

Prefatory Note

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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

July 22, 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 basic dimensions of the economic situation are little changed from the time of the June Tealbook: After having averaged just 1 percent in the first half of this year, real GDP growth still looks poised to step up to an annual rate of 2 percent in the second half.¹ Second-half growth along those lines would be unimpressive but nonetheless sufficient to generate some further narrowing of the remaining gap between actual and potential output. Labor market conditions also continue to improve, with payroll employment running noticeably above the pace required to absorb new entrants into the workforce, and inflation continues to run well below the Committee's 2 percent objective.

We now project that real GDP will rise 2¼ percent in 2016 before edging down to 2 percent in 2017. This forecast is slightly weaker than in June, reflecting small changes to a number of conditioning assumptions—most notably, a higher exchange value of the dollar. All else being equal, the combination of the surprisingly low reading on the unemployment rate in June and the slight degradation in our forecast for aggregate demand would have led us to project no further decline in the unemployment rate over the forecast period, a projection that did not seem to balance the risks adequately in light of the significant and consistent declines seen over the past few years. Consequently, as we describe in greater detail later, we made sufficient adjustments to the supply side of the projection to bring the unemployment rate down to 5.1 percent in the fourth quarter of 2017.

As for inflation, we continue to foresee core inflation gradually moving up from 1.3 percent this year to 1.7 percent in 2017, as import prices turn back up, resource utilization tightens, and the effects of the earlier sharp declines in energy prices wane. The recent fall in crude oil prices damps headline inflation over the next few quarters relative to core, but we expect total PCE inflation to run roughly in line with core inflation next year and in 2017.

As always, numerous risks attend our outlook. We view the uncertainty around our projection for real GDP growth, the unemployment rate, and inflation as broadly in

¹ The BEA is scheduled to publish its initial estimate of second-quarter GDP along with its annual revision to the national income and product accounts on July 30, the day after the FOMC meeting.

Comparing the Staff Projection with Other Forecasts

The staff's projection for real GDP growth is somewhat lower than the most recent Blue Chip Consensus outlook (from early this month) and the median projection from the Survey of Professional Forecasters (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)		
July Tealbook	1.5	2.3
Blue Chip (7/10/15)	2.2	2.7
SPF median (5/15/15)	2.2	n.a.
Unemployment rate (Q4 level)		
July Tealbook	5.2	5.2
Blue Chip (7/10/15)	5.1	4.8
SPF median (5/15/15)	5.2	n.a.
Consumer price inflation (Q4/Q4 percent change)		
July Tealbook	.4	2.1
Blue Chip (7/10/15)	.9	2.3
SPF median (5/15/15)	.7	2.1
PCE price inflation (Q4/Q4 percent change)		
July Tealbook	.3	1.6
SPF median (5/15/15)	.8	1.9
Core PCE price inflation (Q4/Q4 percent change)		
July Tealbook	1.3	1.5
SPF median (5/15/15)	1.4	1.7

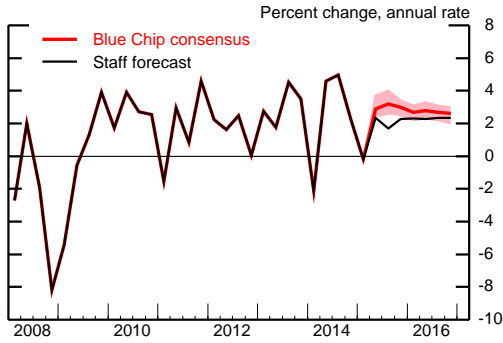
Note: SPF is the Survey of Professional Forecasters. Blue Chip does not provide results for PCE price inflation. The Blue Chip Consensus contains about 50 panelists, and the SPF about 40. Roughly 20 panelists contribute to both surveys.

n.a. Not available.

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

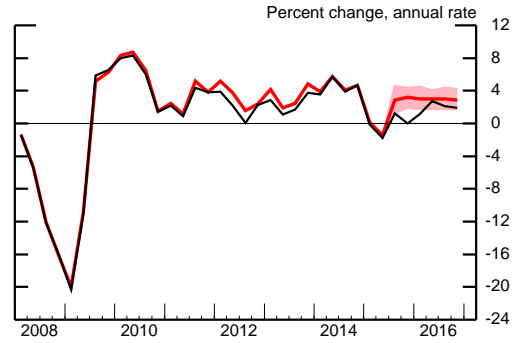
Tealbook Forecast Compared with Blue Chip
(Blue Chip survey released July 10, 2015)

Real GDP



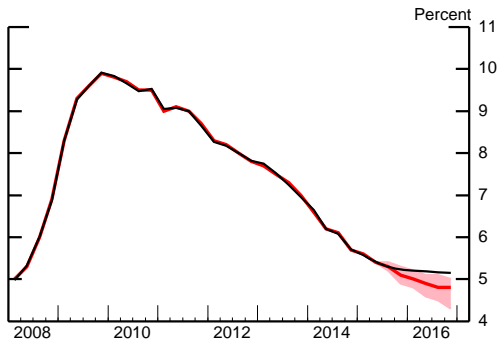
Note: The shaded area represents the area between the Blue Chip top 10 and bottom 10 averages.

Industrial Production

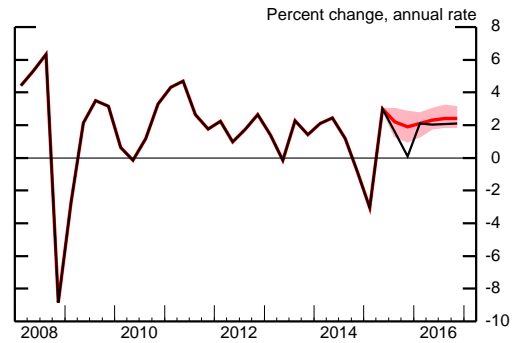


Note: Historical revisions to the IP data were published after the latest Blue Chip survey.

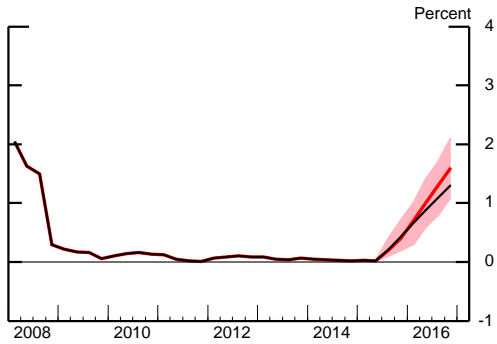
Unemployment Rate



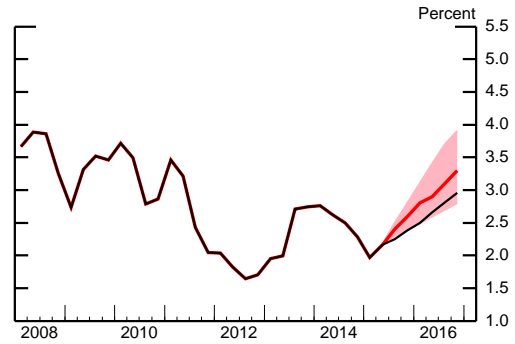
Consumer Price Index



Treasury Bill Rate



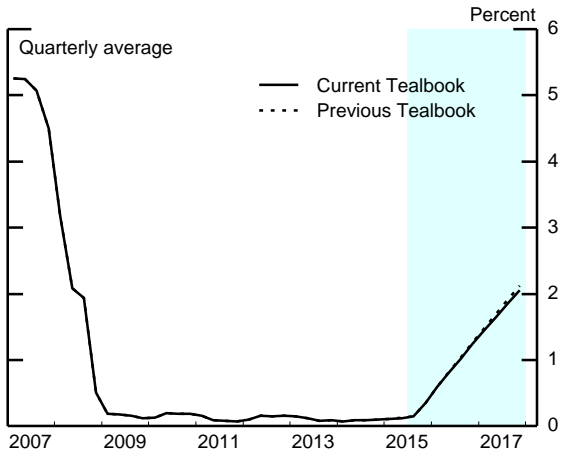
10-Year Treasury Yield



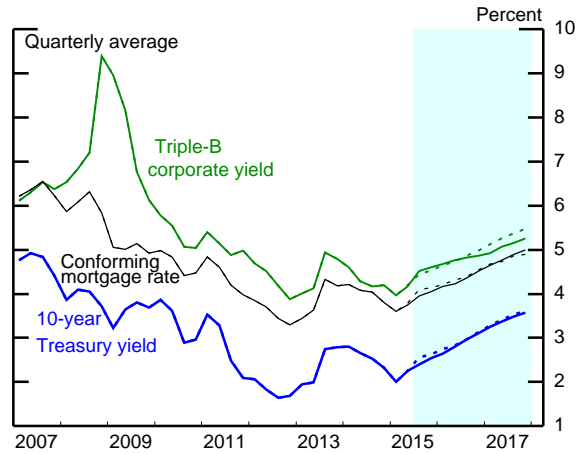
Note: The yield is for on-the-run Treasury securities. Over the forecast period, the staff's projected yield is assumed to be 15 basis points below the off-the-run yield.

Key Background Factors underlying the Baseline Staff Projection

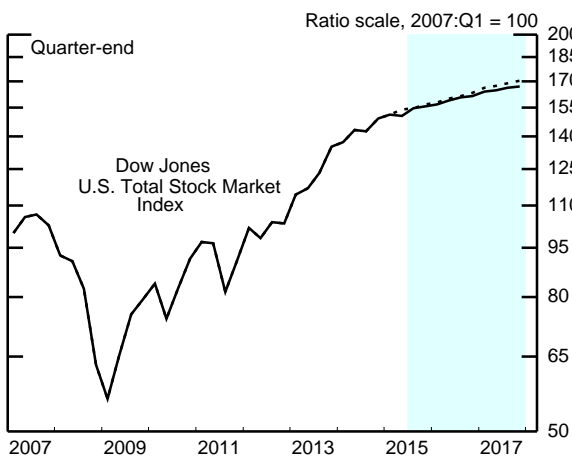
Federal Funds Rate



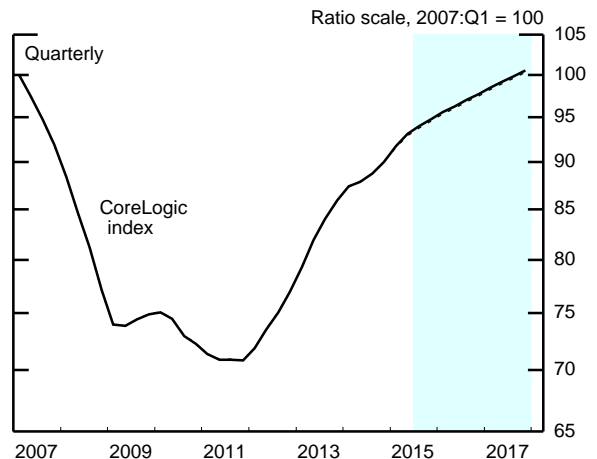
Long-Term Interest Rates



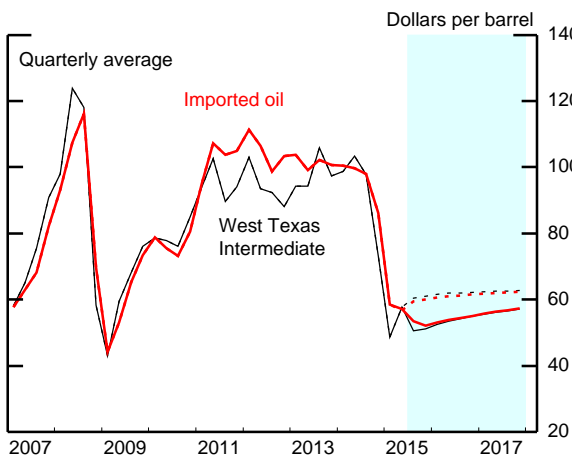
Equity Prices



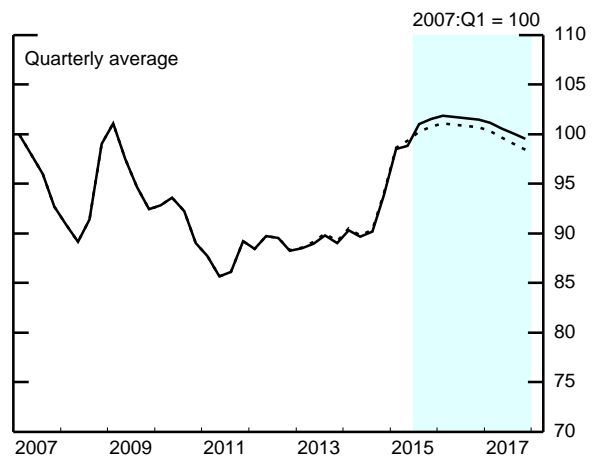
House Prices



Crude Oil Prices



Broad Real Dollar



line with the average over the past 20 years, a period that includes considerable volatility. We have maintained our assessment that the risks to our GDP projection are tilted somewhat to the downside, largely reflecting our view that neither monetary nor fiscal policy appears well positioned to offset large adverse shocks to the economy. By contrast, we still see the risks around our outlook for the unemployment rate as roughly balanced, as the downside risks to real activity are offset by the possibility that the unemployment rate could continue to decline more rapidly than we expect. Our concerns with respect to the inflation outlook remain mostly on the downside, given the still-muted readings on TIPS-based measures of inflation compensation and hints from surveys of a small decline in longer-term inflation expectations.

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 previous projections, the trajectory of the federal funds rate following liftoff is determined by the prescriptions of an inertial version of the Taylor (1999) policy rule. The projected path of the federal funds rate is similar to that in the June Tealbook, rising an average of about 20 basis points per quarter after liftoff and reaching an average of 2.1 percent in the fourth quarter of 2017.

Other Interest Rates

- The 10-year Treasury yield is little changed, on net, since the June Tealbook. As before, we expect this rate to increase significantly over the forecast period, reflecting both the movement of the 10-year valuation window through the period of extremely low short-term interest rates and an increase in the term premium toward its historically normal level.
- Similarly, we made only small adjustments to our projections for the 10-year triple-B corporate bond yield and 30-year mortgage rates.

Equity Prices and Home Prices

- We project stock prices to rise at an average pace of 4.2 percent per year. As in our previous forecast, we expect the equity risk premium to decline notably

over the next few years, consistent with the benign economic outlook in the staff forecast and the associated rise in 10-year Treasury yields.

- With the incoming data on house prices close to our expectations, we continue to expect house prices to rise about 5¼ percent in 2015 and then to decelerate to an average growth rate of 3 percent per year in 2016 and 2017. Our assessment is that house prices are not far out of line with their historical relationship to rents; we expect valuations to remain within the range predicted by this relationship over the medium term.

Fiscal Policy

- We have slightly downgraded our assessment of the fiscal position of state and local governments. The net hiring of these governments has stalled out this year, and proposed state government budgets for fiscal year 2016—which started on July 1 in most states—point toward somewhat less spending growth than expected. Moreover, the need to shore up pension funding appears likely to impose greater restraint on budgets in at least some states and localities than we had previously expected. Accordingly, we anticipate that the state and local sector will provide a bit less impetus to aggregate demand in this projection. Nonetheless, we continue to expect that fiscal policy actions at all levels of government will provide a small stimulus to GDP growth during the next few years.

Foreign Economic Activity and the Dollar

- We estimate that foreign real GDP growth remained subdued in the second quarter, rising at an estimated annual rate of 1¾ percent, which is ½ percentage point weaker than in our previous forecast. Much of the revision reflects a greater-than-expected decline in Canadian GDP, as drilling and mining investment in Canada has fallen sharply in response to lower oil prices. We continue to expect foreign GDP growth to step up to an annual rate of 3 percent by early next year and to remain at that pace over the rest of the projection period, supported by accommodative monetary policy abroad, depreciated currencies, and still-low oil prices.
- The broad nominal dollar is somewhat higher than expected in the June Tealbook. We project that the dollar will appreciate 1¾ percent further

through the remainder of 2015 as investors continue to focus on the divergence between monetary policies in the United States and abroad. Thereafter, the dollar is projected to weaken as monetary policy in several foreign economies begins to normalize and as downside risks to the economic expansion abroad diminish. Our forecast leaves the level of the broad real dollar up 1¼ percent at the end of 2017 relative to the previous Tealbook.

Oil Prices and Other Commodity Prices

- The spot price of Brent crude oil has fallen about \$8 per barrel since the time of the June Tealbook, and prices for futures contracts with delivery at the end of 2017 are down about \$6 per barrel. These declines reflect anxieties about global growth, continued strong oil production in the United States and OPEC, and improved prospects for Iranian oil exports related to the Iranian nuclear agreement. We expect the price of imported oil to move up from \$53 per barrel in the second half of this year to about \$57 per barrel by the end of 2017.
- Concerns about weak demand also weighed on metals prices, which moved down sharply in early July and remain depressed. In contrast, the forecast for agricultural prices is higher in response to weather-induced worries about supply, especially for corn and soybeans.

THE OUTLOOK FOR REAL GDP

Real GDP appears to have increased in the second quarter at an annual rate of about 2½ percent, supported in part by the reversal of some of the temporary factors that we think restrained activity in the first quarter.² Even so, GDP growth over the first half of the year looks to have averaged only about 1 percent at an annual rate, somewhat less than our estimate of potential growth. As in previous Tealbooks, we attribute much of this subdued performance to the effects of both the stronger dollar on net exports and the sharply lower oil prices on drilling and mining investment.

We continue to expect that the economy will expand at a moderate pace over the remainder of this year. The fundamentals underpinning household demand should

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.

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 July 21, 2015
Federal Reserve Bank		
New York	<ul style="list-style-type: none"> Factor-augmented autoregressions Factor-augmented autoregressions (financials only) New dynamic factor model 	1.9 2.0 2.1
Cleveland	<ul style="list-style-type: none"> Bayesian regressions with stochastic volatility Tracking model 	2.4 1.7
Atlanta	<ul style="list-style-type: none"> Tracking model combined with Bayesian vector autoregressions (VARs), dynamic factor models, and factor-augmented autoregressions (known as GDPNow) 	2.4
Chicago	<ul style="list-style-type: none"> Dynamic factor models Bayesian VARs 	2.1 3.1
St. Louis	<ul style="list-style-type: none"> Dynamic factor models News index model Let-the-data-decide regressions 	2.6 3.8 2.6
Minneapolis	<ul style="list-style-type: none"> Bayesian VARs 	1.6
Kansas City	<ul style="list-style-type: none"> Judgmental tracking model 	2.0
Board of Governors	<ul style="list-style-type: none"> Board staff's forecast (judgmental tracking model)¹ Dynamic factor models 	2.4 2.0
Memo: Median of Federal Reserve System nowcasts		2.1

1. The July Tealbook forecast, which incorporates data received after July 21, is also 2.4 percent.

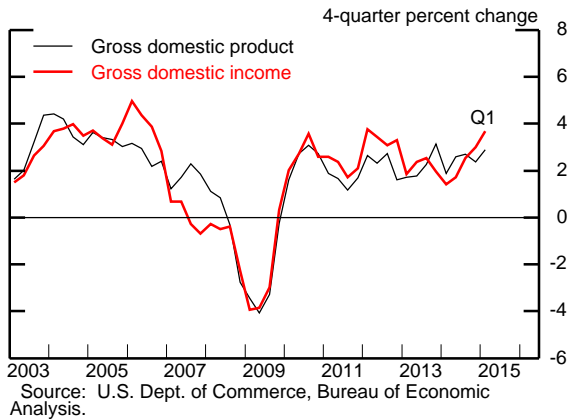
Summary of the Near-Term Outlook
(Percent change at annual rate except as noted)

Measure	2015:Q2		2015:Q3		2015:H2	
	Previous Tealbook	Current Tealbook	Previous Tealbook	Current Tealbook	Previous Tealbook	Current Tealbook
Real GDP	2.5	2.4	1.9	1.7	2.1	2.0
Private domestic final purchases	2.8	3.0	3.3	3.0	3.5	3.2
Personal consumption expenditures	2.8	2.8	3.4	2.9	3.4	3.1
Residential investment	11.3	8.4	6.8	5.8	6.5	5.4
Nonres. private fixed investment	1.0	2.5	2.0	2.6	2.8	2.9
Government purchases	1.3	1.1	.3	.2	.4	.4
<i>Contributions to change in real GDP</i>						
Inventory investment ¹	.1	-.1	-.1	-.1	-.2	.0
Net exports ¹	-.2	-.2	-.9	-.8	-.7	-.7
Unemployment rate²	5.5	5.4	5.4	5.3	5.3	5.2
PCE chain price index	1.9	2.0	1.4	1.2	1.3	.7
Ex. food and energy	1.6	1.7	1.5	1.4	1.4	1.4

1. Percentage points.
2. Percent; 2015:Q4 values are used for 2015:H2.

Recent Nonfinancial Developments (1)

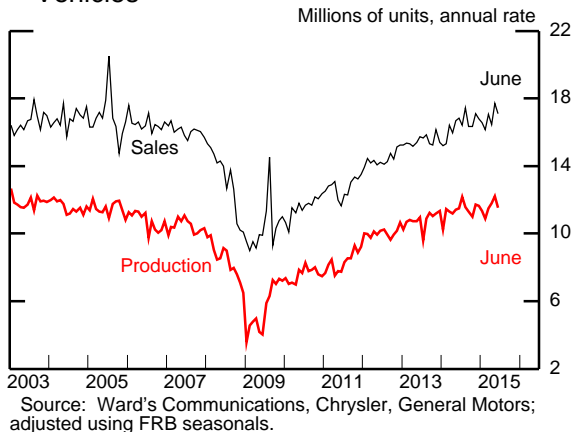
Real GDP and GDI



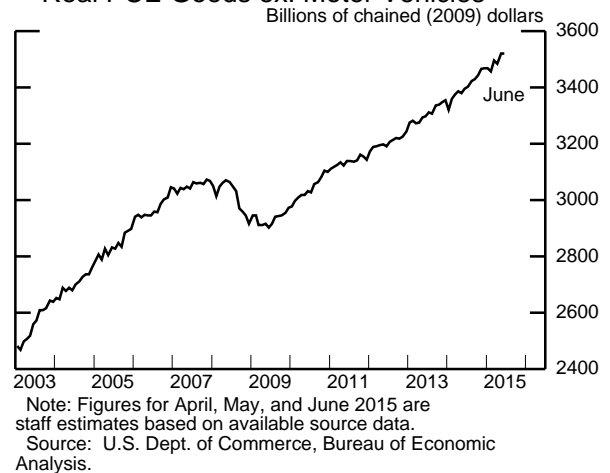
Manufacturing IP ex. Motor Vehicles and Parts



Sales and Production of Light Motor Vehicles

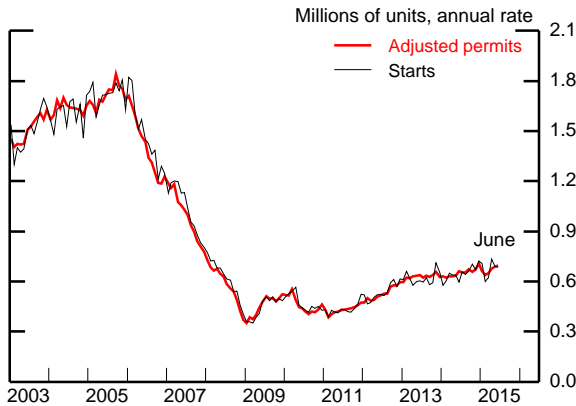


Real PCE Goods ex. Motor Vehicles



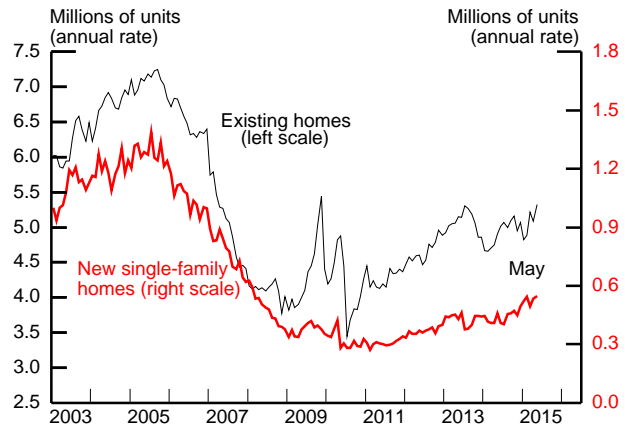
Recent Nonfinancial Developments (2)

Single-Family Housing Starts and Permits



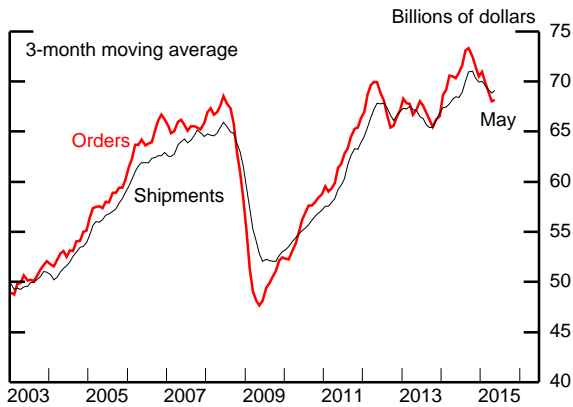
Note: Adjusted permits equal permit issuance plus total starts outside of permit-issuing areas.
Source: U.S. Census Bureau.

