		2014				2015				2016		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
U.S. current account balance	**-411.5**	**-383.1**	**-403.4**	**-459.0**	**-499.4**	**-496.2**	**-535.4**	**-561.7**	**-628.4**	**-630.0**	**-676.9**	**-697.8**
Previous Tealbook	*-403.9*	*-389.1*	*-395.7*	*-453.8*	*-472.1*	*-462.5*	*-499.9*	*-537.0*	*-596.4*	*-607.1*	*-657.3*	*-685.4*
Current account as percent of GDP	-2.4	-2.2	-2.3	-2.6	-2.8	-2.8	-3.0	-3.1	-3.4	-3.4	-3.6	-3.7
Previous Tealbook	*-2.4*	*-2.2*	*-2.2*	*-2.6*	*-2.7*	*-2.6*	*-2.8*	*-2.9*	*-3.2*	*-3.3*	*-3.5*	*-3.6*
Net goods & services	-501.7	-514.8	-503.5	-513.3	-521.0	-496.1	-541.1	-573.1	-626.9	-649.4	-692.1	-710.1
Investment income, net	218.6	228.8	248.5	211.8	175.7	147.7	156.1	159.4	164.9	167.3	165.7	160.3
Direct, net	293.2	293.1	314.9	281.1	258.7	240.3	254.1	266.4	281.8	295.2	307.7	318.0
Portfolio, net	-74.6	-64.3	-66.5	-69.3	-83.0	-92.5	-97.9	-107.0	-116.8	-127.9	-142.0	-157.7
Other income and transfers, net	-128.4	-97.0	-148.4	-157.5	-154.1	-147.8	-150.4	-148.0	-166.5	-147.8	-150.4	-148.0

Annual Data

Billions of dollars

	2009	2010	2011	2012	2013	2014	2015	2016	2017
U.S. current account balance	**-380.8**	**-443.9**	**-459.3**	**-459.9**	**-402.3**	**-414.2**	**-523.2**	**-658.3**	**-747.6**
Previous Tealbook	*-380.8*	*-443.9*	*-459.3*	*-460.8*	*-400.3*	*-410.6*	*-492.9*	*-636.6*	*-739.3*
Current account as percent of GDP	-2.6	-3.0	-3.0	-2.8	-2.4	-2.4	-2.9	-3.5	-3.8
Previous Tealbook	*-2.6*	*-3.0*	*-3.0*	*-2.9*	*-2.4*	*-2.4*	*-2.7*	*-3.4*	*-3.8*
Net goods & services	-383.8	-494.7	-548.6	-536.8	-478.4	-508.3	-532.8	-669.6	-754.6
Investment income, net	132.3	185.7	229.0	211.4	208.5	226.9	159.7	164.5	160.2
Direct, net	257.7	288.0	298.6	281.6	290.9	295.6	254.9	300.7	365.4
Portfolio, net	-125.4	-102.3	-69.5	-70.2	-82.3	-68.7	-95.1	-136.1	-205.2
Other income and transfers, net	-129.3	-135.0	-139.8	-134.6	-132.4	-132.8	-150.1	-153.2	-153.2

Abbreviations

AFE	advanced foreign economy
BHC	bank holding company
BOC	Bank of Canada
BOE	Bank of England
BOJ	Bank of Japan
C&I	commercial and industrial
CMBS	commercial mortgage-backed securities
CPI	consumer price index
CRE	commercial real estate
Desk	Open Market Desk
DSGE model	dynamic stochastic general equilibrium model
ECB	European Central Bank
ECI	employment cost index
EFSF	European Financial Stability Facility
EME	emerging market economy
FOMC	Federal Open Market Committee; also, the Committee
FX	foreign exchange
GCF	General Collateral Finance
GDI	gross domestic income
GDP	gross domestic product
IMF	International Monetary Fund
JOLTS	Job Openings and Labor Turnover Survey
M&A	mergers and acquisitions
MBS	mortgage-backed securities
MERS	Middle East Respiratory Syndrome
OIS	overnight index swap
ON RRP	overnight reverse repurchase agreement
PCE	personal consumption expenditures

PMI	purchasing managers index
PRISM model	Philadelphia Research Intertemporal Stochastic Model
repo	repurchase agreement
SCOOS	Senior Credit Officer Opinion Survey on Dealer Financing Terms
SOMA	System Open Market Account
S&P	Standard & Poor's
TIPS	Treasury Inflation-Protected Securities