Home Sales



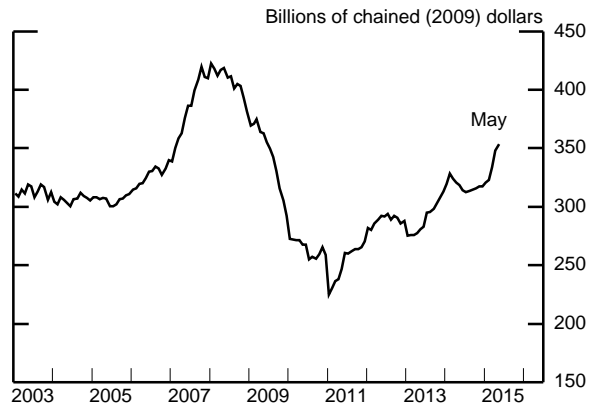
Source: For existing, National Association of Realtors; for new, U.S. Census Bureau.

Nondefense Capital Goods ex. Aircraft



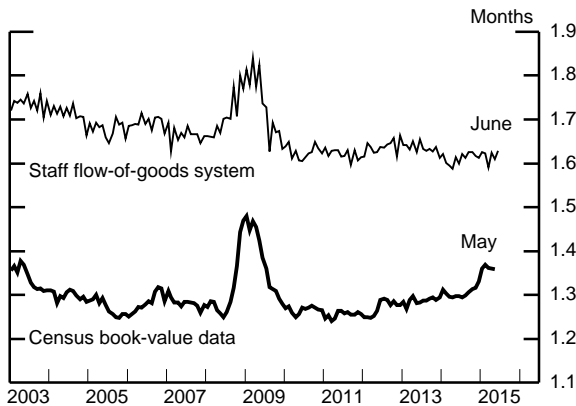
Source: U.S. Census Bureau.

Nonresidential Construction Put in Place



Note: Nominal CIPPI deflated by BEA prices through 2015:Q1 and by the staff's estimated deflator thereafter.
Source: U.S. Census Bureau.

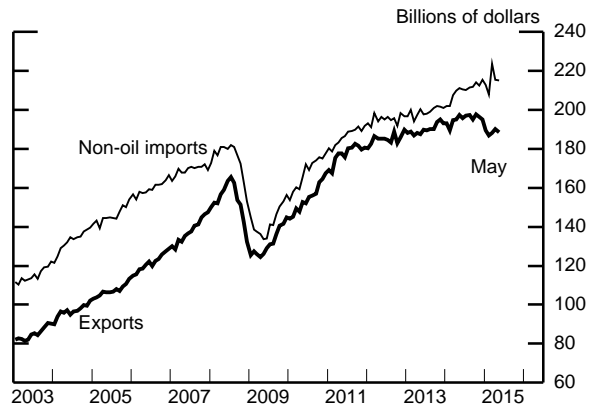
Inventory Ratios



Note: Flow-of-goods system inventories include manufacturing and mining industries and are relative to consumption. Census data cover manufacturing and trade, and inventories are relative to sales.

Source: U.S. Census Bureau; staff calculations.

Exports and Non-oil Imports



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

support continued solid growth in real PCE, and we anticipate that drilling and mining investment will bottom out relatively soon as the effects of the declines in oil prices recede. Thus, despite the likelihood that past dollar appreciation will continue to weigh on net exports in coming quarters, we expect real GDP growth to average 2 percent at an annual rate in the second half of this year.

- After having averaged 2½ percent in the first half of the year, real PCE growth is projected to step up to a 3 percent pace in the second half, supported by robust real DPI growth, a high wealth-to-income ratio, and upbeat consumer sentiment. That said, the June reading on retail sales was weaker than we expected, and we have lowered our projection by a few tenths relative to our previous forecast.
- The decline in oil prices over the past year has resulted in a sharp drop in drilling and mining investment that we now estimate reduced real GDP growth in the first half of the year by nearly ¾ percentage point, on average, a slightly bigger drag than in our June projection. We expect the declines in drilling and mining investment to slow markedly over the second half of the year, consistent with the recent bottoming out in the weekly data on rig counts.
- Outside of drilling and mining, investment in nonresidential structures has been moving up at robust clip over the past year. Construction spending growth in May is estimated to have been considerably stronger than we had expected, and spending in previous months was revised up. We took some signal from the strong incoming data and marked up our projection for nondrilling structures investment by a moderate amount throughout the medium term.
- We estimate that net exports subtracted 1 percentage point from real GDP growth, on average, in the first half of the year. Given the effects of the earlier appreciation of the dollar, we expect the drag on growth from net exports to be only a little smaller in the second half—roughly ¾ percentage point on average. This projection is little changed from the June Tealbook.

- Total industrial production declined 1 percent at an annual rate in the first half of the year.³ We continue to think that manufacturing output was restrained earlier this year by 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 sharp declines in drilling activity and the stronger exchange value of the dollar). We expect manufacturing production to rise in the second half of the year, though only at a subdued pace, consistent with the recent readings of the national and regional manufacturing surveys.

In broad-brush terms, the medium-term GDP projection is much the same as it was in the June Tealbook: We continue to expect the pace of real GDP growth to average roughly $2\frac{1}{4}$ percent over the forecast period, $\frac{3}{4}$ percentage point faster than potential GDP growth. Accommodative monetary policy (even though progressively less so) plays the key role in our projection in helping to support above-trend growth. Our forecast for real GDP is more subdued than that of many outside analysts. The reason for this difference, in part, may be because we expect a larger and more prolonged drag on domestic activity from the appreciation of the dollar over the past 12 months.

Turning up the magnification on the microscope, our current forecast for the *level* of real GDP at the end of 2017 is revised down $\frac{1}{4}$ percent in light of the slightly stronger path for the exchange value of the dollar, slightly weaker foreign output growth, and the somewhat downgraded assessment of the fiscal position of state and local governments. These effects are partly offset by the lower path of oil prices in this projection.

THE OUTLOOK FOR THE LABOR MARKET AND AGGREGATE SUPPLY

The incoming data indicate that labor market conditions have continued to improve, although a bit less quickly on the whole than we had anticipated in the June Tealbook.

³ The Board published its annual revision to the index of industrial production and related measures of capacity utilization on July 21. Taking on board newly available source data, total IP is now estimated to have returned to its pre-recession peak in May 2014, seven months later than was stated previously. In addition, capacity utilization rates for total industry and for manufacturing are now lower than reported earlier; the operating rate for manufacturing in June 2015 is now 75.8 percent, a rate 1.4 percentage points below its previous estimate and 2.7 percentage points below its long-run (1972–2014) average.

- Payroll employment growth averaged 220,000 per month in the second quarter, about 20,000 less than we expected in the June Tealbook but still a solid pace. Most of the shortfall relative to our forecast was in employment at local governments.
- The unemployment rate declined 0.2 percentage point in June—one-tenth more than we had expected—putting it at 5.3 percent. However, the labor force participation rate also declined more than we had expected, to 62.6 percent, and as a result, the employment-to-population ratio edged down.
- Going forward, we have made only minor adjustments to our near-term forecast. We expect payroll employment gains to average 210,000 per month in the second half of the year. In addition, we expect the unemployment rate to edge down to 5.2 percent by the fourth quarter, one-tenth lower than in the June Tealbook. And we project the participation rate to average 62.7 percent in the fourth quarter, unrevised from June.

Had we made no other adjustments, the June decline in the unemployment rate, combined with the slightly weaker prospects for the growth of real GDP, would have led us to project no further reduction in the unemployment rate between June and the end of 2017—an outcome that would not, in our judgment, have balanced the risks around the unemployment rate forecast.⁴ We therefore made two small changes to our supply-side assumptions (in advance of a more comprehensive reassessment following receipt of the annual revision to the national income and product accounts).

- We now assume that the natural rate of unemployment continued to edge down through the end of last year rather than flattening out around midyear, as in our previous projection. As a result, the natural rate is now projected to be 5.1 percent through the projection period, 0.1 percentage point lower than in the June Tealbook. We were encouraged to make a minor adjustment in this direction by some recent research suggesting that, despite an outward shift in

⁴ The June forecast showed the unemployment rate ending 2017 at 5.2 percent; the weaker GDP performance in this forecast, all else being equal, would have caused that figure to revise up to 5.3 percent, the same as the actual reading in June.

the Beveridge curve, the natural rate may nonetheless be unchanged from or lower than prior to the recession.⁵

- We also trimmed our assumption for the growth of potential GDP by about 0.1 percentage point per year. This adjustment reflected two partly offsetting changes:
 - On the downside, we took a bit of forward signal from the recent disappointing U.S. productivity performance and cut our forecast of structural productivity growth $\frac{1}{4}$ percentage point per year to $1\frac{1}{2}$ percent per year, roughly its average pace from 2005 to 2014. (For a more optimistic interpretation of productivity developments, see the box “The Recent Slowing in High-Tech Equipment Price Declines.”)
 - On the upside, we incorporated slightly stronger projections for population growth from 2015 to 2017.
- With downward revisions to both aggregate demand and aggregate supply, the GDP gap in this projection is unrevised from the June Tealbook and is closed by the end of 2017.

Given all of these adjustments, the medium-term outlook for the labor market is little changed relative to our previous forecast.

- We expect monthly payroll gains to slow to 170,000 in 2016 and 140,000 in 2017, much as in the June Tealbook.
- The unemployment rate is projected to edge down from 5.3 percent in the current quarter to 5.1 percent by the end of 2017, one-tenth lower than in the June forecast despite the slightly weaker growth of actual real GDP. (For

⁵ See the June 8, 2015, FEDS Notes article titled “The Labor Share of Income and Equilibrium Unemployment,” by Andrew Figura and David Ratner, www.federalreserve.gov/econresdata/notes/feds-notes/2015/labor-share-of-income-and-equilibrium-unemployment-20150608.html. Another important factor putting downward pressure on the unemployment rate is demographic changes to the labor force, which has been a feature of our estimate and projection of the natural rate for some time. For an analysis of the effect of demographics on the natural rate, see Daniel Aaronson, Luojia Hu, Arian Seifoddini, and Daniel G. Sullivan (2015), “Changing Labor Force Composition and the Natural Rate of Unemployment,” Federal Reserve Bank of Chicago, Chicago Fed Letter, no. 338, May 8, <https://www.chicagofed.org/publications/chicago-fed-letter/2015/338>.

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	.6	1.5	1.6	1.6
Previous Tealbook	3.1	3.4	2.6	1.7	1.6	.5	1.6	1.7	1.7
<i>Selected contributions¹</i>									
Structural labor productivity ²	1.6	2.9	2.8	1.5	1.2	.5	1.3	1.4	1.4
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	.5	.5	.5
Structural hours	1.5	1.0	.7	.2	.7	.8	.5	.4	.4
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	-1.0	-.4	.1

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.

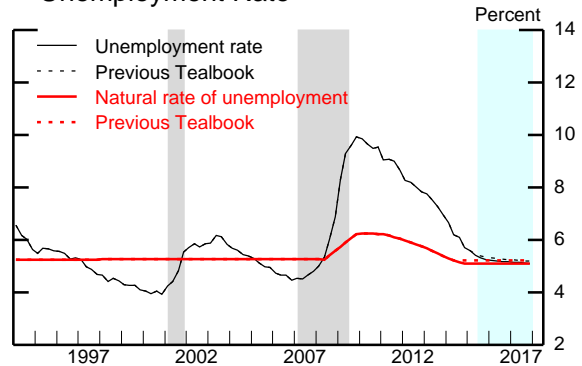
1. Percentage points.
2. Total business sector.
3. Percent difference between actual and potential GDP in the final quarter of the period indicated. A negative number indicates that the economy is operating below potential.

GDP Gap



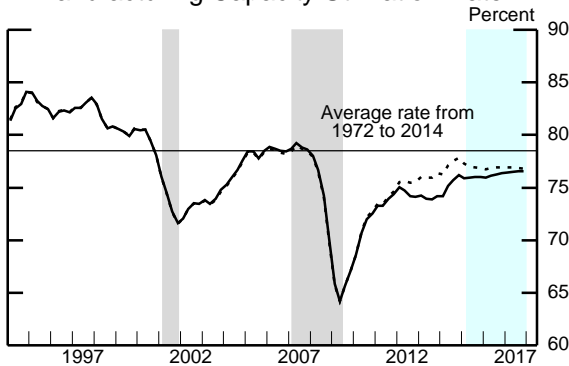
Note: The GDP gap is the percent difference between actual and potential GDP; a negative number indicates that the economy is operating below potential.
Source: U.S. Department of Commerce, Bureau of Economic Analysis; staff assumptions.

Unemployment Rate



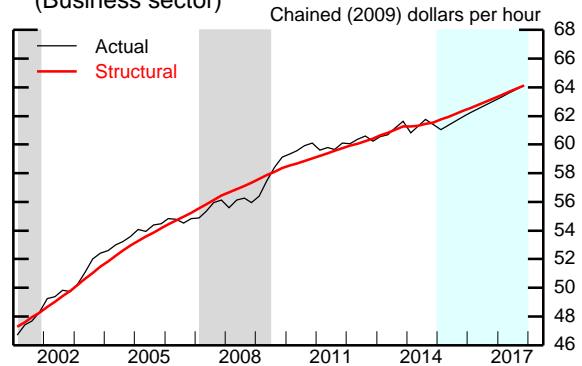
Source: U.S. Department of Labor, Bureau of Labor Statistics; staff assumptions.

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.

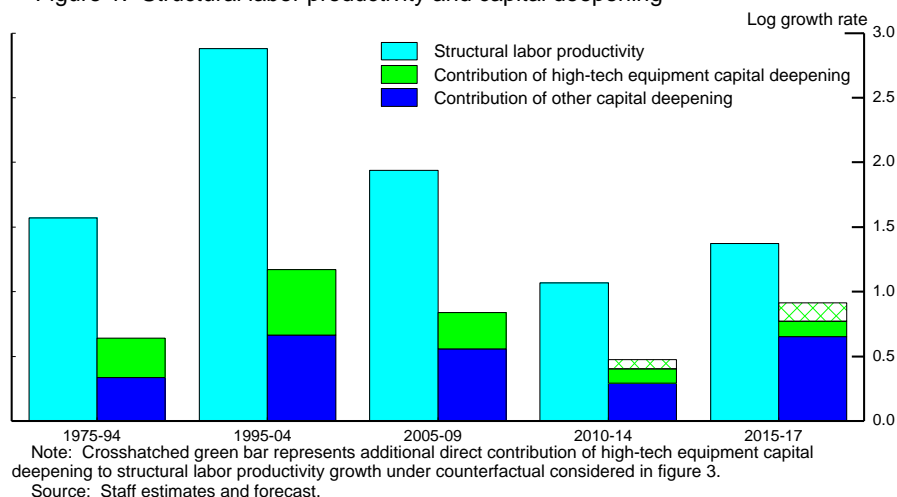
The Recent Slowing in High-Tech Equipment Price Declines

The marked step-down in the staff’s estimate of structural labor productivity growth from 2 percent per year between 2005 and 2009 to 1 percent between 2010 and 2014 partly reflects a shrinking contribution from high-tech capital deepening (figure 1).¹ The slowing of measured real investment in high-tech equipment is largely attributable to a slackening in the pace of computer price declines in the NIPAs (figure 2). However, recent research suggests that measured computer investment prices have increasingly suffered from biases that have attenuated the estimated pace of declines.² These biases have not led to a material understatement of measured growth of real GDP or productivity in recent years, as these computers are now largely imported. However, they imply that high-tech capital accumulation has been understated, which, depending on the implications for multifactor productivity (MFP), may signal a stronger outlook for structural productivity growth.

Import substitution bias. The BEA deflates computer investment with an average of BLS price indexes for domestic producer prices (PPI) and import prices (IPI) (also shown in figure 2). This method may capture the broad trends in domestic and import prices, respectively, but it omits the discount associated with businesses *shifting* their purchases from domestic to imported equipment; that discount has been estimated to be 20 percent or more. The effect of this omission has been acute in recent years, as import penetration for computer investment jumped from 40 percent in 2009 to 90 percent by 2011, a development that coincides with the slowing of the declines in high-tech prices.

New goods bias. After a new category of equipment appears in the marketplace, prices often decline rapidly for items in that category as adoption rises quickly, so a delay in the inclusion of such products in price indexes can overstate price inflation. For example, tablet personal computers (PCs) appeared in 2010 but were not introduced in the IPI until

Figure 1. Structural labor productivity and capital deepening



¹ High-tech equipment consists of computers and related equipment, communication equipment, electro-medical equipment, instruments, photocopiers, and other office equipment in the NIPAs.

² See David Byrne and Eugenio Pinto (2015), “The Recent Slowdown in High-Tech Equipment Price Declines and Some Implications for Business Investment and Labor Productivity,” FEDS Notes, March 26.

late 2012, when they already accounted for one-fourth of the PC market. Because tablet PCs are largely imported, this delay likely led to an understatement of import price declines.

Quality-adjustment bias. When a new model enters the PPI or IPI samples, the BLS adjusts the item’s price to account for the estimated value of any new or improved features. These adjustments are intended to provide an “apples to apples” comparison with similar models already in the index. However, in the case of imports, often too little detailed information is provided by survey respondents to allow for a proper adjustment. Consequently, the IPI tends to fall more slowly as new waves of imported goods are treated as more expensive than the imports they succeed rather than as more feature rich. The recent sharp shift toward imports has likely further slowed the pace of declines in the investment price index (as shown in figure 2).

The magnitudes of these biases are unknown, but if the five-year average inflation rate for high-tech capital had held steady at the rate observed in 2009, as shown in figure 3, overall real nonresidential private fixed investment would have been 2½ percent higher. The greater high-tech capital deepening would be equivalent to 0.3 percent on the level of structural productivity at the end of 2014 and would raise its growth rate 0.1 to 0.2 percentage point per year between 2015 and 2017 (see the crosshatching in figure 1).

The outlook for MFP is more uncertain. Because the measurement difficulties are centered on imports, overall labor productivity has been largely unaffected by these biases, and greater capital accumulation in recent years would have been offset by an overstatement of measured MFP growth. Extrapolating forward, that may imply weaker future MFP growth as well. On the other hand, MFP growth has historically been positively correlated with *earlier* gains in capital deepening. (For example, Paul David famously noted that the transition from the steam engine to the electric dynamo spawned decades of process renovation, as shop floors were reengineered to take full advantage of the new technology.) This positive correlation suggests that structural productivity growth could be boosted by higher trend MFP growth as investments in business processes and other intangible capital are undertaken to complement investments in high-tech capital.

Figure 2. Computer equipment price index

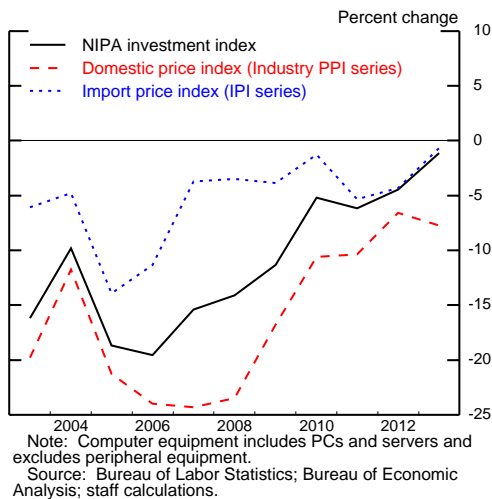
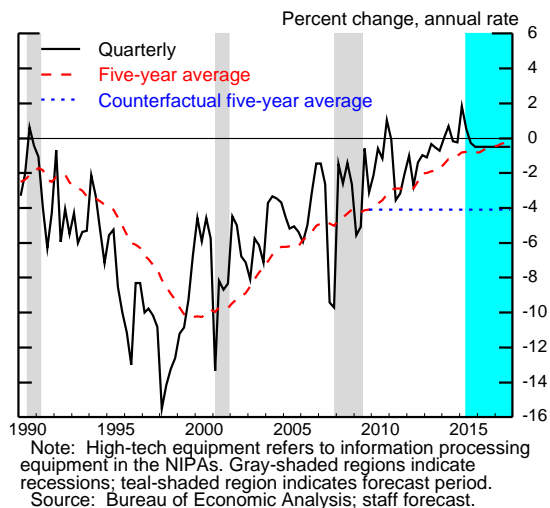


Figure 3. High-tech equipment prices



further discussion, see the box “Employment and Unemployment in the Staff Projection.”)

- In our accounting, the output gap represents the most comprehensive measure of resource utilization. At the moment, we see the unemployment rate gap as understating the amount of slack remaining in the economy. In particular, we estimate that, in the current quarter, output is 1¼ percent below potential, while the unemployment rate is only 0.2 percentage point above our estimate of its natural rate. In contrast, a dynamic simulation of Okun’s law would imply an unemployment rate gap of 0.5 percentage point.
 - In our analysis, the Okun’s law error reflects three additional sources of cyclically abnormal weakness. First, the labor force participation rate is below our estimate of its trend by more than one would expect based on its usual relationship with the GDP gap. Second, the level of involuntary part-time employment is unusually high. Third, productivity currently lies well below our estimate of its trend.
 - As the economy continues to improve, we expect the unemployment rate to decline further. But in addition, we anticipate more individuals to be drawn into the labor market and the rate of involuntary part-time employment to move down, in both cases by more than the cyclically normal amount. We also expect productivity to move up to its trend over the projection period.
 - Together, the behavior of the labor force participation rate, involuntary part-time employment, and productivity should attenuate the decline in the unemployment rate relative to the improvement in the output gap. By design, at the end of the medium term, the output and unemployment gaps are back in normal cyclical alignment.

THE OUTLOOK FOR INFLATION

Headline PCE prices are expected to increase at an annual rate of 1.2 percent in the third quarter and only 0.2 percent in the fourth. The dip in inflation late in the year occurs as the recent fall in crude oil prices passes through into retail energy prices and as currently elevated gasoline margins decline. Core PCE prices are estimated to have risen 1.7 percent in the second quarter but are projected to rise a bit more slowly in the second

half. This pattern is mainly due to residual seasonality that we think boosts core PCE inflation in the second quarter and holds it down some in the third quarter and a bit more in the fourth.

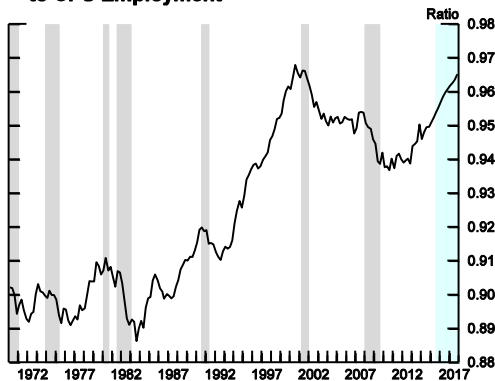
- Our forecast for total PCE inflation in the second half of 2015 is 0.6 percentage point lower than in our June projection, reflecting the downward surprise in crude oil prices.
- Consumer food prices declined modestly during the first half of the year but—consistent with available readings from futures markets—still are projected to accelerate by the end of this year to a pace that is roughly in line with core PCE inflation.
- The most recent readings on core inflation have come in about as expected, and our forecast for core PCE inflation for the remainder of the year is essentially unchanged from June.
- Core import prices appear to be stabilizing. After declining at an annual rate of 4.4 percent in the first quarter, core import prices are estimated to have declined 3 percent in the second quarter—1 percentage point less negative than in the June Tealbook. For the second half of 2015, we expect these prices to decline only 0.8 percent at an annual rate. With the dollar peaking early next year and foreign CPI inflation picking up, core import price inflation is expected to turn positive by the start of 2016 and to move up to 1.4 percent in 2017.
- Readings on longer-term inflation expectations have changed little over the intermeeting period. That said, some of these measures seem to have edged down during the past handful of years. Although none of these changes are large, collectively they suggest a downside risk to our maintained assumption that expectations will remain well anchored.
 - The median estimate of expected inflation over the next 5 to 10 years from the Michigan Surveys of Consumers has averaged 2.7 percent so far this year. This level is a touch lower than the average annual readings on this measure over the past several years, which have bounced between 2.8 percent and 2.9 percent. Going back to 2007 and

Employment and Unemployment in the Staff Projection

In the current staff projection, payroll employment gains are expected to average 165,000 per month through the end of 2017. During this same period, we project that the unemployment rate will edge down only 0.2 percentage point to 5.1 percent. These two projections may appear at odds, as the pace of payroll gains may seem to point to a considerably steeper decline in the unemployment rate. Here we highlight two aspects of the staff’s labor market outlook that help reconcile the healthy pace of payroll gains with the nearly flat unemployment rate projection. First, as shown in figure 1, we project payroll employment to rise faster over the forecast period than employment as measured in the current population survey (CPS), similar to the pattern observed in most previous periods of economic expansion. Second, we expect that, as the labor market tightens, the labor force participation rate will move back towards its (declining) trend over the projection period, which will attenuate the decline in the unemployment rate.

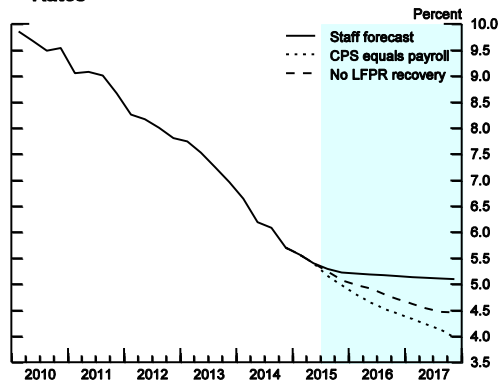
As shown in figure 1, the ratio of payroll employment to CPS employment has been trending upward over time and tends to be pro-cyclical. Several factors help explain the movements in payroll employment relative to CPS employment. The payroll survey is limited to nonfarm wage and salary jobs, which have been rising as a share of total employment, while groups outside the scope of the payroll survey have seen their shares declining; these groups include self-employed individuals, private household workers, and farm workers. Other factors contributing to the rise in payroll employment relative to CPS employment during expansions include increases in short-duration jobs, which are less likely to be reported to the CPS, and decreases in “off the books” jobs, which are not captured by the payroll survey. Finally, the CPS counts employed individuals, while the payroll survey counts jobs; implicitly, our forecast assumes an increase in multiple job holding that could be associated with a reduction in CPS respondents reporting themselves as working part time for economic reasons.

Figure 1: Ratio of Payroll Employment to CPS Employment



Note: CPS employment is adjusted in history for revisions to population controls and changes to survey design. Gray shaded regions represent recessions as defined by the NBER. Teal shaded region represents staff forecast.
Source: Bureau of Labor Statistics, Department of Labor and staff forecast.

Figure 2: Counterfactual Unemployment Rates



Note: “CPS equals payroll” shows a counterfactual projection for the unemployment rate assuming that CPS employment increases at the same rate as payroll employment. “No LFPR recovery” shows a counterfactual projection for the unemployment rate assuming no cyclical rebound in the labor force participation rate. Teal shaded region represents staff forecast.
Source: Bureau of Labor Statistics, Department of Labor and staff forecast.

The staff's projection of a further increase in the ratio of payroll employment to CPS employment is consistent with recent historical experience. However, to isolate the influence of this aspect of our projection on the evolution of the unemployment rate, we show in figure 2 a counterfactual thought experiment in which CPS employment increases at the same rate as the number of payroll jobs but all other details of the staff's projection (including monetary policy) are unchanged from the baseline. In particular, we assume—unrealistically—that the labor force is the same as in the baseline so that the faster gains in CPS employment in this experiment are matched by faster declines in the number of unemployed individuals. Under these assumptions, the unemployment rate falls 1¼ percentage points by the end of 2017 (dotted line) rather than the ¼ percentage point decline shown in the current baseline forecast (solid line).

The second relevant aspect of the staff labor market projection is the behavior of labor force participation. From 2010 to 2013, the labor force participation rate fell more than would have been expected given our assessment of its trend and its usual behavior over the business cycle. One possible explanation for this unusual weakness in the participation rate is that the severity of the Great Recession and, especially, the sluggishness of the recovery resulted in an extended period of especially poor job prospects that induced some individuals to drop out of the labor force and others to not enter.

More recently, however, the participation rate has been moving sideways, which, when viewed against its declining (demographically driven) trend, suggests that the ongoing tightening in labor market conditions has begun to draw individuals back into the labor force. Indeed, the flattening of the participation rate since early 2014 reflects a marked increase in the transition rate from out of the labor force to employment. Going forward, we expect more individuals to be drawn back into the labor force as job prospects continue to improve and wage gains pick up, which will slow the decline in participation relative to its trend.

As a second illustrative counterfactual, we maintain the staff's forecast for CPS employment but assume that the participation rate declines from its level in 2015:Q2 at its trend pace of 0.3 percentage point per year. Thus, in contrast to the staff's projection, this counterfactual assumes no cyclical improvement in participation. In this case, as shown by the dashed line in figure 2, the unemployment rate would decline nearly ¾ percentage point more than in the baseline projection.

2008, the average reading was 3.0 percent, though that may have reflected some sensitivity to energy price increases.

- The 10-year-ahead median expectation for PCE inflation among respondents to the Survey of Professional Forecasters was 2 percent in 2015:Q2—essentially the same as it has been for the past two years—while the median 5-year-forward measure from this survey has drifted down roughly 25 basis points since the beginning of this decade.
- TIPS-based measures of longer-term inflation compensation are little changed, on balance, since the June Tealbook, but they remain below levels that prevailed until last summer.

We project that core PCE price inflation will rise from 1.3 percent this year to 1.5 percent next year and 1.7 percent in 2017, as import prices turn back up, the effects on core inflation of the 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.

- The slight downward revision to our medium-term forecast for core PCE price inflation in this forecast reflects two influences: First, we have assumed, to a greater extent than before, that the slowdown in health-care services prices during the past few years will persist. Second, the downward revision to energy price inflation during the second half of this year passes through with a small coefficient into core inflation next year. Together, these influences shave one-tenth off our projection for core inflation in both 2016 and 2017.

We received little information about labor compensation during the intermeeting period and continue to expect a modest pickup going forward.

- Average hourly earnings increased 2 percent over the 12 months ending in June, $\frac{1}{4}$ percentage point less than we projected in the previous Tealbook.
- As labor markets tighten further over the forecast period, we expect the increases in the productivity and cost measure of compensation to step up

from about 2½ percent last year to 2¾ percent this year and to 3¼ percent in 2016 and 2017.

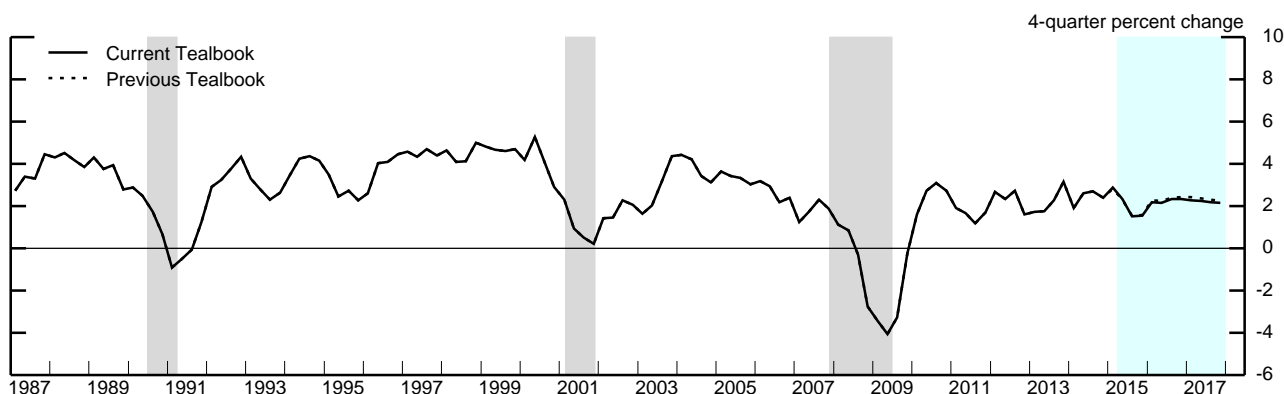
THE LONG-TERM OUTLOOK

- 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 funds rate rises further after 2017 and reaches its long-run value by 2020.
- As monetary policy tightens sufficiently to reverse a slight overshooting of output relative to its potential, real GDP growth slows to 1.7 percent in 2019 before gradually returning to its long-run growth rate of 1.9 percent. The unemployment rate remains close to its natural rate of 5.1 percent.
- PCE price inflation remains below the Committee's long-run objective at the end of 2017. The slight overshooting of output relative to potential speeds the convergence of inflation to the 2 percent objective.

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	1.5	1.1	2.0	2.3	2.1
Previous Tealbook	2.4	1.6	1.0	2.1	2.4	2.2
Final sales	2.4	1.5	.9	2.0	2.4	2.5
Previous Tealbook	2.4	1.5	.8	2.3	2.6	2.6
Personal consumption expenditures	2.9	2.8	2.5	3.1	3.3	2.7
Previous Tealbook	2.9	2.9	2.3	3.4	3.3	2.7
Residential investment	2.5	6.4	7.4	5.4	11.6	6.9
Previous Tealbook	2.5	7.6	8.8	6.5	12.0	8.0
Nonresidential structures	6.5	-5.5	-11.8	1.3	.8	1.4
Previous Tealbook	6.5	-7.3	-13.8	-3	.2	.3
Equipment and intangibles	6.1	3.6	4.0	3.3	4.2	3.3
Previous Tealbook	6.1	3.4	3.0	3.7	4.6	3.6
Federal purchases	.2	-.8	-.5	-1.0	-1.1	-1.0
Previous Tealbook	.2	-1.1	-.8	-1.4	-1.2	-.8
State and local purchases	1.2	1.0	.7	1.3	1.6	1.9
Previous Tealbook	1.2	1.3	1.0	1.5	2.0	2.2
Exports	2.4	-.3	-1.5	.9	1.1	3.0
Previous Tealbook	2.4	-.1	-1.5	1.3	1.3	3.2
Imports	5.6	5.5	5.5	5.5	6.0	3.7
Previous Tealbook	5.6	5.5	5.2	5.8	5.7	3.7
Contributions to change in real GDP (percentage points)						
Inventory change	.0	.1	.2	.0	-.1	-.3
Previous Tealbook	.0	.0	.2	-.2	-.1	-.3
Net exports	-.6	-.9	-1.1	-.7	-.8	-.2
Previous Tealbook	-.6	-.9	-1.0	-.7	-.8	-.2

Real GDP

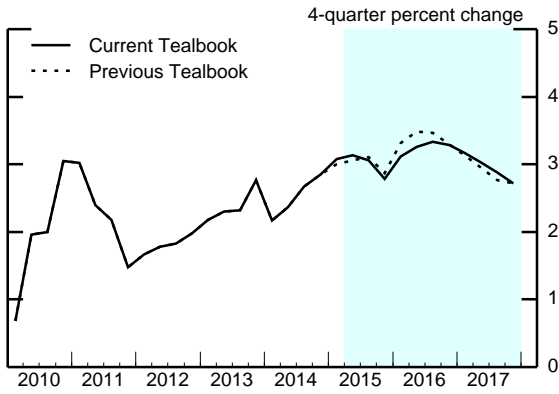


Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

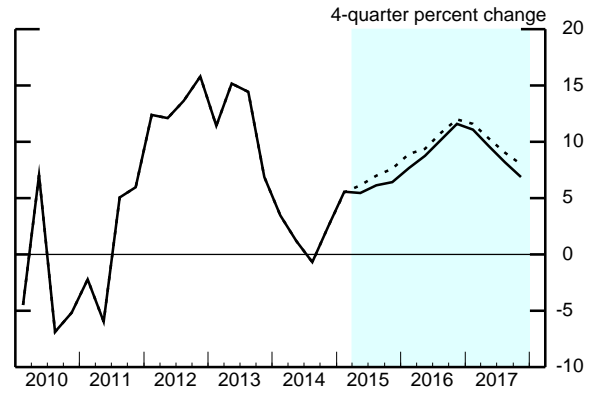
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Components of Final Demand

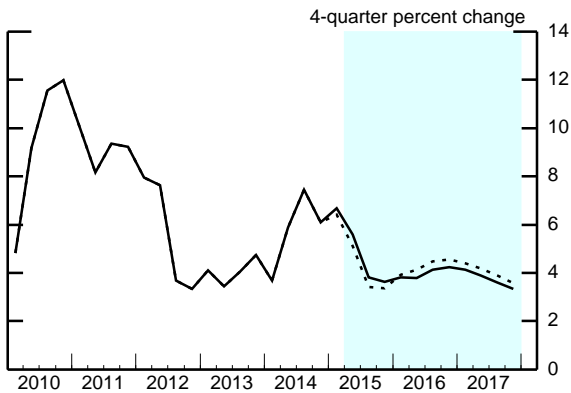
Personal Consumption Expenditures



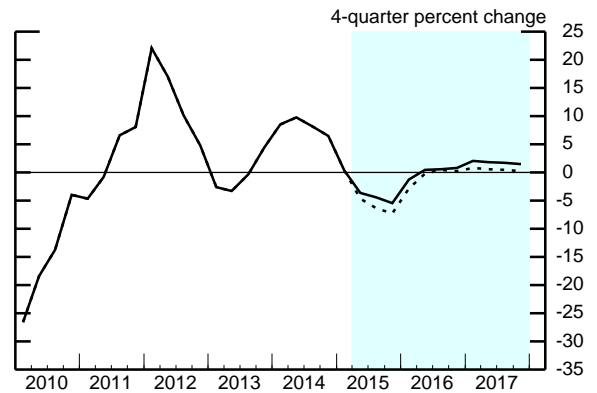
Residential Investment



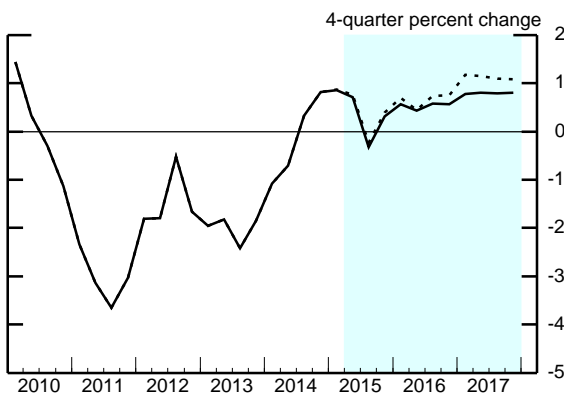
Equipment and Intangibles



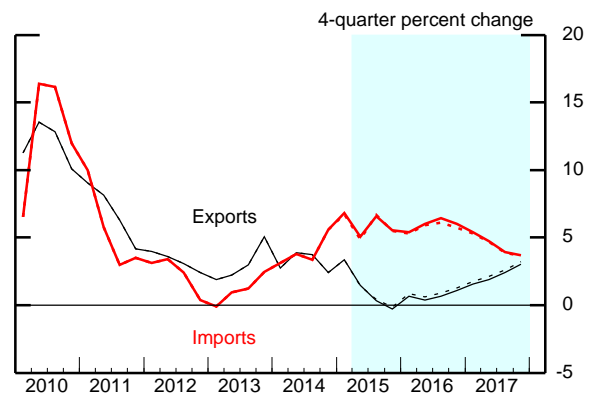
Nonresidential Structures



Government Consumption & Investment



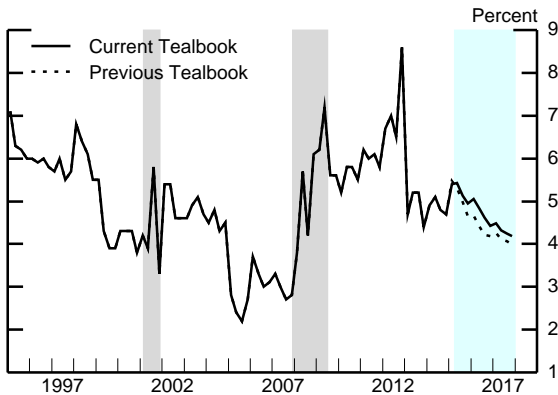
Exports and Imports



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

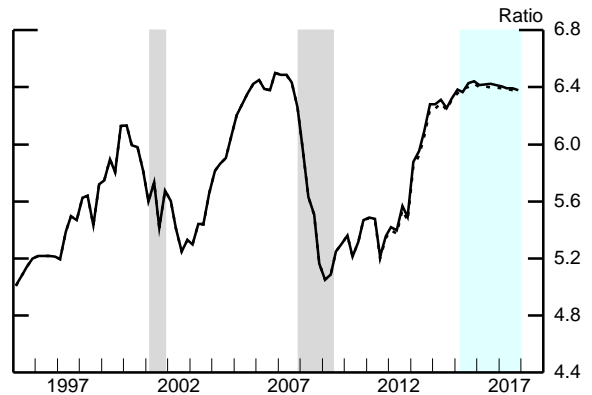
Aspects of the Medium-Term Projection

Personal Saving Rate



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

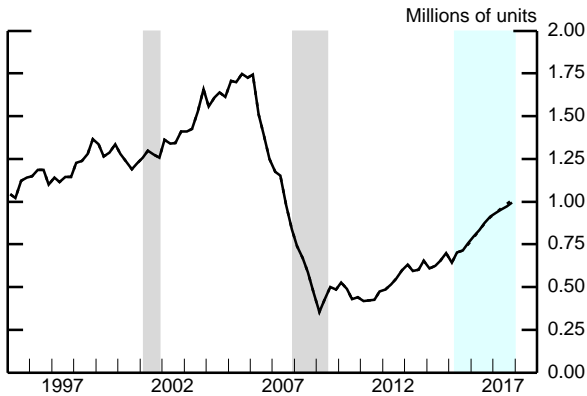
Wealth-to-Income Ratio



Note: Ratio of household net worth to disposable personal income.

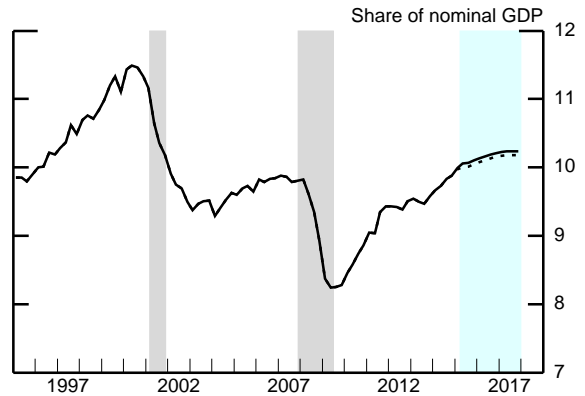
Source: For net worth, Federal Reserve Board, Financial Accounts of the United States; for income, U.S. Dept. of Commerce, Bureau of Economic Analysis.

Single-Family Housing Starts



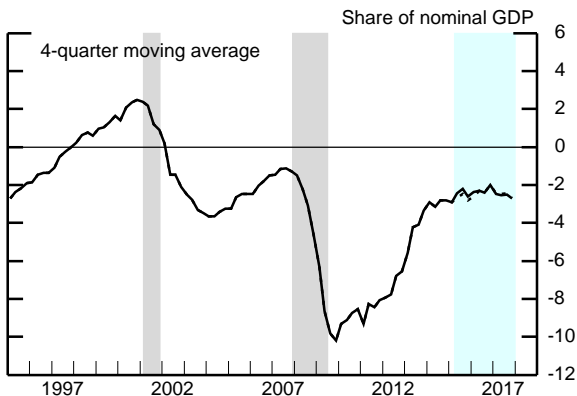
Source: U.S. Census Bureau.

Equipment and Intangibles Spending



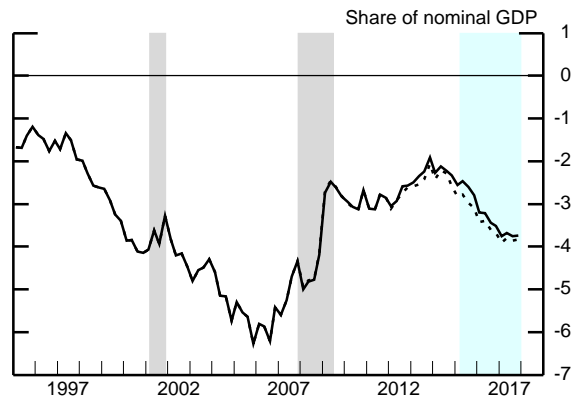
Source: U.S. Dept. of Commerce, Bureau of Economic Analysis.

Federal Surplus/Deficit



Source: Monthly Treasury Statement.

Current Account Surplus/Deficit



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.

The Outlook for the Labor Market

Measure	2014	2015	2015		2016	2017
			H1	H2		
Output per hour, business ¹	-4	1.0	-1	2.1	1.7	1.7
Previous Tealbook	-4	1.1	-3	2.6	1.9	1.9
Nonfarm private employment ²	254	205	207	203	160	125
Previous Tealbook	254	206	210	202	160	122
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	5.2	5.4	5.2	5.2	5.1
Previous Tealbook	5.7	5.3	5.5	5.3	5.2	5.2

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)

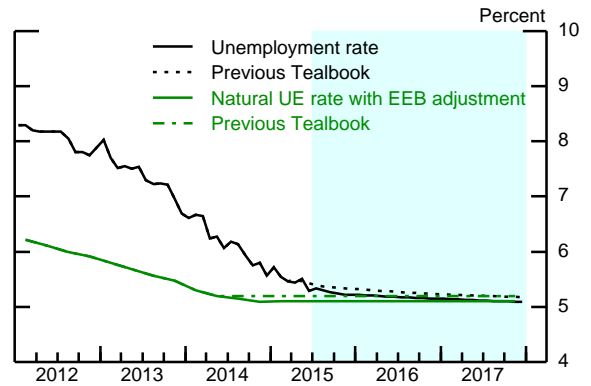
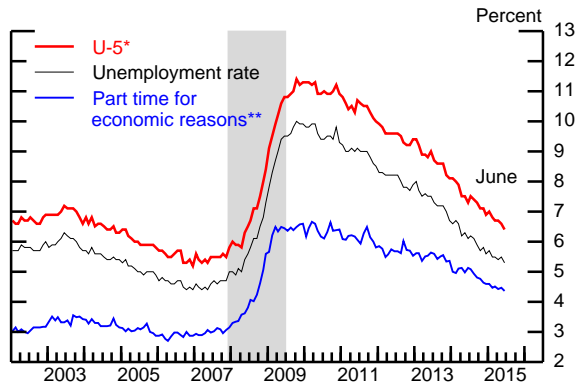
Measure	2014	2015	2015		2016	2017
			H1	H2		
PCE chain-weighted price index	1.1	.3	.0	.7	1.6	1.7
Previous Tealbook	1.1	.6	-1	1.3	1.6	1.8
Food and beverages	2.8	.3	-6	1.2	1.8	2.0
Previous Tealbook	2.8	.3	-6	1.1	1.6	1.9
Energy	-6.1	-16.4	-19.9	-12.7	3.3	2.3
Previous Tealbook	-6.1	-11.3	-19.9	-1.7	2.3	1.3
Excluding food and energy	1.4	1.3	1.2	1.4	1.5	1.7
Previous Tealbook	1.4	1.3	1.2	1.4	1.6	1.8
Prices of core goods imports ¹	.6	-2.3	-3.7	-.8	.9	1.4
Previous Tealbook	.6	-2.3	-4.2	-.4	1.0	1.5

1. Core goods imports exclude computers, semiconductors, oil, and natural gas.

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

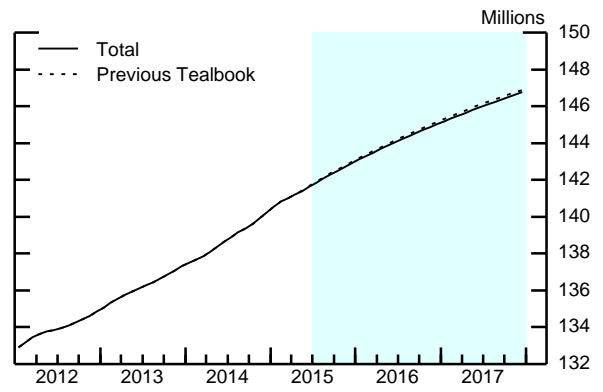
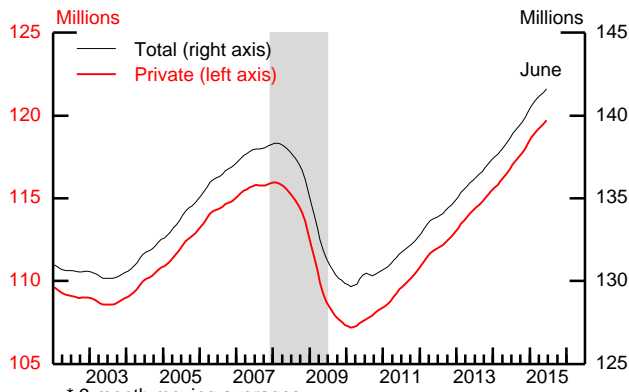
Labor Market Developments and Outlook (1)

Measures of Labor Underutilization



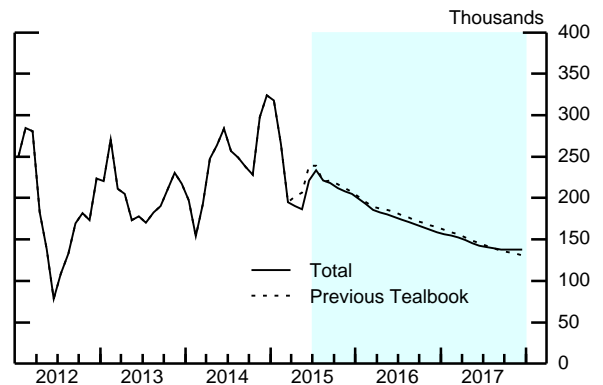
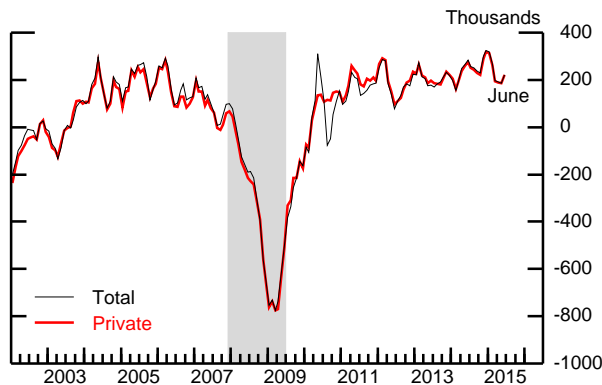
* U-5 measures total unemployed persons plus all marginally attached to the labor force, as a percent of the labor force plus persons marginally attached to the labor force.
 ** Percent of Current Population Survey employment.
 EEB Extended and emergency unemployment benefits.
 Source: U.S. Department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

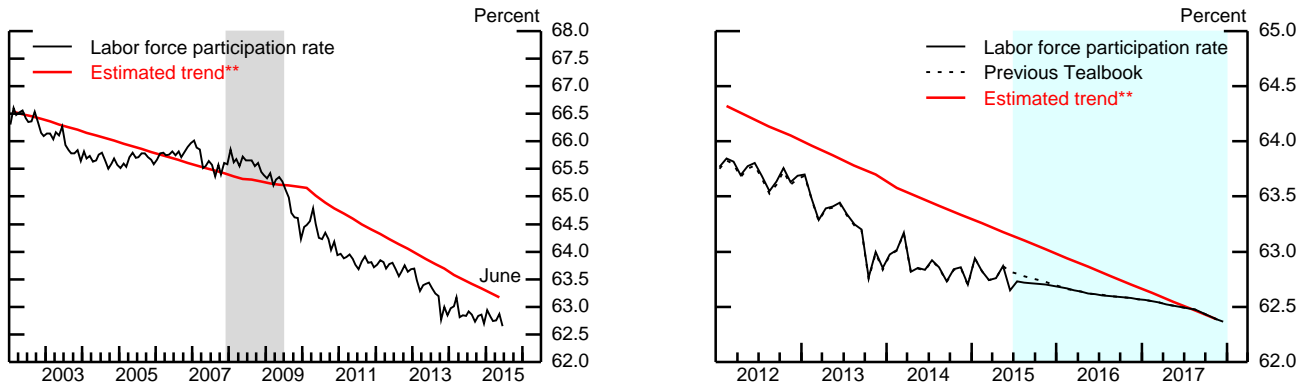


* 3-month moving averages.
 Source: U.S. Department of Labor, Bureau of Labor Statistics.

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)

Labor Force Participation Rate*

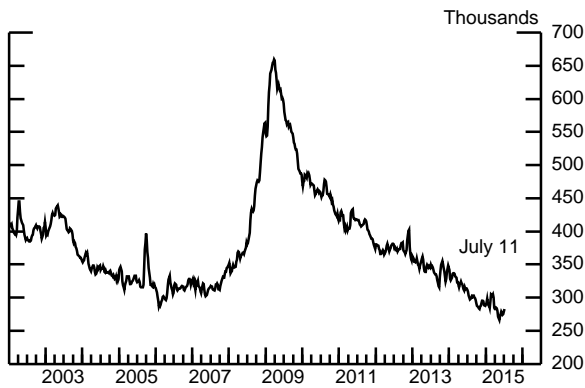


* Published data adjusted by staff to account for changes in population weights.

** Includes staff estimate of the effect of extended and emergency unemployment benefits.

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

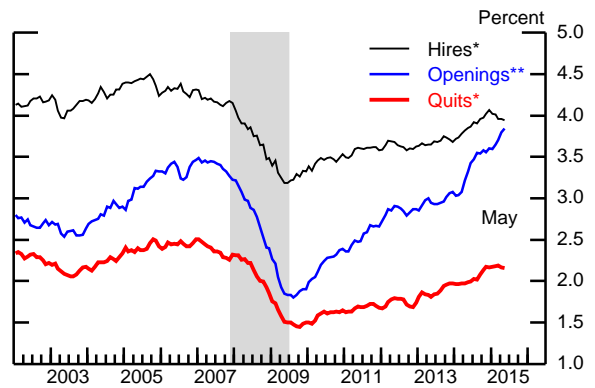
Initial Unemployment Insurance Claims*



* 4-week moving average.

Source: U.S. Department of Labor, Employment and Training Administration.

Private Hires, Quits, and Job Openings

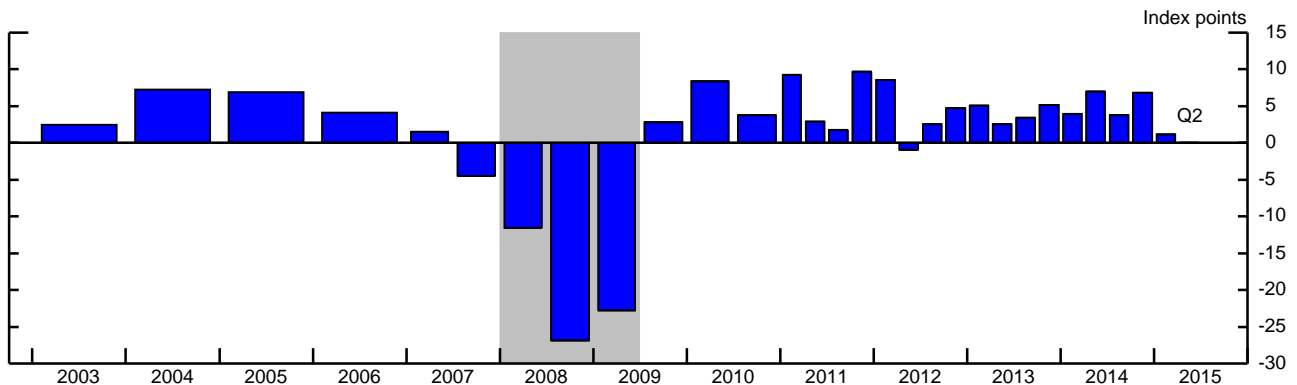


* Percent of private nonfarm payroll employment, 3-month moving average.

** 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



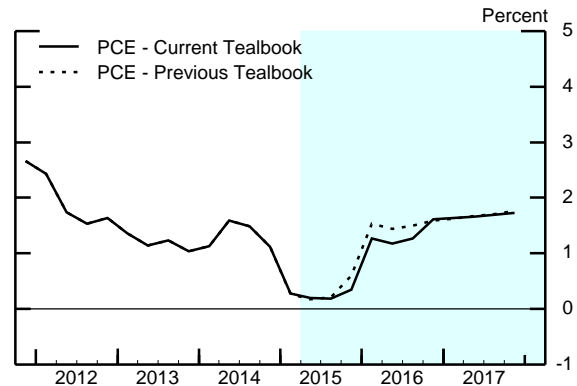
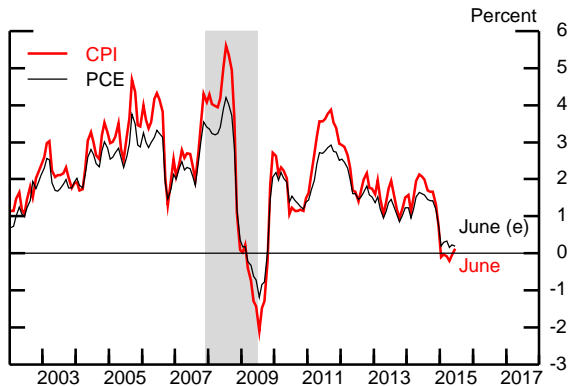
Note: Labor market conditions index estimated by staff.

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

Inflation Developments and Outlook (1)

(Percent change from year-earlier period)

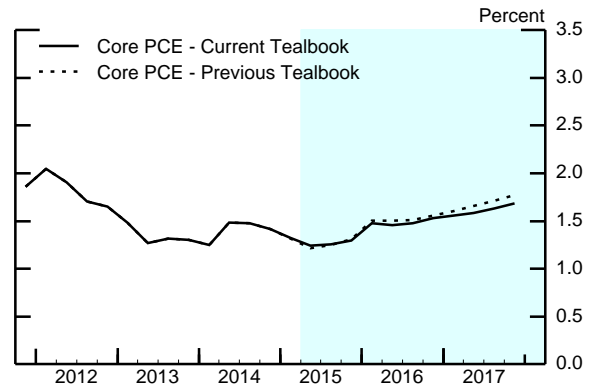
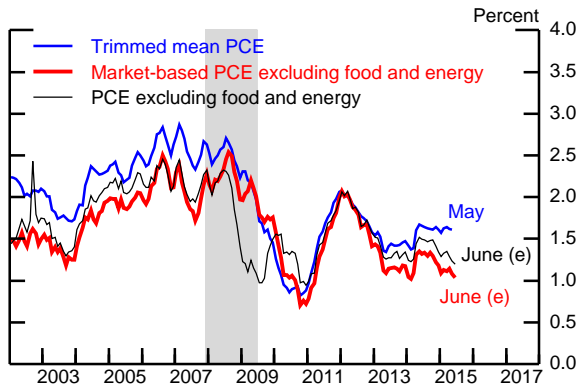
Headline Consumer Price Inflation



Note: PCE prices from April to June 2015 are staff estimates (e).

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

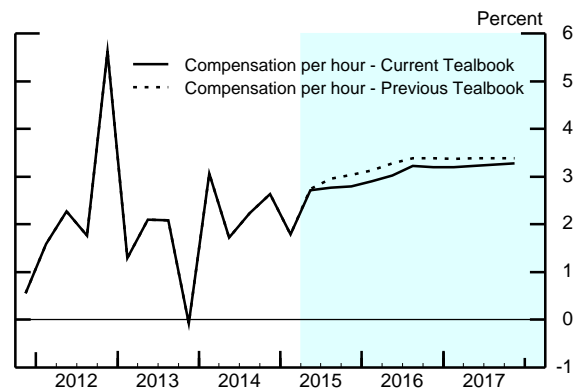
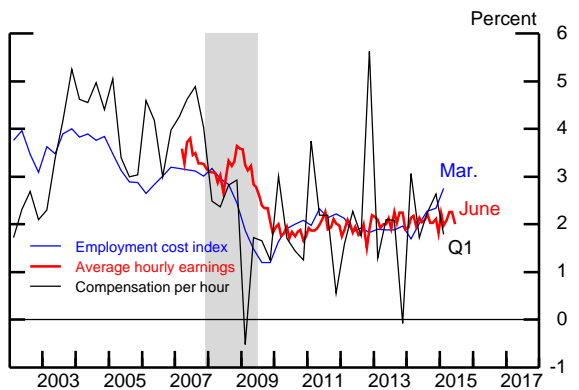
Measures of Underlying PCE Price Inflation



Note: Core PCE prices from April to June 2015 are staff estimates (e).

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.

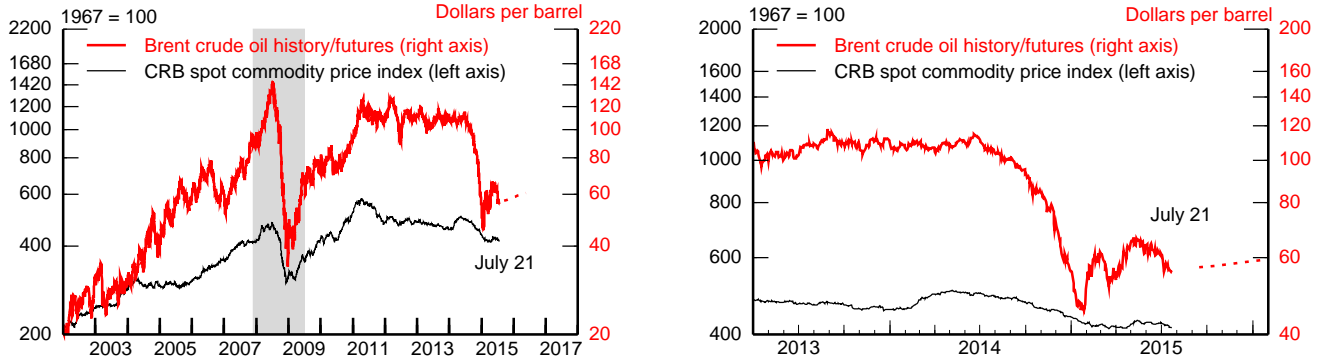
Source: U.S. Department of Labor, Bureau of Labor Statistics.

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)

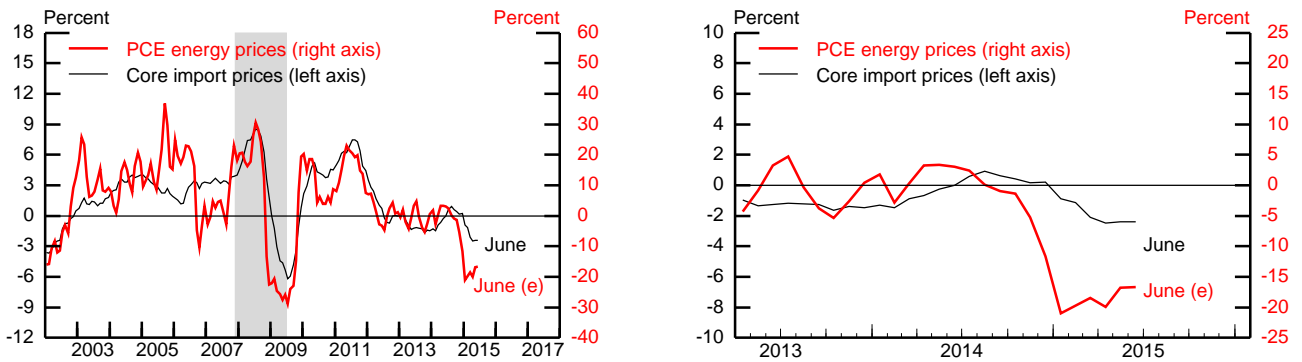
(Percent change from year-earlier period, except as noted)

Commodity and Oil Price Levels



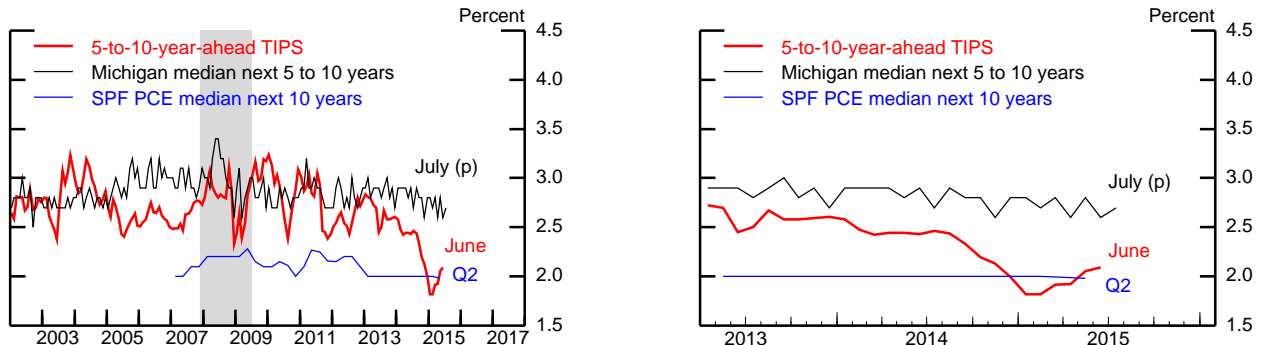
Note: Futures prices (dotted lines) are the latest observations on monthly futures contracts.
 Source: For oil prices, U.S. Department of Energy, Energy Information Agency; for commodity prices, Commodity Research Bureau (CRB).

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.
 p Preliminary.

SPF Survey of Professional Forecasters.
 Source: For Michigan, University of Michigan Surveys of Consumers; for SPF, Federal Reserve Bank of Philadelphia; for TIPS, Federal Reserve Board staff calculations.

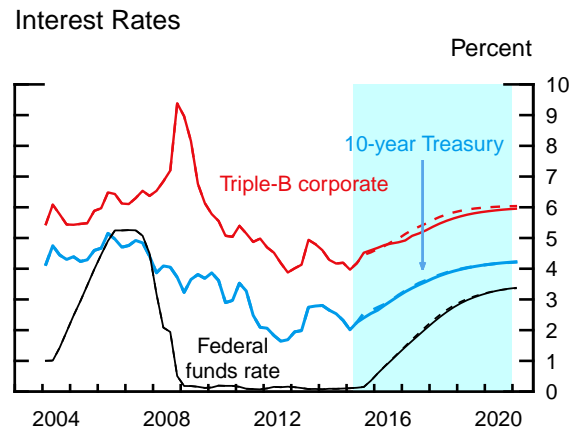
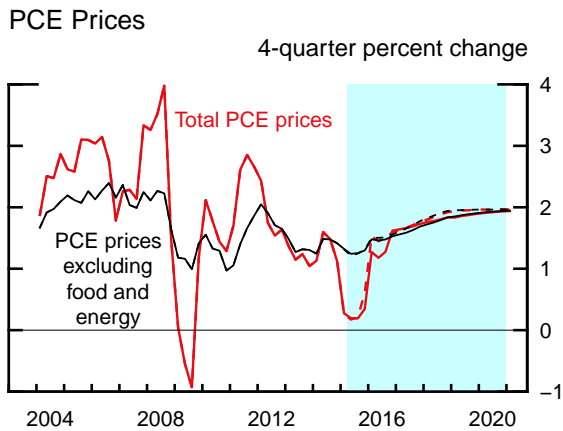
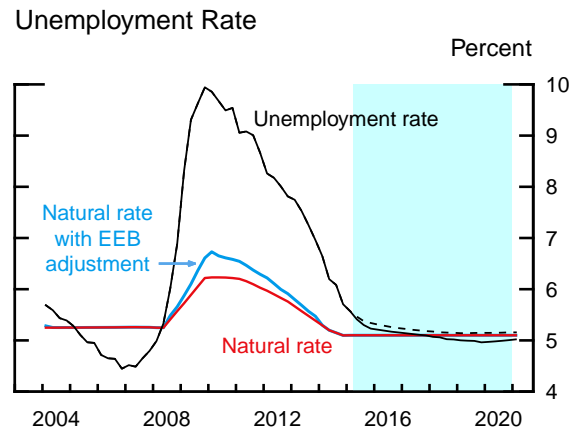
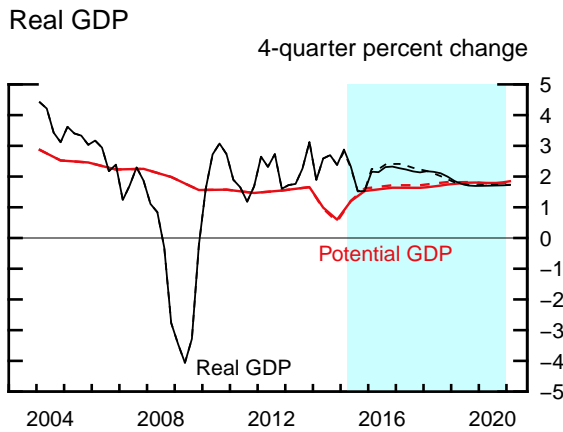
Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

The Long-Term Outlook

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

Measure	2015	2016	2017	2018	2019	Longer run
Real GDP	1.5	2.3	2.1	2.0	1.7	1.9
Previous Tealbook	1.6	2.4	2.2	1.9	1.7	1.9
Civilian unemployment rate ¹	5.2	5.2	5.1	5.0	5.0	5.1
Previous Tealbook	5.3	5.2	5.2	5.1	5.1	5.2
PCE prices, total	.3	1.6	1.7	1.8	1.9	2.0
Previous Tealbook	.6	1.6	1.8	1.9	2.0	2.0
Core PCE prices	1.3	1.5	1.7	1.8	1.9	2.0
Previous Tealbook	1.3	1.6	1.8	1.9	2.0	2.0
Federal funds rate ¹	.4	1.2	2.1	2.7	3.1	3.5
Previous Tealbook	.4	1.3	2.1	2.8	3.2	3.5
10-year Treasury yield ¹	2.5	3.1	3.6	3.9	4.1	4.3
Previous Tealbook	2.6	3.1	3.6	3.9	4.1	4.3

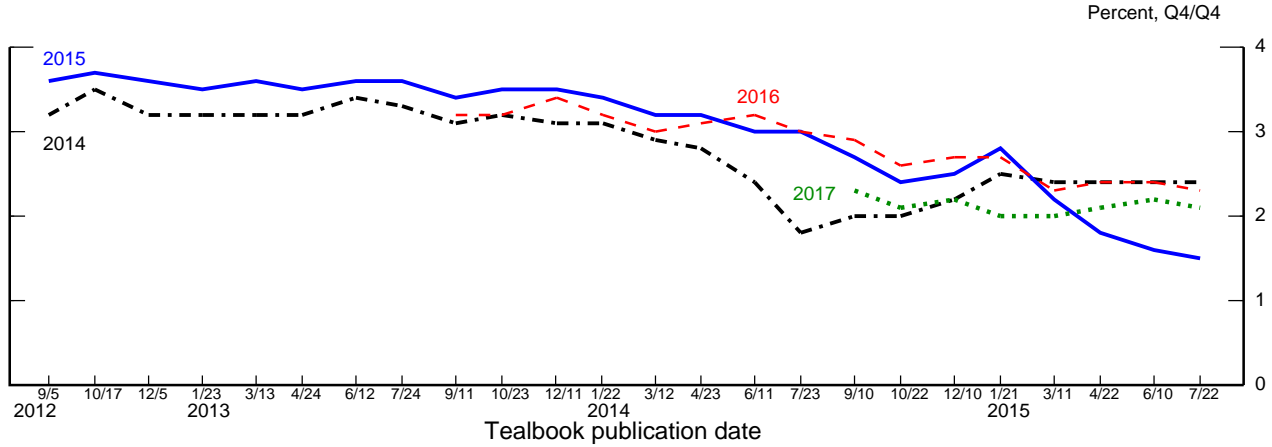
1. Percent, average for the final quarter of the period.



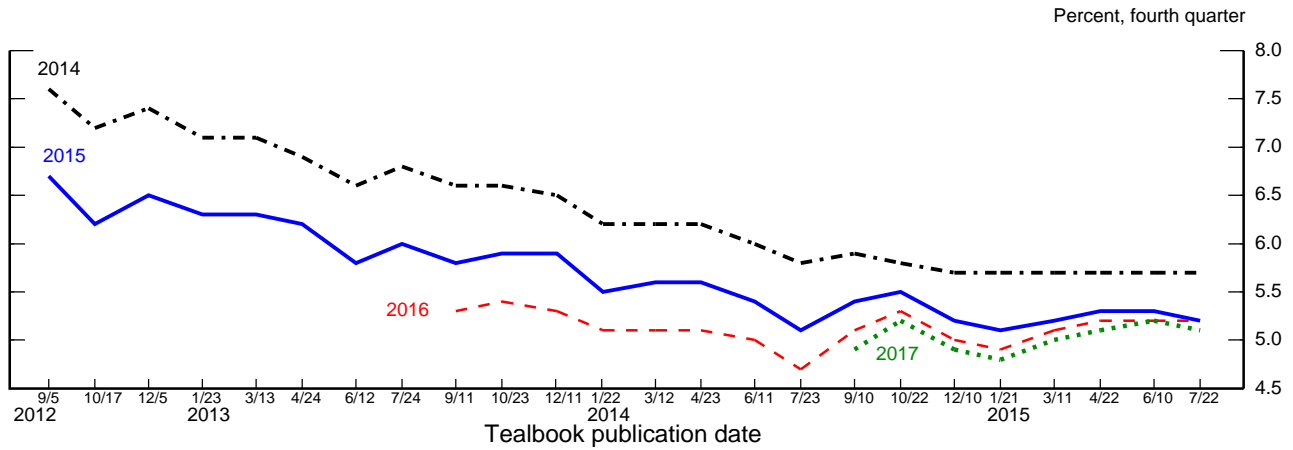
Note: In each panel, shading represents the projection period, and dashed lines are the previous Tealbook.

Evolution of the Staff Forecast

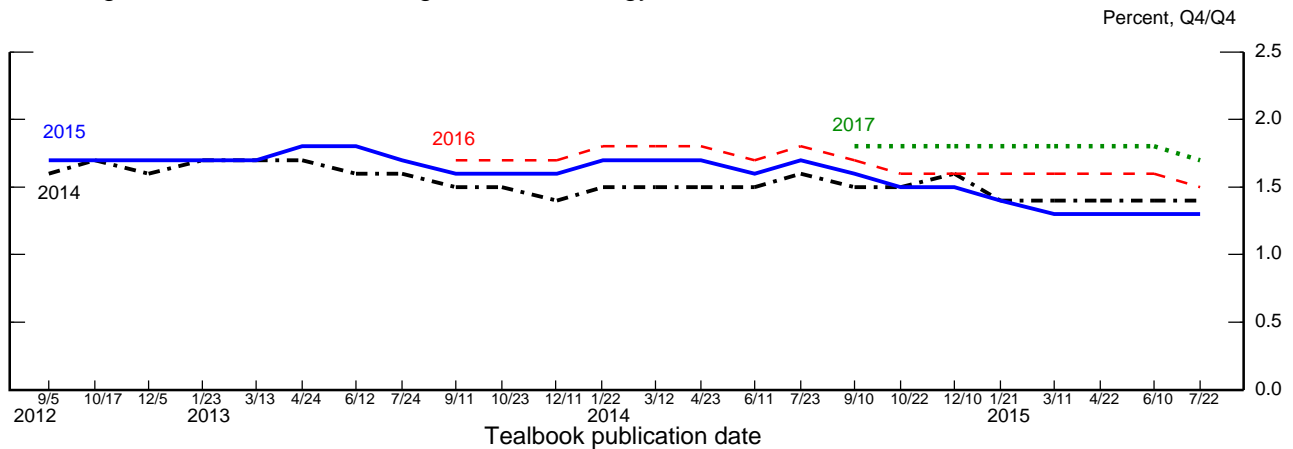
Change in Real GDP



Unemployment Rate



Change in PCE Prices excluding Food and Energy



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International Economic Developments and Outlook

Recent indicators suggest that foreign real GDP growth remained quite subdued in the second quarter, at an estimated 1¾ percent. This estimate is ½ percentage point lower than we anticipated at the time of the June Tealbook. The disappointment in growth was broad based, but it was particularly sizable for Canada, where the energy sector experienced disruptions and the drop in oil-related investment has been more protracted than we had expected. Weak U.S. manufacturing activity likely held down Mexico's recovery from a mediocre first quarter, and the economic contraction in Brazil appeared to be deeper than we had predicted. Finally, the weakness in global trade continued to weigh on activity in many countries. On the brighter side, Chinese real GDP growth was surprisingly strong in the second quarter, and activity in the euro area continued to show signs of being on the mend despite the crisis enveloping Greece.

We expect real GDP growth to step up in the current quarter to about 2½ percent, driven importantly by a rebound in the Canadian economy. We have foreign growth improving further in the second half of the year before settling in at a 3 percent pace thereafter. Although the Greek crisis and stock market turmoil in China commanded considerable attention over the intermeeting period, these developments have left little imprint on our baseline forecast. We assume that Greece will continue to struggle to achieve sustainable adjustment, but that it will remain in the euro area. Furthermore, we assume that spillovers from the Greek turmoil to the rest of the euro area will continue to be contained, reflecting strong financial backstops and a firm commitment by European authorities to support the monetary union. (See the box "Recent Developments and Prospects in Greece.") We also do not expect the turmoil in the Chinese stock market to weigh on overall activity. (See the box "Chinese Equity Markets: Recent Developments and Implications" in the Financial Developments section.) Overall, growth abroad should be underpinned by accommodative monetary policies, an improvement in global trade, depreciated currencies, and still-low oil prices.

Nevertheless, the Greek crisis and the financial fragilities in China continue to present important risks. In the alternative scenario "Greek Exit with Sizable Spillovers" in the Risks and Uncertainty section, we explore the effects of a Greek exit from the euro area that leads to a severe recession in the region and generates large global spillovers. In another alternative scenario, "China-Driven EME Slump with Stronger Dollar," financial

Recent Developments and Prospects in Greece

Since the previous Tealbook, Greece's negotiations with its official-sector creditors have taken center stage. Although a Greek exit from the euro area was an imminent possibility at times, the period ended on a more positive note, with the groundwork laid for a new three-year aid program and with bridge financing in place to service debt for one month. However, Greece's economic and financial situation has deteriorated dramatically, and questions about the resilience of the monetary union have arisen. Even so, broader euro-area financial markets have so far remained relatively insensitive to developments in Greece.

After tense and unsuccessful attempts early in the intermeeting period to agree on program conditionality and debt restructuring, renewed negotiations over the Greek program in late June were derailed when Greek Prime Minister Tsipras unexpectedly called a referendum on the EU-IMF proposals and urged Greek citizens to vote "No." This call intensified tensions between Greece and its creditors and triggered an even more rapid flight of deposits from Greek banks (figure 1). With the outlook for Greek banks growing increasingly precarious, the ECB suspended its earlier practice of accommodating deposit flight through increases in emergency liquidity assistance (ELA) to Greek banks; instead, it announced a freeze on the ELA ceiling. As a result, an acute liquidity shortage loomed, forcing the Greek government to declare a bank holiday, limit deposit withdrawals to €60 per day, and restrict payments and transfers of funds abroad. Soon afterward, with its resources dwindling and its relationship with its creditors unravelling, Greece defaulted on a €1½ billion debt repayment to the IMF on June 30.

Tensions escalated further in early July. After the Greek referendum decisively rejected the EU-IMF proposals, the Greek government continued pressing for more favorable loan terms. In response, other European authorities hardened their position, threatening to withdraw financial support for Greece's government and banks—which could trigger a Greek exit from the euro area—if an agreement was not reached by July 12.

Greece and its creditors finally reached an agreement on July 13. European authorities agreed to consider a three-year financial assistance program from the European Stability Mechanism (ESM) as well as further extensions of the maturity of their loans (albeit without principal reductions and only after Greece completes a review of its program). In exchange, they demanded Greek commitments that were far stricter than previously proposed. As a precondition to begin formal program negotiations, Greece passed significant increases in value-added taxes, cuts in pension benefits, and institutional reforms; it is also expected to reform its legal system in order to facilitate bank restructuring and property foreclosures. Finally, Greece also agreed to ambitious fiscal objectives and to European oversight of its public administration and legislative processes.

Based on Greece's recent progress, European governments received domestic approval to begin formal negotiations on the new ESM program and arranged €7.2 billion in bridge financing, which will help cover the Greek government's sizable debt service through mid-August and its arrears to the IMF (figure 2). In addition, the ECB raised the ceiling on ELA to Greek banks for the first time in more than three weeks. Many hurdles remain, however, and the political environment in Greece and the rest of the euro area makes compromise and implementation difficult.

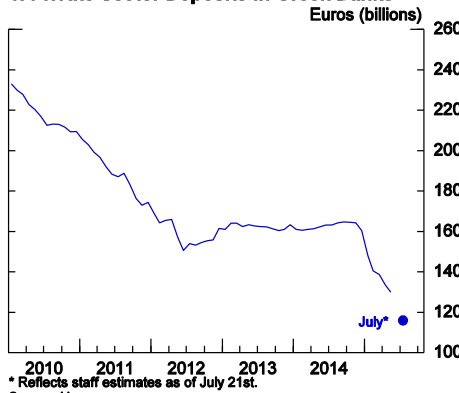
Notwithstanding these risks, financial markets have responded positively to the rapprochement between Greece and its creditors. As shown in figure 3, Greek 10-year sovereign bond spreads have plummeted since the Greek parliament endorsed a more conciliatory stance in mid-July. Spreads of other peripheral countries, which had risen only somewhat in response to earlier tensions, fell by much less.

Greek economic activity has been severely disrupted in recent weeks. Although Greek banks have reopened, they remain liquidity constrained and undercapitalized, and capital controls and transaction limits remain in place. Households and businesses are largely operating on a cash basis, foreign trade and tourism have been severely curtailed, and even basic services have been hard to provide. Although forecasting in such a situation is quite difficult, we judge that Greek output likely will contract at a double-digit rate this quarter and will be slow to recover thereafter. Greek public debt may rise above 200 percent of GDP and is regarded by many (including the IMF) as unsustainable unless substantial debt relief, beyond the extension of maturities contemplated by European authorities, is provided.

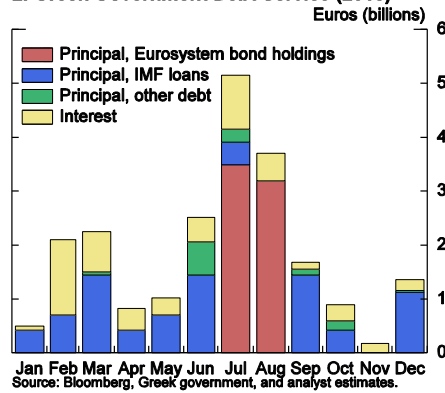
Our baseline scenario assumes that Greece remains in the euro area and that spillovers from Greek tensions to broader European financial markets remain contained, reflecting enhanced financial backstops and a firm commitment by European authorities to safeguard the monetary union. That said, we expect Greece to have considerable difficulty restarting growth and fulfilling its commitments, with pronounced tensions flaring periodically. Accordingly, a Greek exit that sparks broader financial market turmoil remains a significant risk. The Risks and Uncertainty section examines that alternative scenario in more detail.

Int'l Econ Devel & Outlook

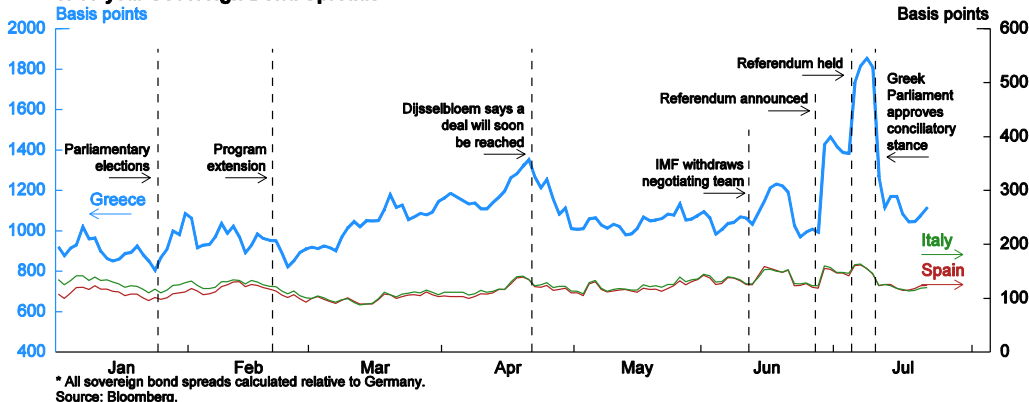
1. Private Sector Deposits in Greek Banks



2. Greek Government Debt Service (2015)



3. 10-year Sovereign Bond Spreads*



and economic conditions and consumer confidence in China deteriorate sharply, generating adverse spillovers to EMEs and a flight to quality that leads to an appreciation of the dollar. Finally, the continued weakness in foreign growth in the second quarter reinforces our concern that the underlying momentum in global activity could be weaker than we thought.

Quarterly foreign inflation turned positive in the second quarter as the effects of last year's decline in oil prices waned. The more recent and much smaller decline in oil prices should push inflation down again in the near term, but only temporarily. We continue to expect inflation to reach central bank objectives of 2 percent in Canada and the United Kingdom by 2017 and to pick up but remain below the 2 percent goal in the euro area and Japan. Inflation in the EMEs is expected to average about 3 percent over the forecast period.

In response to the continued weakness of activity in their economies and still-low inflation rates, the central banks of Canada, Korea, and Sweden cut their policy rates over the intermeeting period. The Swedish Riksbank expanded its asset purchase program as well. China's central bank also cut banks' benchmark lending and deposit rates to support economic growth and the stock market.

ADVANCED FOREIGN ECONOMIES

- ***Euro Area.*** Based on solid readings on retail sales, PMIs, economic sentiment, and manufacturing production, we estimate that GDP continued to expand 1½ percent in the second quarter. We expect output to expand at a similar pace in the third quarter, as a pickup in growth in most euro-area economies is offset by a sharp contraction in Greece. Thereafter, we expect euro-area growth to rise to about 2 percent in 2016 and 2¼ percent in 2017, supported by ongoing monetary stimulus and easing credit conditions as well as by currency depreciation and lower oil prices. This forecast is about ¼ percentage point lower in the third quarter of 2015 than in the June Tealbook, as the plunge in Greek activity will be even steeper than we previously thought, and about ¼ percentage point higher in 2016, reflecting support from lower energy prices and a depreciated euro. Our projection assumes that current and prospective spillovers to other countries from developments in Greece remain limited, but much more dire outcomes are possible.

Inflation rebounded from negative 1½ percent in the first quarter to positive 2½ percent in the second quarter, reflecting the fading effects of last year's fall in energy prices as well as a firming in core inflation. We expect inflation to average about 1¼ percent during the second half of the year, somewhat lower than our June Tealbook forecast, owing to the recent decline in oil prices. As the output gap narrows and oil prices stabilize, inflation is expected to rise to 1¾ percent by 2017.

We continue to assume the ECB will purchase assets totaling about €1.2 trillion by September 2016 and keep its main policy rate near zero through the end of 2017.

- **Canada.** We estimate that real GDP contracted again in the second quarter, falling ¼ percent, a pace that is 1½ percentage points below the June Tealbook projection. Energy exports were disrupted by wildfires and maintenance shutdowns. Moreover, disappointing imports of machinery and equipment suggest that the adverse effects of lower oil prices on investment have been more protracted than we had thought. June manufacturing PMI edged up to expansionary territory for the first time since January, however, so as disruptions to the energy sector dissipate, we expect GDP growth to rebound to 2 percent this quarter. We see GDP growth reaching 2½ percent by 2016, supported by accommodative monetary policy, currency depreciation, and moderate U.S. growth, before edging down to a near-potential pace of 2 percent by 2017 as the output gap closes.

Inflation jumped to 2.5 percent in the second quarter, partly driven by the pass-through of currency depreciation to retail prices. We expect that lower oil prices will bring inflation down to 1½ percent in the third quarter. The waning influence of the decline in oil prices and narrowing output gap should bring inflation up to the Bank of Canada's (BOC) 2 percent target by 2017. Given the recent economic weakness, the BOC cut its policy rate by 25 basis points to ½ percent in mid-July. With inflation remaining low, we expect the BOC to start raising its main policy rate in the third quarter of 2016, one quarter later than in our previous projection.

- **Japan.** We estimate that real GDP growth declined from 3.9 percent in the first quarter to only ½ percent in the second quarter, partly owing to a

normalization of inventory investment. This slowdown is more pronounced than projected in the previous Tealbook, as recent data on exports and industrial production were surprisingly weak. Nevertheless, business confidence rose to its highest level in more than a year and manufacturing firms plan to ramp up production, suggesting that the second-quarter softening was short-lived. Accordingly, we see GDP growth picking up to 1½ percent in the current quarter and remaining near that pace through 2016 before a second hike in the consumption tax stalls the expansion in 2017. Consumer prices appear to have risen 1 percent in the second quarter, led by a rapid increase in food prices. However, with oil prices declining, inflation should fall to ¼ percent in the current quarter. Thereafter, as oil prices stabilize, we project that inflation (excluding the direct effect of the consumption tax hike) will edge up to ¾ percent in early 2016 and, as the output gap narrows and inflation expectations rise, will reach almost 1½ percent by the end of 2017.

- **United Kingdom.** Strong incoming data—such as on retail sales, industrial production, exports, and economic sentiment—suggest that real GDP growth accelerated to 2½ percent in the second quarter from a modest 1½ percent rate in the first quarter. We project that GDP growth will edge up to 2¾ percent in 2016, about ½ percentage point higher than previously projected, as the new fiscal budget calls for less consolidation in the coming years than the budget that was unveiled in March. Growth then moves back down to 2½ percent in 2017. Consumer prices rose 1.1 percent in the second quarter, as retail energy prices stabilized. We expect inflation to continue rising in coming quarters, albeit a touch more slowly than we wrote down in June on account of the recent fall in crude oil prices, and to reach the Bank of England's (BOE) 2 percent target by 2017. In response to the higher path for economic growth and despite the slightly lower rise in inflation in the near-term, we expect the BOE to normalize monetary policy a bit more rapidly than previously assumed following liftoff in the first quarter of 2016.

EMERGING MARKET ECONOMIES

- **China.** Real GDP growth was volatile in the first half of the year, surging to 7¾ percent in the second quarter, 1¾ percentage points above our June Tealbook estimate, after falling to an unusually low pace of 5 percent in the

first quarter.¹ Exports and industrial production rebounded sharply in the second quarter, but fixed-asset investment growth continued to moderate, led by a further slowing of real estate investment. We expect growth to average 7 percent in the second half of the year, a little stronger than the 6½ percent average in the first half, as exports continue to recover and recent monetary policy stimulus kicks in. We expect GDP growth to edge down a bit further thereafter, to 6½ percent by 2017, in line with declining potential growth.

Although the sharp fall in Chinese stock prices since mid-June has garnered significant attention, we do not expect the declines to weigh on activity. Chinese stock market movements have traditionally had little effect on the economy because the vast majority of Chinese do not own stocks and because equity financing accounts for a small share of overall financing in China's bank-dominated economy. (For further details, see the box "Chinese Equity Markets: Recent Developments and Implications" in the Financial Developments section.)

Inflation picked up to a 2½ percent rate in the second quarter from negative ½ percent in the first quarter, as food and fuel prices rebounded and core inflation edged up, suggesting that the risk of deflation has likely subsided. We expect inflation to remain at about this level throughout the forecast period.

- ***Other Emerging Asia.*** We now estimate that the region's GDP growth stepped down from an already subdued 3½ percent pace in the first quarter to about 3 percent in the second, 1 percentage point lower than in the June Tealbook. The revision is broad based across countries and reflects the weaker-than-expected tone of recent indicators, particularly exports. In **Korea**, the downward revision to second-quarter growth also reflects our assessment that the outbreak of Middle East Respiratory Syndrome (MERS) will have a larger effect on the economy than initially envisioned. To support activity, the Bank of Korea cut its policy rate by 25 basis points to 1.5 percent and the government ratcheted up fiscal stimulus. Exports from the region improved late in the quarter, supporting our view that growth will move up in the second half of the year in response to stronger activity in China and in the

¹ Recall that China does not have a level real GDP series. We estimate seasonally adjusted quarter-on-quarter growth rates based on the official data releases that report four-quarter changes.

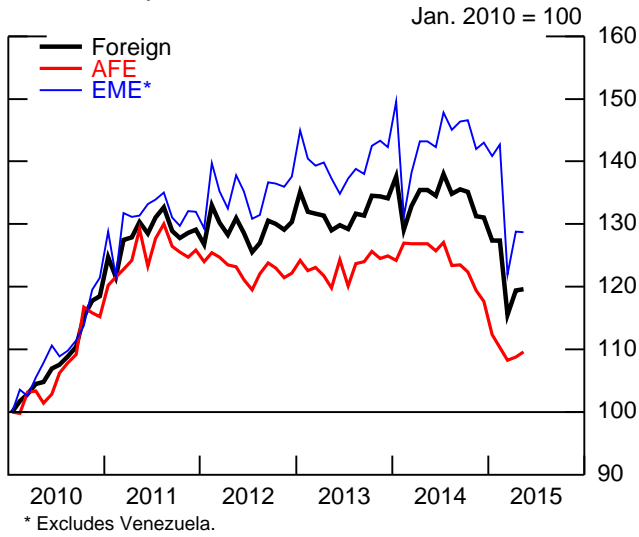
advanced economies. Growth should settle at about 4¼ percent thereafter. Inflation in the region rebounded from negative ¼ percent in the first quarter to 3 percent in the second, supported by the stabilization of energy prices after earlier declines. We expect inflation to edge up to 3¼ percent in 2016 and 2017.

- **Latin America.** We estimate that **Mexican** real GDP growth stepped up from a meager 1½ percent in the first quarter to a still-subdued 2¼ percent in the second, ¼ percentage point below our previous forecast. Incoming data for the second quarter were mixed. Although fixed investment was weak and exports fell through May, manufacturing output was up and private consumption appears to have continued to improve, supported by solid credit and job growth. We expect the pace of growth to step up to 3 percent by the end of this year, thanks to a pickup in U.S. manufacturing output, and to remain at that pace through 2017. After dipping to only ¼ percent in the first quarter, headline inflation rebounded to 2¾ percent in the second, reflecting the waning effects of earlier declines in energy prices and administered prices of telecommunications.

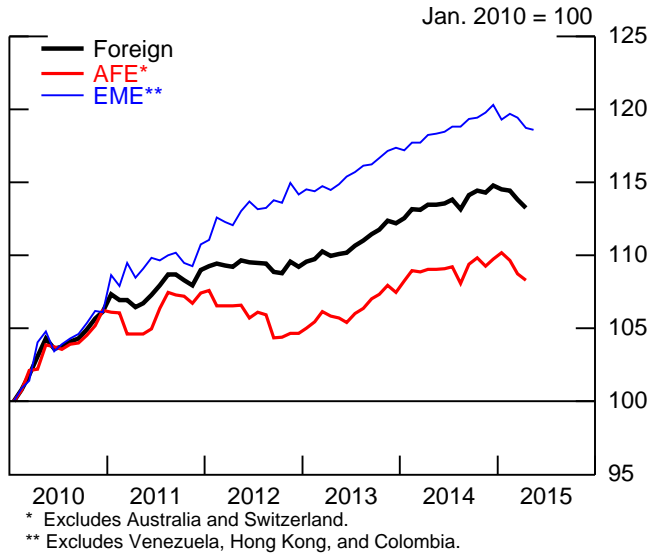
In **Brazil**, recent indicators—including industrial production, retail sales, and consumer and business confidence—continue to disappoint and suggest that the economy contracted sharply in the second quarter. As a result, we now see GDP having fallen 4¼ percent last quarter, 1 percentage point more than the June Tealbook estimate. Despite the weak economy, the depreciation of the *real* and increases in administered prices have kept inflation elevated at a 10¾ percent annual rate in the second quarter. To restrain inflation, the central bank has raised its policy rate 275 basis points since October 2014, and we expect more tightening in the near term. Tighter monetary policy and the fading influence of increases in administered prices should bring inflation down to 5¾ percent by the end of this year and to 5½ percent by 2017. We expect growth to pick up to a still-sluggish 1½ percent pace next year and to 2¼ percent in 2017 as the authorities ease monetary policy and as global growth firms.

Recent Foreign Indicators

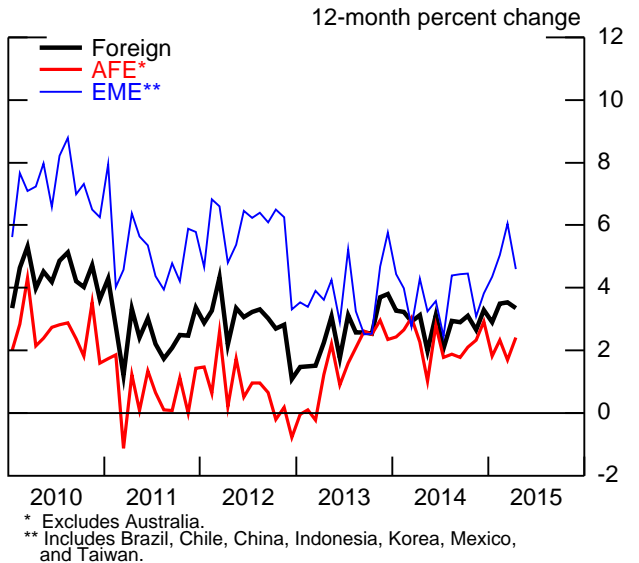
Nominal Exports



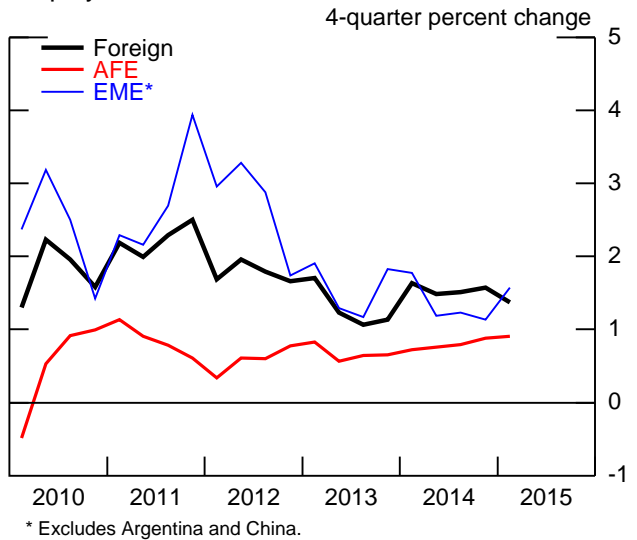
Industrial Production



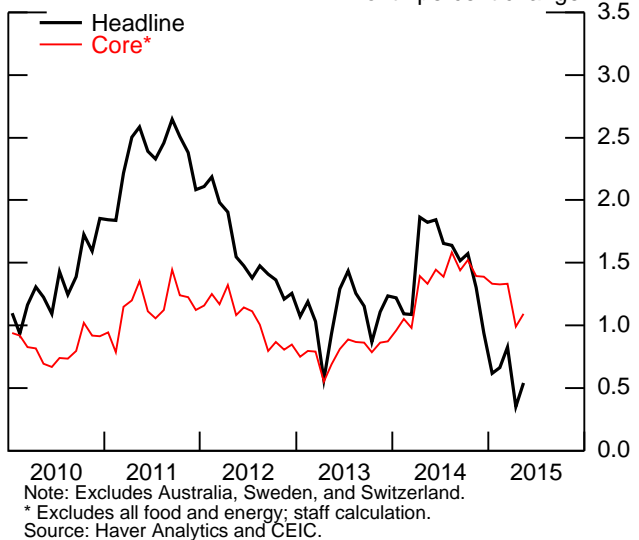
Retail Sales



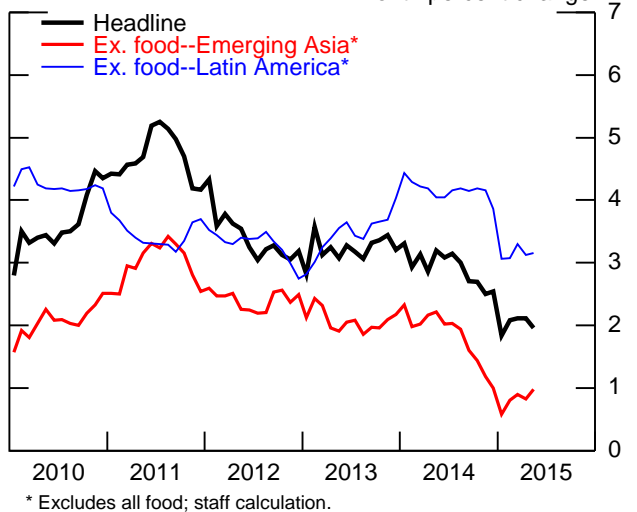
Employment



Consumer Prices: Advanced Foreign Economies



Consumer Prices: Emerging Market Economies



Int'l Econ Devel & Outlook

The Foreign GDP Outlook

Real GDP*

Percent change, annual rate

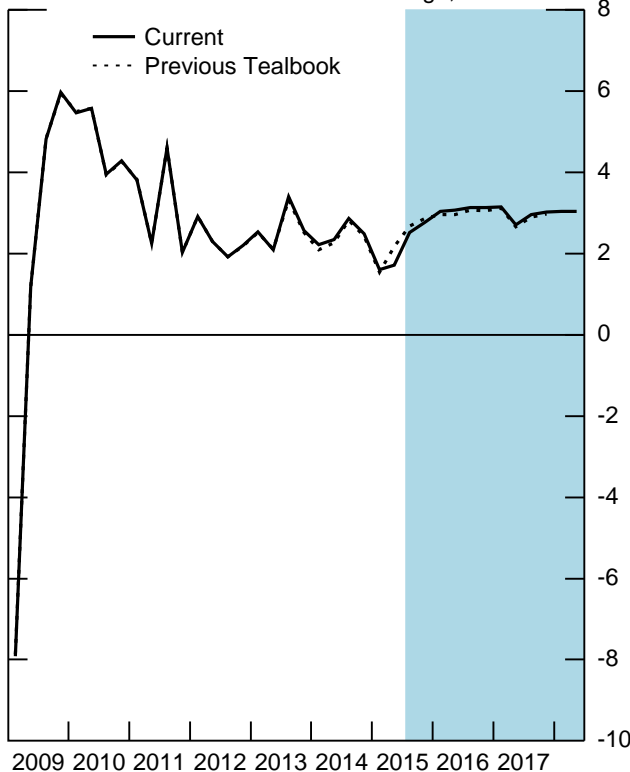
	2014		2015				2016	2017
	H1	H2	Q1	Q2	Q3	Q4		
1. Total Foreign	2.3	2.7	1.6	1.7	2.5	2.8	3.1	3.0
<i>Previous Tealbook</i>	2.2	2.6	1.6	2.2	2.7	2.9	3.0	2.9
2. Advanced Foreign Economies	1.5	1.9	0.8	0.7	1.8	2.1	2.3	1.9
<i>Previous Tealbook</i>	1.5	1.8	0.9	1.6	1.8	2.1	2.2	1.9
3. Canada	2.2	2.7	-0.6	-0.2	2.0	2.4	2.5	2.1
4. Euro Area	0.7	1.1	1.5	1.6	1.4	1.8	2.1	2.2
5. Japan	-1.4	-0.4	3.9	0.5	1.5	1.4	1.3	-0.3
6. United Kingdom	3.6	3.1	1.5	2.4	2.5	2.5	2.8	2.4
7. Emerging Market Economies	3.0	3.5	2.4	2.7	3.2	3.5	3.9	3.9
<i>Previous Tealbook</i>	2.9	3.4	2.2	2.8	3.5	3.6	3.8	3.9
8. China	7.0	7.6	5.1	7.8	7.2	6.8	6.6	6.5
9. Emerging Asia ex. China	3.3	3.6	3.4	2.9	3.7	4.1	4.4	4.2
10. Mexico	2.8	2.4	1.6	2.3	2.9	3.0	3.1	3.1
11. Brazil	-1.4	0.8	-0.6	-4.2	-1.1	0.4	1.6	2.3

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

Int'l Econ Devel & Outlook

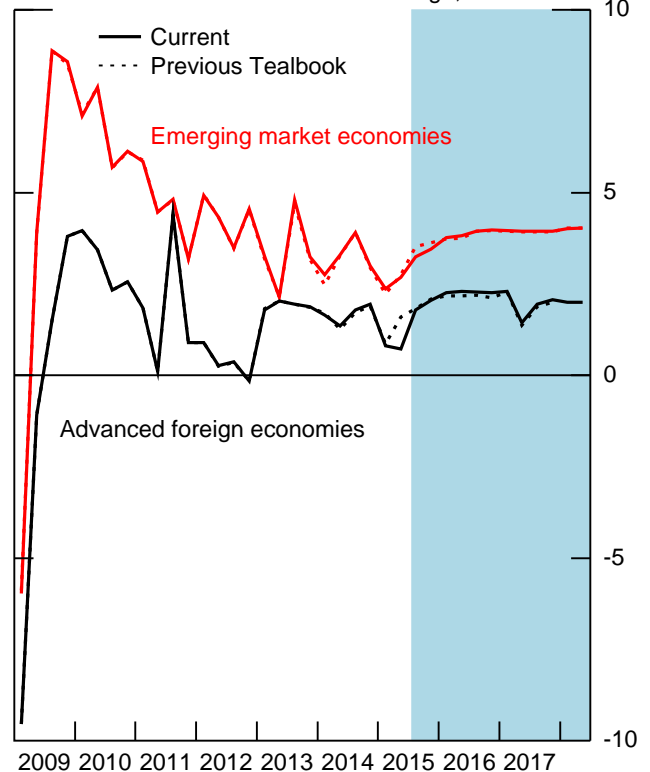
Total Foreign GDP

Percent change, annual rate



Foreign GDP

Percent change, annual rate



The Foreign Inflation Outlook

Consumer Prices*

Percent change, annual rate

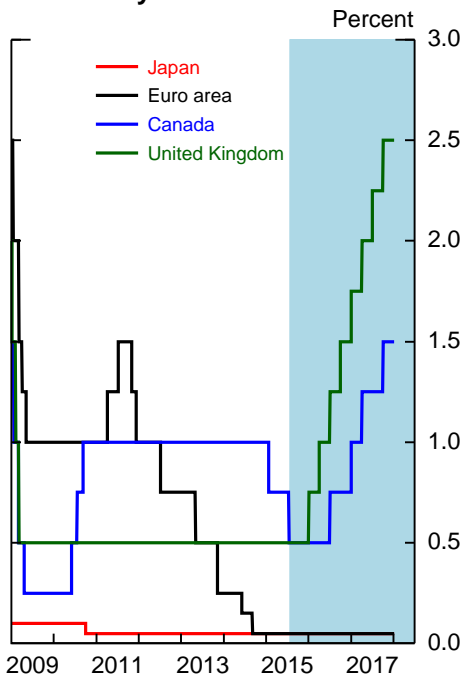
	2014		2015				2016	2017
	H1	H2	Q1	Q2	Q3	Q4		
1. Total Foreign	2.5	1.6	-0.1	2.6	2.2	2.2	2.4	2.6
<i>Previous Tealbook</i>	2.5	1.5	-0.1	2.1	2.2	2.4	2.4	2.6
2. Advanced Foreign Economies	2.2	0.2	-0.9	1.9	1.0	1.3	1.5	2.0
<i>Previous Tealbook</i>	2.2	0.2	-0.8	1.4	1.3	1.4	1.6	2.0
3. Canada	3.2	0.6	-0.2	2.5	1.4	1.8	1.8	2.0
4. Euro Area	0.4	-0.1	-1.5	2.5	1.1	1.3	1.5	1.7
5. Japan	4.9	0.3	-0.3	1.0	0.2	0.5	1.0	2.6
6. United Kingdom	1.6	0.3	-1.7	1.1	1.5	1.6	1.8	2.0
7. Emerging Market Economies	2.7	2.6	0.4	3.1	3.1	2.9	3.1	3.1
<i>Previous Tealbook</i>	2.7	2.6	0.5	2.6	3.0	3.1	3.1	3.1
8. China	1.4	1.6	-0.4	2.6	2.5	2.2	2.5	2.5
9. Emerging Asia ex. China	2.8	1.7	-0.2	3.1	3.0	3.1	3.2	3.3
10. Mexico	4.1	4.3	0.3	2.8	3.1	3.3	3.3	3.3
11. Brazil	7.0	6.1	11.1	10.8	7.9	5.7	5.6	5.4

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

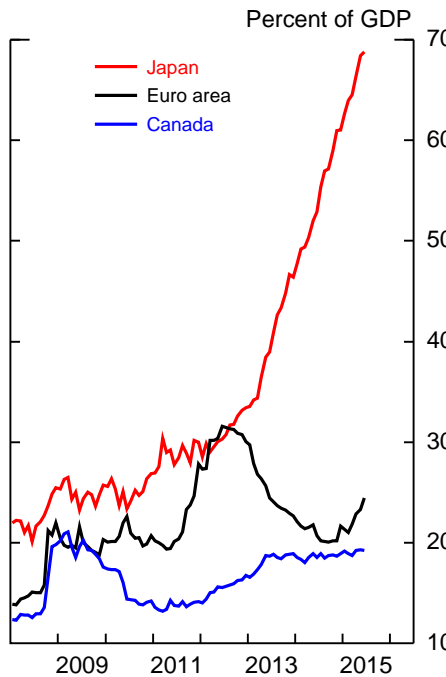
Int'l Econ Devel & Outlook

Foreign Monetary Policy

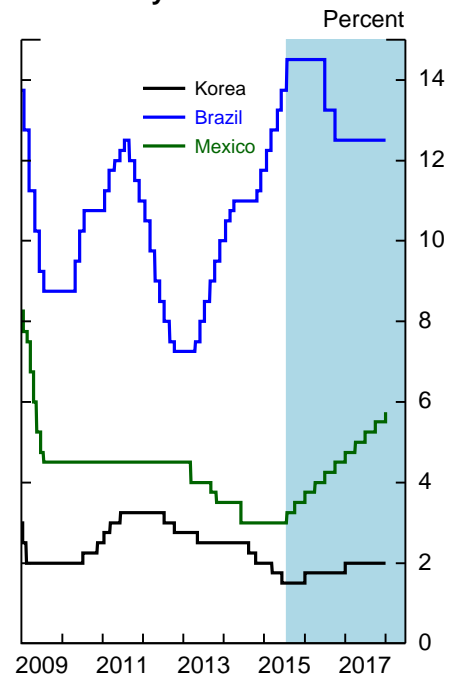
AFE Policy Rates



AFE Central Bank Balance Sheets

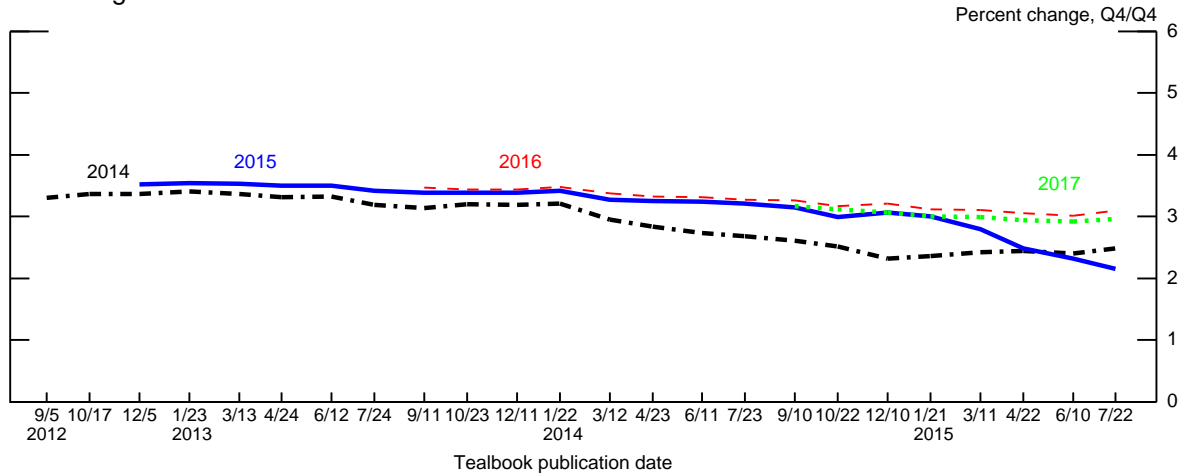


EME Policy Rates

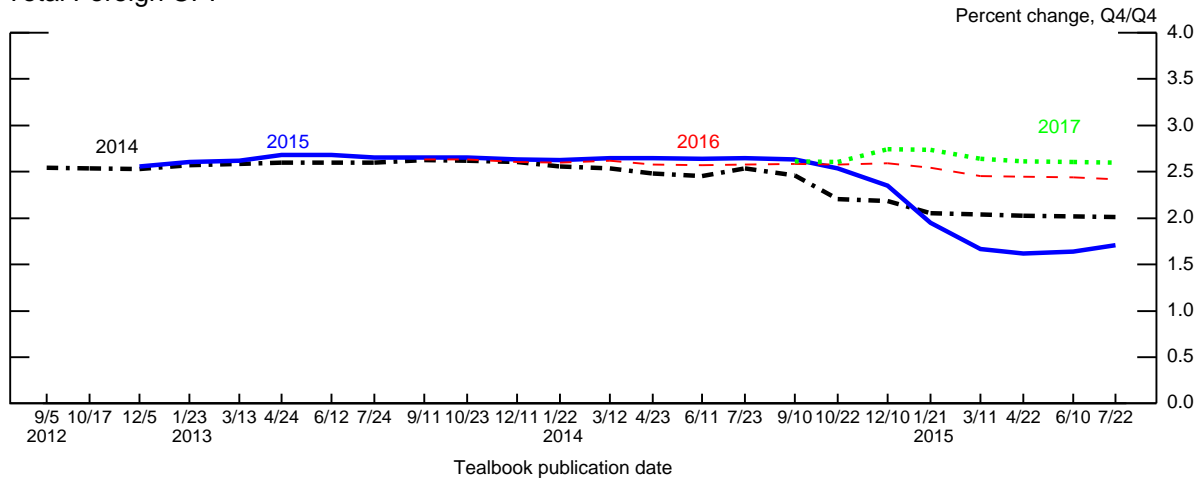


Evolution of Staff's International Forecast

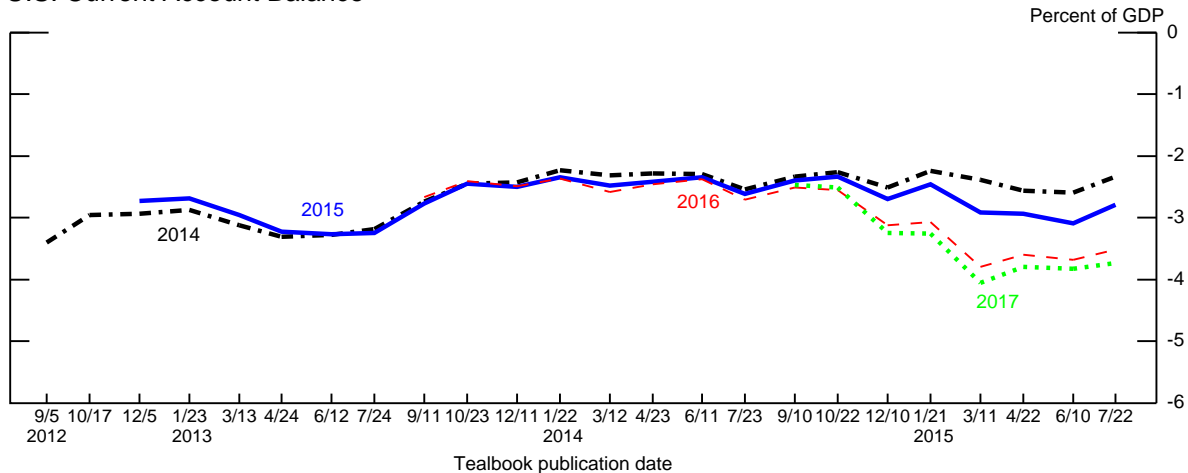
Total Foreign GDP



Total Foreign CPI



U.S. Current Account Balance



Financial Developments

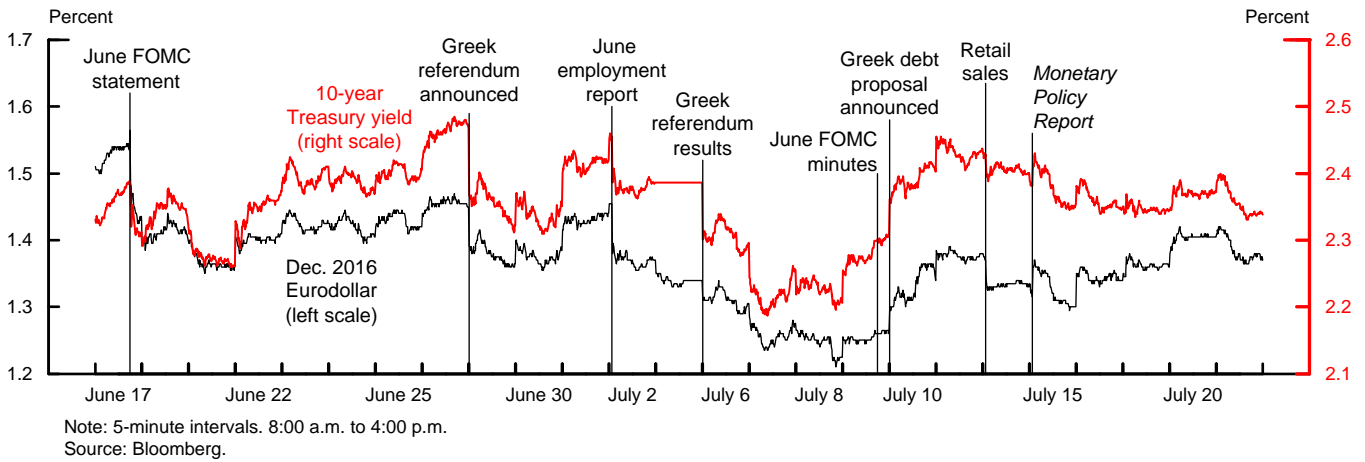
U.S. financial market conditions were buffeted by developments abroad over the intermeeting period but were little changed outside of a somewhat stronger dollar on balance. The expected path of policy rates moved down a bit, reportedly reflecting in part the more-accommodative-than-expected path for the federal funds rate in the June SEP and some weaker-than-expected data on economic activity.

- Negotiations between the Greek government and its official creditors and, separately, a plunge in Chinese equity prices generated volatility in global financial markets at times. (See the box on Greece in the international section and the box on Chinese equity markets later in this section.)
- The federal funds rate at the end of 2016 implied by OIS quotes decreased about 10 basis points. September remained the most likely time of liftoff in the Desk's surveys of primary dealers and market participants, with the expected pace of normalization after liftoff little changed.
- The nominal Treasury yield curve was nearly unchanged on net. The TIPS-based measure of inflation compensation over the next five years moved lower amid a decline in oil prices.
- The S&P 500 index ended the period up about 1 percent, while the VIX settled back to the lower end of its range in recent years after rising in response to developments abroad.
- Amid some monetary easing abroad, the broad index of the dollar increased about 2 percent over the period.
- Financing conditions for households stayed generally accommodative, and businesses continued to raise substantial funds amid robust M&A activity. Moderate numbers of banks reportedly eased lending standards and experienced increased loan demand during the second quarter on balance.¹
- The broader municipal market was generally unaffected by the announcement that Puerto Rico might seek to restructure at least part of its debt (see the box later in this section).

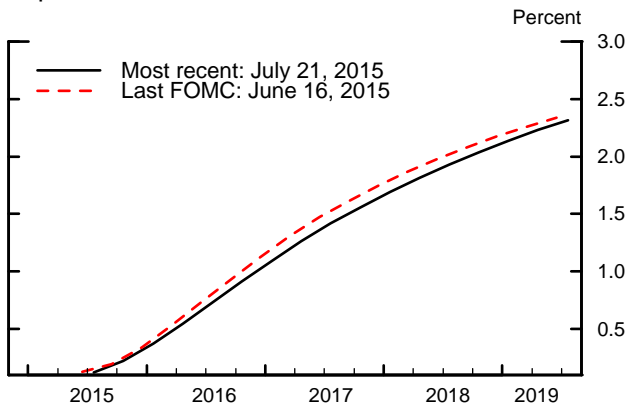
¹ See Emre Yoldas (2015), "The July 2015 Senior Loan Officer Opinion Survey on Bank Lending Practices," memorandum to the FOMC, July 23.

Policy Expectations and Treasury Yields

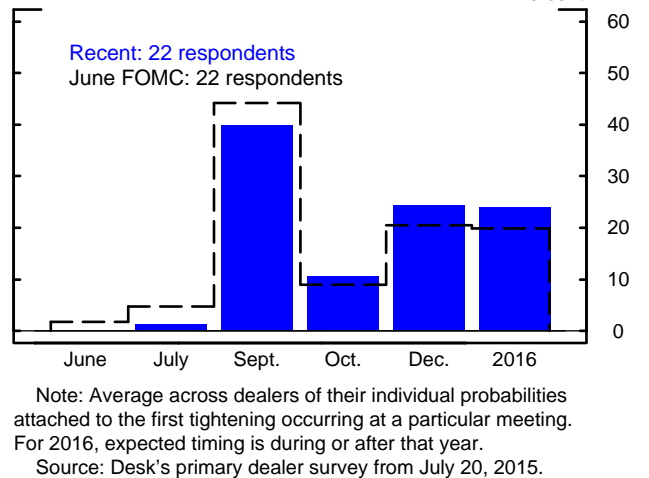
Selected Interest Rates



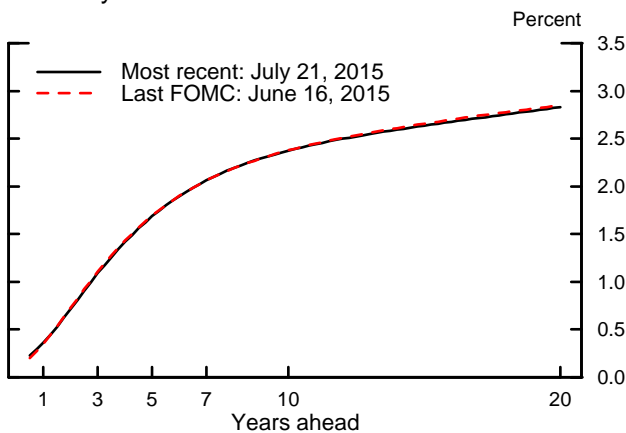
Implied Federal Funds Rate



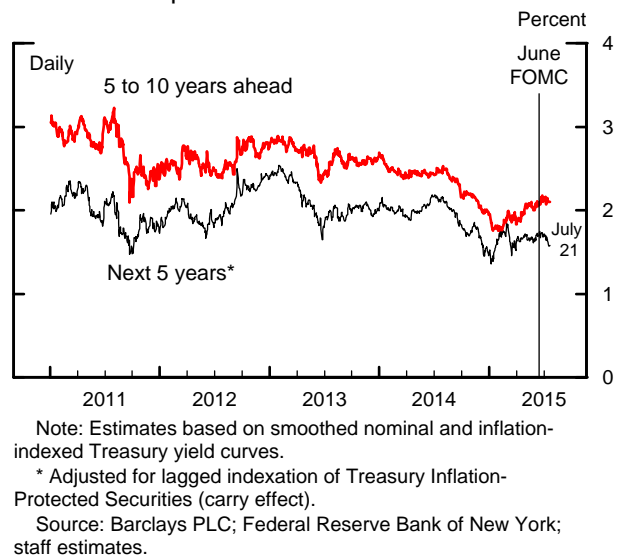
Distribution of Expected Timing of First Rate Increase from the Desk's Primary Dealer Survey



Treasury Yield Curve



Inflation Compensation



Financial Developments

EFFECTS OF GREEK DEBT NEGOTIATIONS ON FINANCIAL MARKETS

For most of the intermeeting period, market participants around the globe were focused on negotiations between the Greek government and its official creditors. (See the box “Recent Developments and Prospects in Greece” in the International Economic Developments and Outlook section.) In contrast with the sizable market reactions during negotiations between Greece and its creditors in previous years, asset price movements outside of Greece were quite modest in recent weeks. For example, although the Greek 10-year sovereign spread to German government bonds soared more than 600 basis points at one point during the current episode, contemporaneous moves in Spanish and Italian spreads were muted. In addition, although flight-to-quality flows were occasionally evident in the yields and currencies of the United States and safe-haven AFEs, these moves were not especially sharp or of long duration. Several factors may help explain this modest reaction, including substantially reduced private-sector exposure to Greece, confidence that European authorities have the tools and the willingness to stem the spread of financial market disruption, and investors’ belief that Greece would ultimately receive some form of additional financial assistance.²

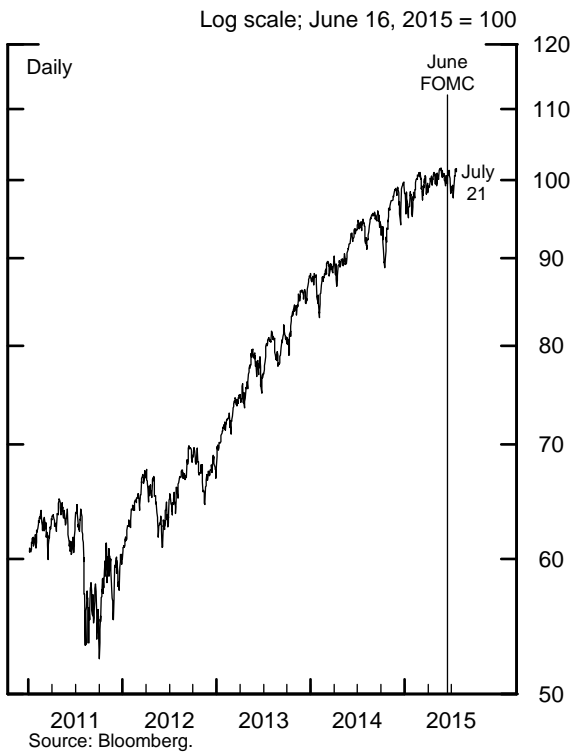
POLICY EXPECTATIONS AND TREASURY YIELDS

Amid the temporary volatility stemming from the developments in Greece and China, Federal Reserve communications and incoming economic data put some downward pressure on the implied path of policy rates and nominal Treasury yields along the curve. In particular, investors reportedly focused on participants’ downward revisions in the June SEP to the appropriate target range for the federal funds rate at the end of 2015 as suggesting that policy firming could commence later than previously expected. In contrast, the release of the June FOMC meeting minutes and the Chair’s semiannual *Monetary Policy Report* in July were interpreted by investors as largely consistent with earlier FOMC communications and elicited little reaction in financial markets. Economic data releases over the intermeeting period were somewhat weaker than expected, on net, with the path of the federal funds rate implied by OIS quotes shifting down noticeably after the release of the employment situation report and retail

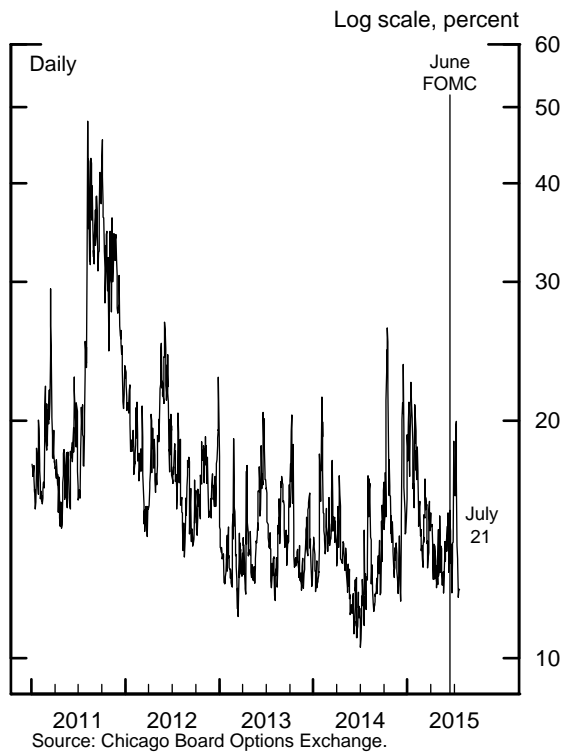
² Three-fourths of Greek debt is currently held by official creditors. In particular, U.S. prime money funds do not hold any Greek debt, and U.S. banks have a negligible direct exposure to Greek debt.

Corporate Asset Prices and Earnings

S&P 500 Stock Price Index

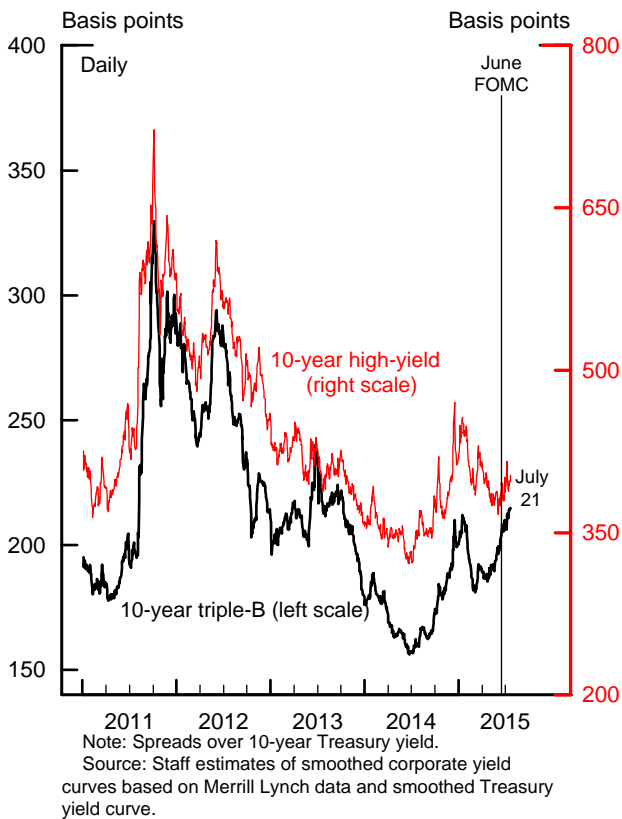


Implied Volatility on S&P 500 (VIX)

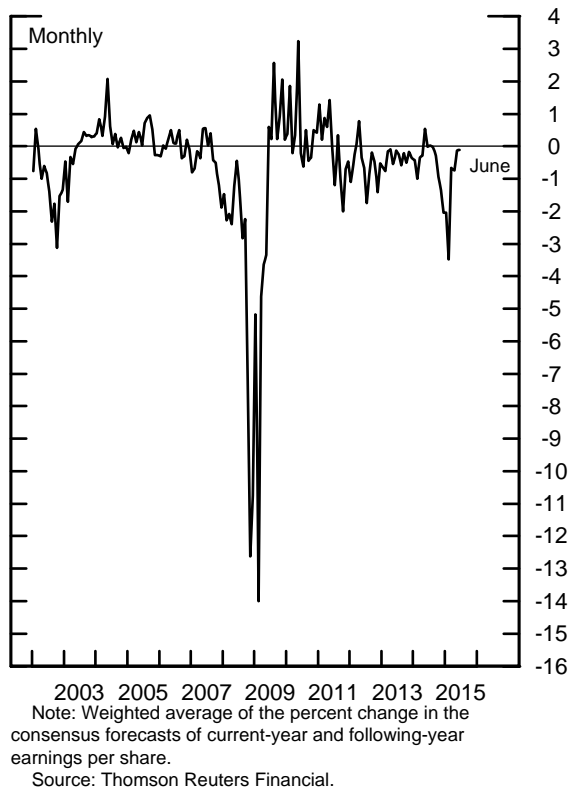


Financial Developments

Corporate Bond Spreads



Revisions to S&P 500 Year-Ahead Earnings per Share



sales data for June. All told, over the intermeeting period, the federal funds rate implied by OIS quotes at the end of 2016 and the end of 2017 declined about 10 basis points.

According to the Desk's surveys of dealers and market participants, a majority of respondents to both surveys continued to view the September 2015 meeting as the most likely date of liftoff, with little change to the expected pace of tightening following liftoff relative to the June surveys. Although the median respondents now expect some or all securities reinvestments to cease a bit later than the six- to seven-month post-liftoff horizon reported in the Desk's June surveys, they continued to anticipate that reinvestments will most likely be phased out when the time comes.

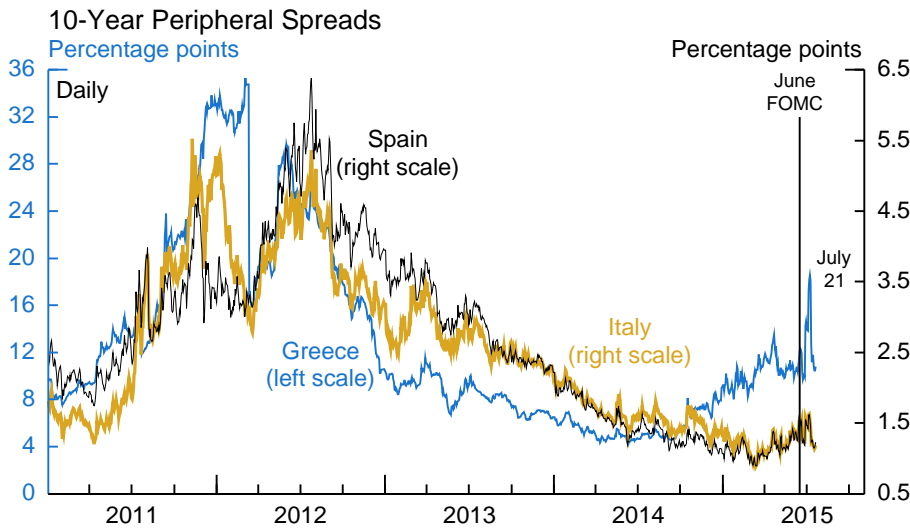
Swings in risk sentiment were evident in longer-term nominal Treasury yields. The 10-year yield drifted up notably early in the intermeeting period on optimism over the Greek debt negotiations, then subsequently declined, at one point sliding as much as 30 basis points over several days amid safe-haven flows before retracing much of this decline. On net, both shorter- and longer-term nominal Treasury yields were nearly unchanged. The 5-year measure of inflation compensation based on TIPS fell 15 basis points, likely reflecting a notable decline in oil prices, while 5-to-10-year inflation compensation was about unchanged. Liquidity conditions in fixed-income markets remained stable over the intermeeting period.³

CORPORATE ASSET PRICES AND EARNINGS

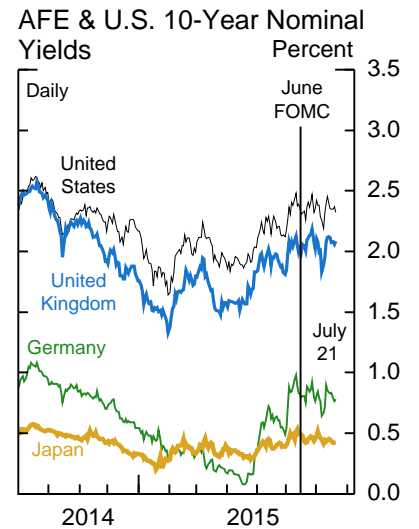
Swings in risk sentiment were also evident in U.S. corporate asset markets at times, and broad U.S. equity price indexes ended the period up about 1 percent on net. Option-implied volatility on the S&P 500 index at the one-month horizon—the VIX—increased for a time before falling back to the lower end of its range over recent years. Spreads of yields on 10-year triple-B-rated and speculative-grade corporate bonds over comparable-maturity Treasury securities were also volatile but ended the period slightly wider on net. Overall, spreads on triple-B-rated bonds remained slightly above their historical median levels, while those on speculative-grade bonds stayed somewhat below their historical median.

³ Since the June FOMC meeting, the Treasury Department has auctioned \$148 billion of Treasury nominal fixed-coupon securities, \$7 billion of TIPS, and \$13 billion of two-year Floating Rate Notes.

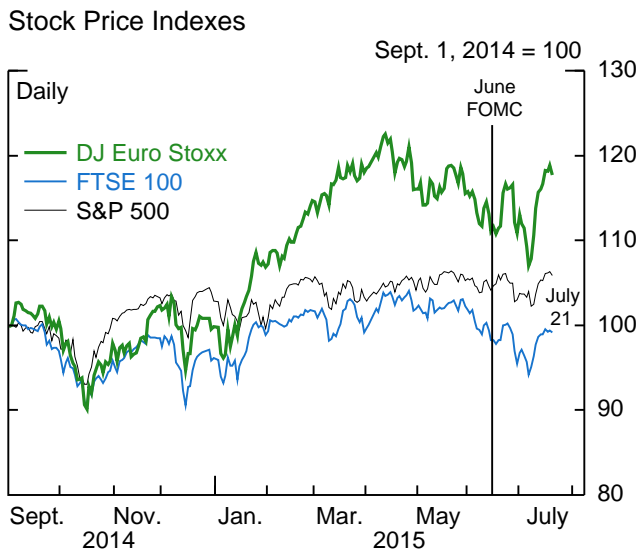
Foreign Developments



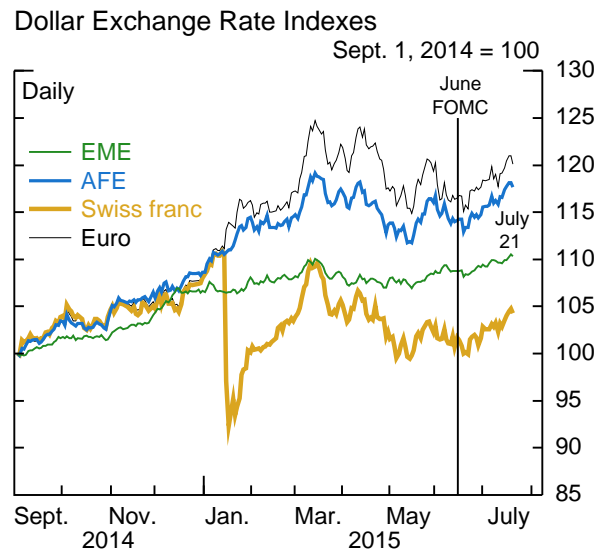
Source: Bloomberg.



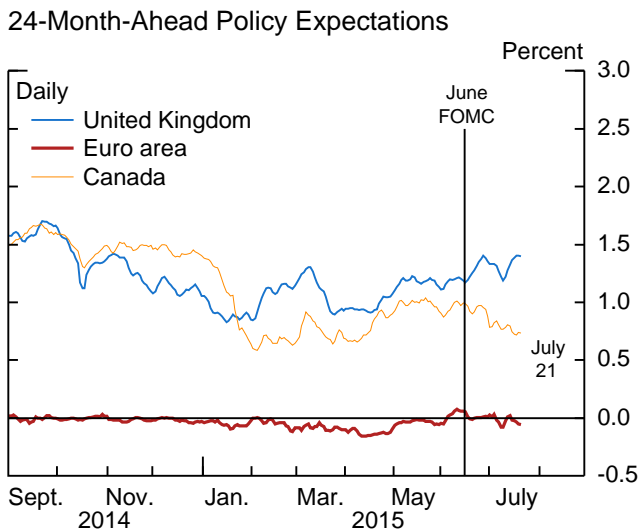
Source: Bloomberg.



Source: Bloomberg.



Source: Federal Reserve Board; Bloomberg.



Note: 1-month forward rates from OIS quotes, 3-day moving average.
Source: Bloomberg.



Source: Bloomberg.

Financial Developments

Based on reports for about 20 percent of the firms in the S&P 500 index and equity analysts' forecasts for the rest, earnings per share are projected to have declined somewhat last quarter. However, the index of year-ahead revisions to analysts' earnings forecasts for all firms in the S&P 500 index—which was deeply negative earlier in the year—stayed close to zero in mid-June.

OTHER FOREIGN DEVELOPMENTS

The U.K. 10-year bond yield rose slightly, supported in part by stronger-than-expected macroeconomic data and a shift up in the path of expected future policy rates. In contrast, comparable benchmark yields declined in most other AFEs, weighed down to varying degrees by weaker-than-expected macroeconomic data and monetary easing.

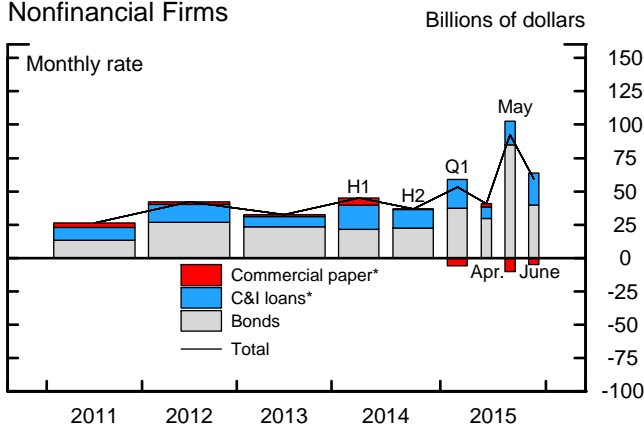
The central banks of Canada, Norway, and Sweden all lowered policy rates, and Sweden's Riksbank also increased the size of its QE program. In addition, the Swiss National Bank (SNB) appears to have intervened to counter upward pressure on the Swiss franc during the period, with Chairman Jordan of the SNB stating in a speech that the franc was significantly overvalued. In contrast, comments by the Bank of England's Governor Carney led market participants to expect an earlier initiation of rate hikes in the United Kingdom.

Partly because of the generally more accommodative actions of foreign central banks, the broad index of the U.S. dollar ended the period about 2 percent higher, with the dollar appreciating 3½ percent, on average, against AFE currencies. The dollar strengthened about 5 percent against the Canadian dollar and Swedish krona, while it was only slightly stronger against the British pound, consistent with the relative movements in policy expectations. In addition, the dollar gained about 2½ percent against the euro, as market participants' focus on differentials between U.S. and euro-area policy rate expectations appeared to reemerge after concerns about Greece had lessened. The dollar appreciated only ½ percent against the yen.

AFE equity prices rose in all countries but Canada, supported to varying degrees by diminished concerns about Greece, stronger macroeconomic data in the United Kingdom and the euro area, and actual or expected monetary accommodation elsewhere. Headline stock indexes in the euro area increased more than 5 percent.

Business and Municipal Finance

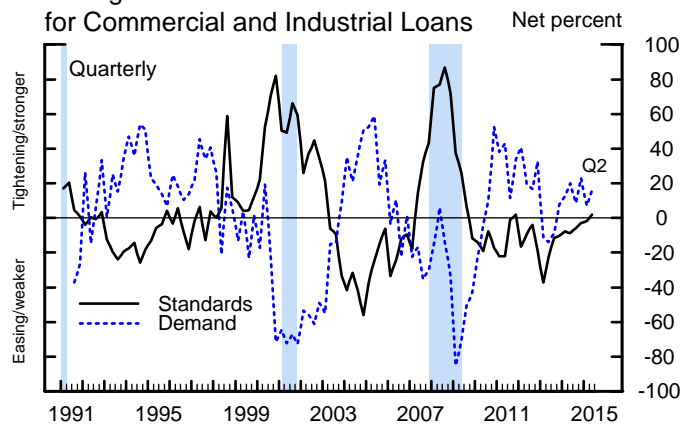
Selected Components of Net Debt Financing, Nonfinancial Firms



* Period-end basis, seasonally adjusted.

Source: Depository Trust & Clearing Corporation; Mergent Fixed Investment Securities Database; Federal Reserve Board.

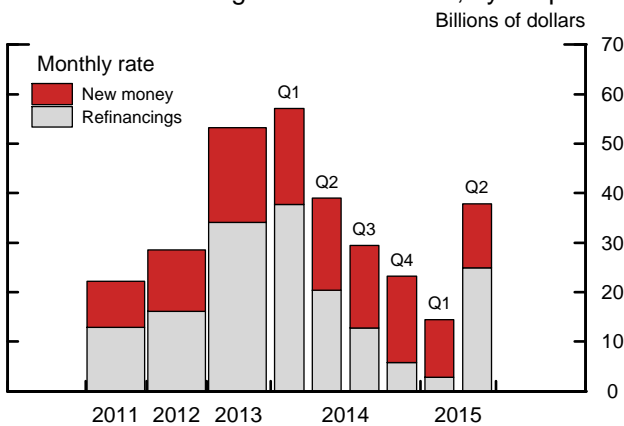
Changes in Standards and Demand for Commercial and Industrial Loans



Note: Responses are weighted by survey respondents' holdings of relevant loan types as reported on Call Reports. The shaded bars indicate periods of business recession as defined by the NBER.

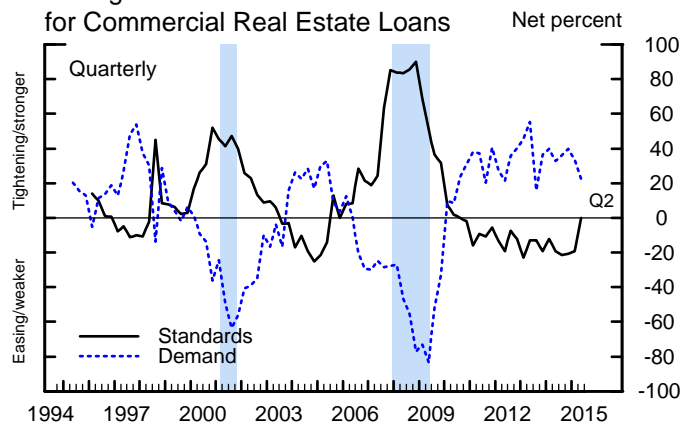
Source: Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices.

Institutional Leveraged Loan Issuance, by Purpose



Source: Thomson Reuters LPC LoanConnector.

Changes in Standards and Demand for Commercial Real Estate Loans

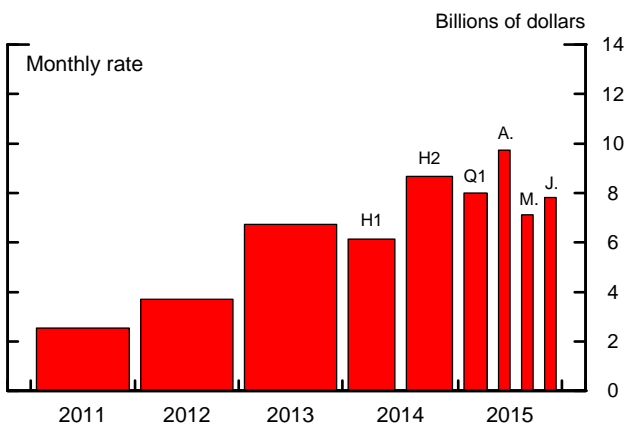


Note: Responses are weighted by survey respondents' holdings of relevant loan types as reported on Call Reports. The shaded bars indicate periods of business recession as defined by the NBER.

Source: Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices.

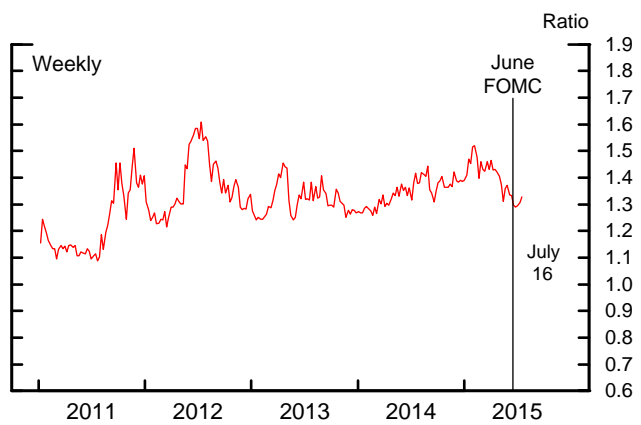
Financial Developments

CMBS Issuance



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

Municipal Bond Spread



Note: Bond Buyer GO 20-year index over 20-year Treasury yields.
Source: Bond Buyer; Merrill Lynch.

By contrast, stock prices in China declined steeply during the period. After having risen 150 percent between mid-2014 and its peak on June 12, the Shanghai Composite index tumbled more than 30 percent. The index subsequently retraced some of that decline and ended the period about 20 percent lower than its mid-June peak. (See the box “Chinese Equity Markets: Recent Developments and Implications.”) Developments in China also appeared to contribute to a net decline over the intermeeting period of almost 4 percent in Hong Kong equity prices, but spillovers to other markets were limited.

Asset prices in other EMEs exhibited no clear signs of distress in response to the events in Greece, the plunge in Chinese equity markets, or the approaching policy firming in both the United States and the United Kingdom. EMBI spreads over Treasury securities edged lower, and the performance of stock indexes across EMEs was mixed. Notably, stocks in some of the countries seen as vulnerable during the taper tantrum, such as India, South Africa, and Turkey, ended the period up between 2 and 6 percent. Most emerging market currencies outperformed AFE currencies, with the dollar firming only about 1½ percent, on average, against the EME currencies.

BUSINESS AND MUNICIPAL FINANCE

Meanwhile, financing conditions for U.S. nonfinancial businesses remained accommodative, particularly for the largest corporations. Corporate bond issuance was brisk in June for both investment- and speculative-grade firms, moderating somewhat from its torrid pace in May. Borrowers continued to report planning to use most of their proceeds to refinance existing debt and fund M&A activity rather than incremental capital investment. Early indications suggest that investment-grade bond issuance stayed strong in the first few weeks of July, while high-yield issuance slowed notably, reportedly reflecting in part the heightened market volatility.

Strong growth of C&I loans on banks’ books persisted in June, and the SLOOS continued to indicate that demand from large firms for C&I loans strengthened, particularly reflecting the need to finance M&A activity. In addition, although banks’ lending standards for C&I loans have reportedly changed relatively little in recent quarters, they stand somewhat easier than the midpoint of their range over the past 10 years. Institutional leveraged loan issuance picked up noticeably in the second quarter relative to earlier in the year, as tighter loan spreads supported refinancing. Financing

Chinese Equity Markets: Recent Developments and Implications

After an 11-month rally, during which the Shanghai composite index rose roughly 150 percent, Chinese equity prices have fallen more than 20 percent since mid-June (figure 1). Spillovers to other markets from this plunge in Chinese stock prices have been limited: While Hong Kong's Hang Seng index has fallen 9 percent since mid-June and copper prices have declined 7 percent over the same period, most other markets seemed largely unaffected. Nonetheless, the sharp decline of Chinese equities has raised concerns about financial stability and potential disruptions to the real economy.

What explains the recent run-up and subsequent correction? On the upswing, retail investors, who account for the vast majority of the trading of Chinese equities, had reportedly been shifting their savings away from Chinese property markets and bank deposits amid falling house prices and growing expectations of further monetary easing in China. In addition, margin financing, which was officially authorized in 2010, increased rapidly as retail investors sought to magnify their equity gains by taking on leverage as the market kept rising (figure 2). These factors led to over-stretched valuations for most Chinese stocks; in mid-June, P/E ratios of companies listed in the Shanghai exchange averaged 26, whereas those of companies listed in the ChiNext—China's equivalent of Nasdaq—reached 146.

With bubble-like conditions, the market was ripe for a correction. Several factors may have triggered or exacerbated the sell-off, including attempts by the Chinese authorities to curb margin lending, the selling of stocks by investors to free up requisite funds to subscribe to a growing volume of IPOs this year, and the decision by MSCI—a provider of benchmark stock indexes—to delay the inclusion of China's mainland shares in its emerging markets indexes. As levered trades unwound, falling stock prices triggered margin calls, which resulted in further selling of stocks.

Chinese authorities have undertaken aggressive measures to try to stem the selloff. These actions include relaxing margin requirements, freezing IPOs temporarily, banning the sale of stocks by large shareholders, and creating a fund to be used to purchase shares of the largest companies. Moreover, recently the China Securities Regulatory Commission has allowed companies to voluntarily suspend trading of their stocks to prevent further price declines. In the first week of July, nearly half of the stocks listed on mainland exchanges had voluntarily suspended trading, but most have since resumed. Altogether, these measures appear to have helped stabilize stock markets.

We expect the recent stock market correction to have only a limited effect on China's economic growth and, in turn, negligible spillovers to the United States and the global economy. First, notwithstanding its recent losses, the Shanghai composite index is still up 97 percent since mid-2014. Second, the correlation between economic activity and stock prices in China is generally weak. In 2006 and 2007, Chinese stock prices increased 425 percent, before reversing almost three-quarters of those gains in 2008, but the economic impact of this decline is thought to have been limited. Chinese households hold only a small share of their wealth in stocks and the vast majority of households own no stocks at all; indeed, the run-up in stock prices from mid-2014 to mid-2015 did not appear to boost household consumption. Similarly, China's market capitalization as a

share of GDP is also small relative to other countries (figure 3).¹ We also do not expect the decline in equity markets to weaken investment, as most investment is financed by bank lending; in 2014, for example, equity financing constituted only about 2½ percent of total net financing. Third, stock markets compose a small part of China’s financial system. Although some Chinese securities firms and mutual funds have experienced losses on their equity holdings, their assets make up a small portion of total financial system assets. Moreover, there is little evidence that Chinese banks have meaningful exposure to stock markets. Finally, the official sector has the resources to provide liquidity assistance to financial institutions, if needed.

We cannot rule out the possibility, however, that market volatility triggers serious economic deterioration in China. One concern is that, unlike the 2006–07 episode, the recent run-up was largely fueled by leverage, reportedly including non-traditional forms of leverage such as consumer loans and trusts, which are less regulated and less transparent than the traditional margin financing provided by securities trading firms. The use of leverage can magnify losses and destabilize markets when it is unwound in a disorderly fashion. Of greater concern is the possibility that the unwinding of leverage produces wider and unforeseen reverberations in the shadow banking system, resulting in a financial crisis and a sharp slowdown in growth. Such a crisis may be more likely against the background of the ongoing strains in property and credit markets, a factor that may have motivated the authorities’ recent aggressive response. And such a crisis—which is explored in more detail in the Risks and Uncertainty section of this Tealbook—could have adverse spillovers to the U.S. economy.

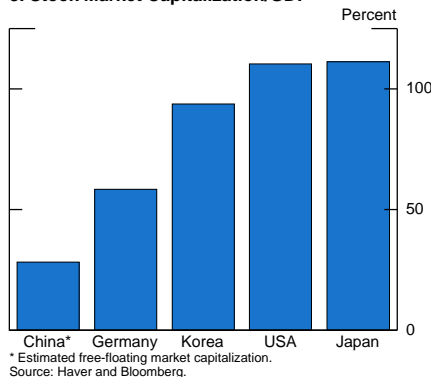
1. Chinese Equities



2. Margin Loans Outstanding, Shanghai Exchange



3. Stock Market Capitalization/GDP

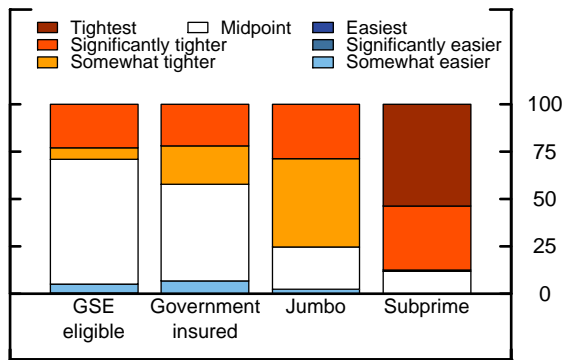


¹ The ratio of China’s market capitalization to GDP shown in figure 3 excludes government stakes in state-owned enterprises, which account for roughly half of China’s total stock market capitalization.

Financial Developments

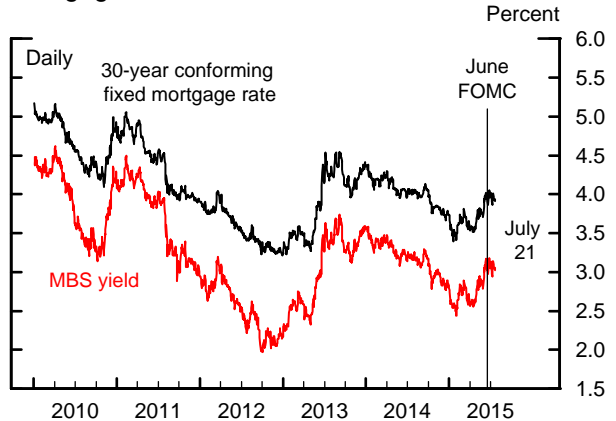
Household Finance

Level of Standards on Residential Real Estate Loans in 2015
Percent of respondents



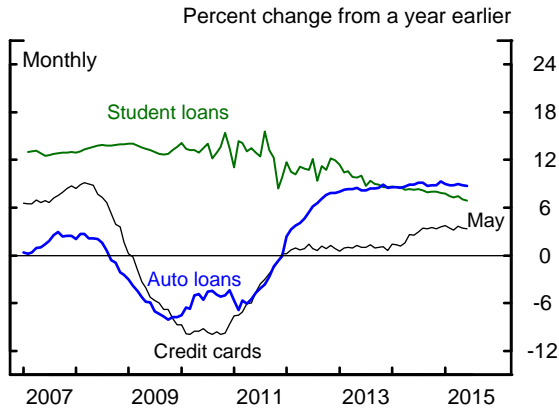
Note: Banks were asked to describe their current level of standards in relation to the midpoint of the range of standards at their bank between 2005 and the present. Responses are weighted by survey respondents' holdings of relevant loan types, as reported on the Q1 Call Reports from 2015 where relevant.
Source: Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices.

Mortgage Rate and MBS Yield



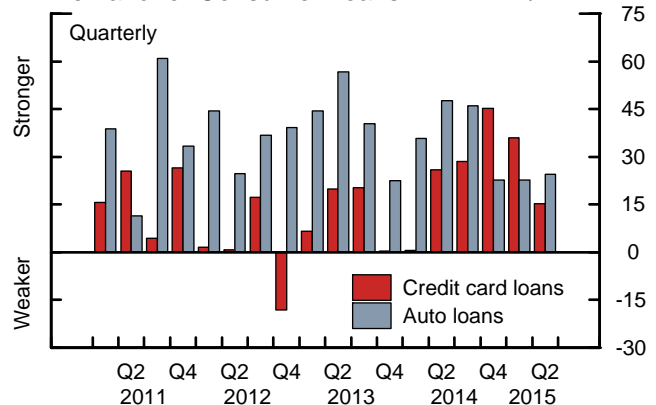
Note: The MBS yield is the Fannie Mae 30-year current-coupon rate.
Source: For MBS yield, Barclays; for mortgage rate, Loansifter.

Consumer Credit



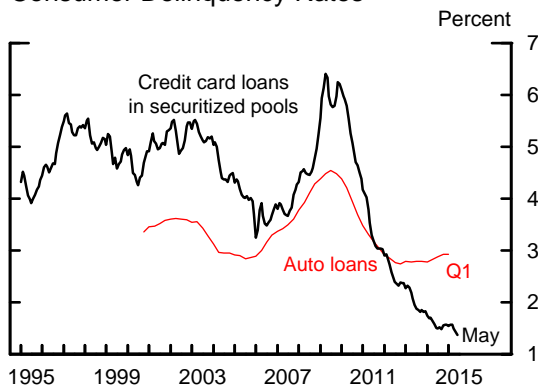
Note: The data are not seasonally adjusted.
Source: Federal Reserve Board.

Net Percentage of Banks Reporting Stronger Demand for Consumer Loans



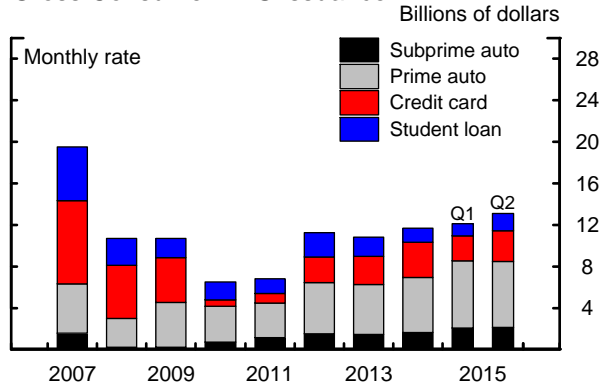
Note: Responses are weighted by survey respondents' holdings of relevant loan types as reported on Call Reports.
Source: Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices.

Consumer Delinquency Rates



Note: Based on dollar value. Auto loans are 30 days or more past due. For auto loans, 4-quarter moving average. For credit card loans, the data are monthly; for auto loans, the data are quarterly.
Source: For credit card loans, Moody's Investors Service; for auto loans, Federal Reserve Bank of New York Consumer Credit Panel/Equifax.

Gross Consumer ABS Issuance



Source: Inside MBS & ABS; Merrill Lynch; Federal Reserve Board.

conditions for small businesses improved further, with loan originations maintaining their gradual upward trend.

Financing for commercial real estate (CRE) remained broadly available, including for large- and small-sized loans and for the full range of property types. CRE property prices rose at a fast pace through April, supported in part by rising rents, declining vacancy rates, and accommodative financing conditions. CRE loans on banks' books expanded through June; according to the SLOOS, moderate numbers of banks again reported stronger demand for CRE loans in the second quarter, while few reported any further easing in lending standards. CMBS issuance stayed robust, and the spread between investment-grade CMBS and the swap rate was little changed, on net, an indication that strong issuance was met with investor demand.

Credit conditions in municipal bond markets were stable despite the announcement that Puerto Rico might seek to restructure at least part of its debt. (See the box "Assessing the Risks of a Puerto Rico Default for the Broader Municipal Market.") The pace of issuance of long-term municipal bonds remained robust in June, as issuers reportedly continued to take advantage of low yields to refinance existing debt. In addition, spreads of yields on 20-year general obligation municipal bonds over comparable-maturity Treasury securities changed little.

HOUSEHOLD FINANCE

Residential mortgage credit remained accessible for many consumers, although individuals with less desirable underwriting characteristics, such as low credit scores, undocumented income, or high debt-to-income ratios, still faced difficulties in obtaining loans. Although banks reported in the SLOOS that their lending standards for GSE-eligible and government-insured mortgages were little changed in the second quarter, they also reported that these standards are less tight than they were a few years ago. Standards for other types of residential real estate loans reportedly stayed quite tight.

Meanwhile, interest rates on 30-year fixed-rate mortgages to highly qualified borrowers were little changed at around 4 percent, on net, in line with MBS yields and other longer-term interest rates.

Assessing the Risks of a Puerto Rico Default for the Broader Municipal Market

The risk that Puerto Rico (PR) will be unable to repay its lenders has grown notably in recent weeks, as its government stated in an interview with the *New York Times* published on June 29, that its debt (estimated at \$76 billion) is “not payable” and significant concessions from its creditors would be necessary.¹ Subsequently, yields and credit default swap (CDS) spreads on PR general obligation bonds both spiked. However, CDS spreads for the broad municipal bond market (as indicated by the MCDX index) were little changed, suggesting that the events in PR have left, thus far, no material imprint on the overall market (figure 1). Even so, the risk remains that a PR default could increase borrowing costs and reduce funding for other municipal bond issuers, possibly through its adverse effects on investors or muni bond insurers. Here we assess the risk of these possible spillovers using available data on tax-exempt mutual funds, money market funds (MMFs), and monoline insurers.

Tax-exempt mutual funds are some of the main investors in PR debt. However, the likelihood that the tax-exempt mutual fund industry could experience significant and widespread strains due to PR default appears low, since PR bonds represent a small percentage of total holdings for the majority of exposed funds. The fund family with the largest PR exposure holds about \$5 billion at market value or 20 percent of their muni investments in PR (figure 2). While this fund family is vulnerable to extreme investor outflows and may have to sell securities issued by other states to satisfy sudden redemptions, the potential price impact exerted by forced sales is likely limited and temporary, as this fund family holds less than 1 percent of the total bonds outstanding of other more highly indebted U.S. states (such as California, New York, and New Jersey).²

SEC filings indicate that MMFs hold a very small amount of PR’s debt—\$21 million—as of the end of June, down from \$1.1 billion in December 2013. This exposure is particularly small when compared with the \$3 trillion in MMFs’ assets under management. In addition, all MMF holdings of PR obligations are pre-refunded (that is, backed by Treasury securities). Hence, the direct risk for MMFs of a PR default is negligible.

Although detailed data on direct exposure of other investors to PR debt are not available, market contacts estimate that the majority of the outstanding debt is held by hedge funds, mutual funds, and retail investors, with a large share of retail investors accounted for by Puerto Rican residents and banks. The significant exposure of local investors to PR debt is likely to exert additional strains on the local economy in the event of a default.

As nearly 25 percent of PR debt is insured, a PR default could in principle imperil the ability of monoline bond insurers to conduct new business. However, several indicators suggest that

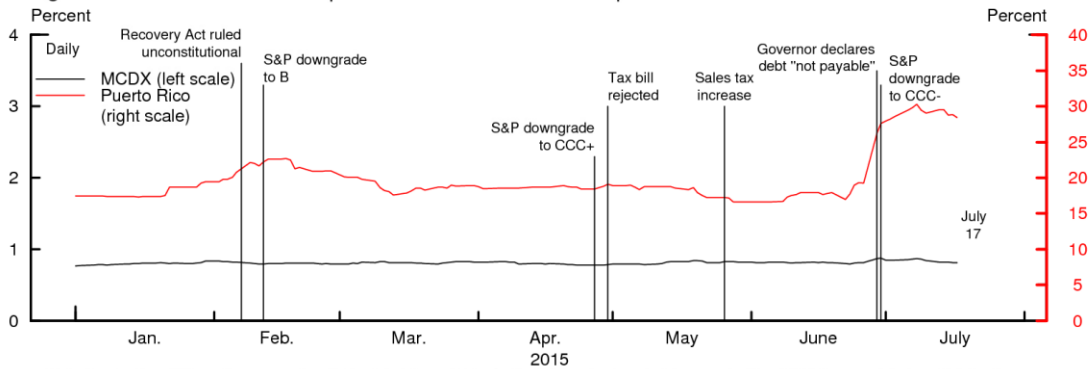
¹ See Michael Corkery and Mary Williams Walsh (2015), “In Puerto Rico, Debt Is Called ‘Not Payable,’” *New York Times*, June 29 (also available online at www.nytimes.com/2015/06/29/business/dealbook/puerto-ricos-governor-says-islands-debts-are-not-payable.html?_r=0).

² Preliminary data suggest that, while this fund family has experienced significant outflows in recent weeks, aggregate redemptions in the overall tax-exempt muni fund industry have been small.

these risks are limited. While a few bond insurers have significant exposure to PR debt as a percentage of their qualified statutory capital, upon default, financial guarantors are obligated to make principal and interest payments only as they come due, which would be over a period of many years. Staff estimates suggest that if PR defaults, the financial guarantors with the largest near-term exposure are expected to pay at most 25 percent of their statutory capital within the next year (figure 3). Furthermore, the majority of monolines with exposure to PR appear to have stopped writing new financial guarantees on municipal bonds in recent years, which further limits potential knock-on effects on the broader municipal bond market.³

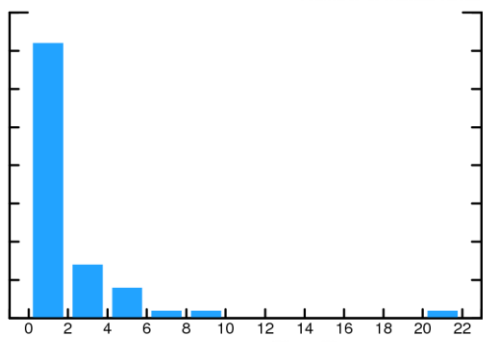
Although no state or local issuer is as embattled as Puerto Rico, a default may adversely affect the broad municipal bond market for other reasons. In particular, a default by PR may remind investors that repayment by the more fiscally troubled municipalities poses risks. This realization could prompt a temporary outflow from muni funds and briefly reduce the ability of states and municipalities to issue new debt. In addition, a PR default may lead investors to reassess the recovery rate of bondholders' claims against defaulting states, which could increase future borrowing costs for local governments.

Figure 1: Puerto Rico and Municipal Market Index 5-Year CDS Spreads



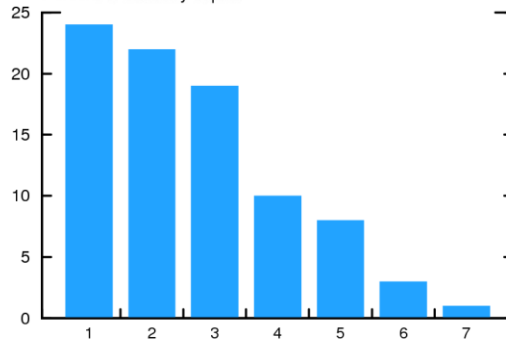
Note: Puerto Rico CDS numbers are not available July 1, 2, and 6 due to liquidity too low to calculate spreads. The MCDX is a municipal credit default swap index. Source: Markit.

Figure 2: Distribution of PR Bond Holdings as a Percent of Fund Muni Investments, Top 50 Mutual Fund Families



Source: Morningstar.

Figure 3: Monoline Insurers' Principal and Interest Payments on PR Bonds due in 1 Year



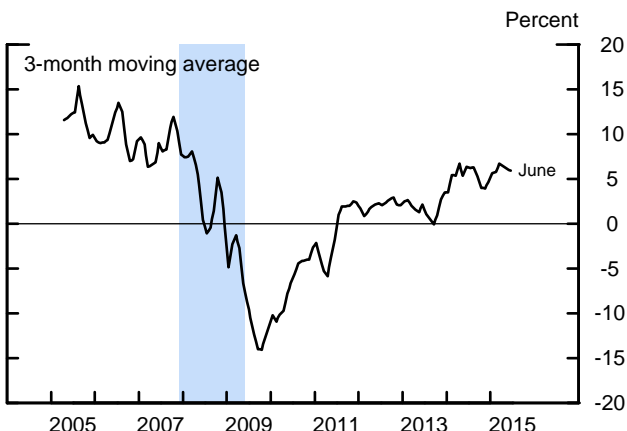
Source: Mergent.

³ While data on individual entities writing CDS contracts on PR debt are not available, aggregate estimates suggest that no more than \$600 million gross notional of CDS is linked to a PR default.

Financial Developments

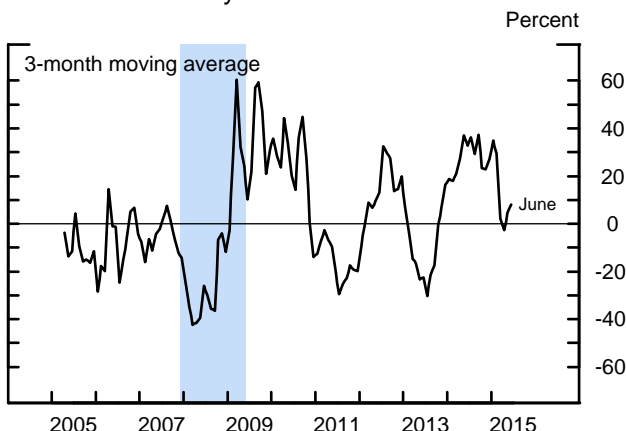
Other Banking Developments and Money

Growth of Core Loans



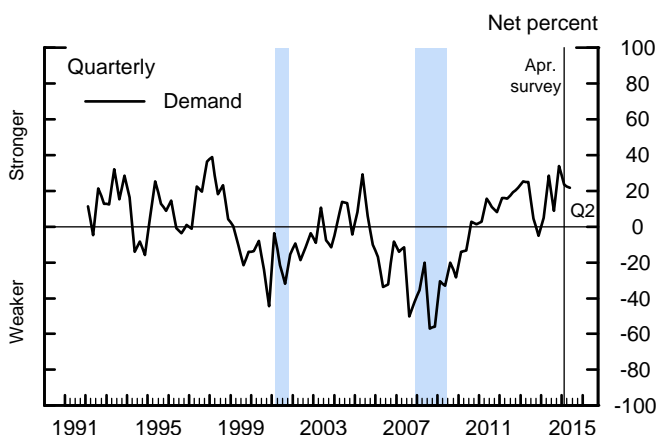
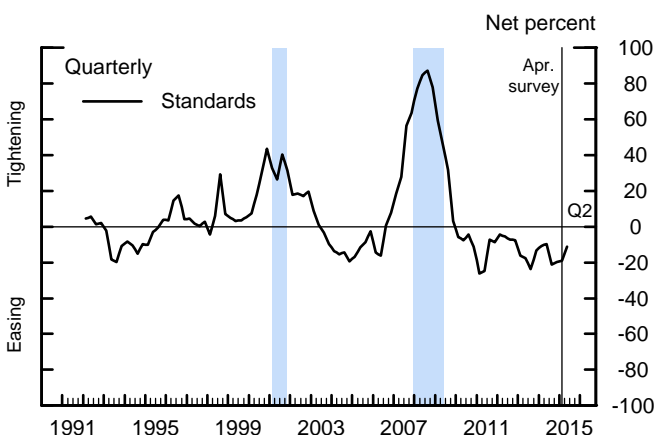
Source: Federal Reserve Board, FR 2644, Weekly Report of Selected Assets and Liabilities of Domestically Chartered Commercial Banks and U.S. Branches and Agencies of Foreign Banks.

Growth of Treasury Securities



Note: Includes Treasury and agency non-MBS debt.
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.

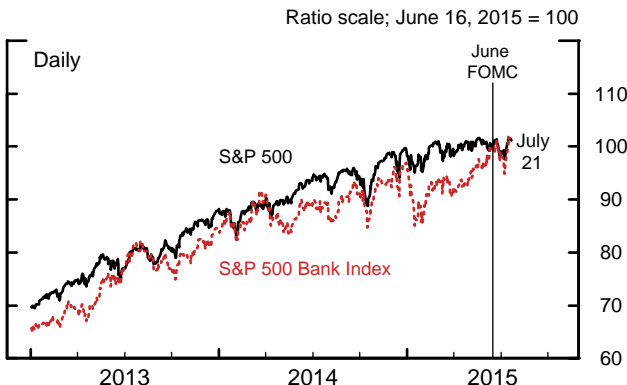
Changes in Standards and Demand across Core Loan Categories



Note: A composite index that represents the net percentage of loans on respondents' balance sheets that were in categories for which banks reported tighter lending standards or stronger loan demand over the past 3 months, with results weighted by survey respondents' holdings of loans in each category.
Source: Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices.

Financial Developments

S&P 500 Stock Price Indexes



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	-2.8	7.5
2014:H2	5.2	6.5	-8.7	-2.8	6.2
2015:Q1	7.6	9.1	-10.0	-4.0	9.8
2015:Q2	5.0	6.7	-18.2	-3.4	5.1
June	4.6	5.6	-16.3	5.5	4.7

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.

Outstanding balances of auto and student loans kept expanding at a robust pace through May, and consumers appeared to rely on credit to finance vehicle purchases more than they did a year ago. The gradual recovery in revolving credit that started in early 2014 appeared to stay broadly on track. Banks indicated in the SLOOS that the level of their lending standards for credit card loans has eased somewhat relative to a few years ago. Nevertheless, a range of indicators suggest that standards and terms of credit card loans likely remain tight, particularly for subprime borrowers.

Amid robust issuance in the second quarter, spreads in the consumer ABS market widened a bit toward the upper edge of their narrow range seen after the financial crisis. Demand for ABS appeared to remain solid, with deals reportedly oversubscribed.

OTHER BANKING DEVELOPMENTS AND MONEY

Bank-intermediated credit continued to expand during the second quarter. The rapid rise in banks' Treasury holdings largely ceased, as most large banks are now compliant with the liquidity coverage ratio. During the first half of the intermeeting period, bank stock prices declined as risk sentiment deteriorated, but they subsequently recovered with the broader market. Banks' stock prices were further supported by generally positive earnings reports; bank profitability was reported to have improved in the second quarter, primarily as a result of somewhat higher net interest margins that resulted from loan growth and expense containment.⁴

M2 expanded at a moderate pace in June amid a continuation of recent trends in the growth of its major individual components, and liquid deposits as a share of M2 stayed at an all-time high.

FEDERAL RESERVE OPERATIONS AND SHORT-TERM FUNDING MARKETS

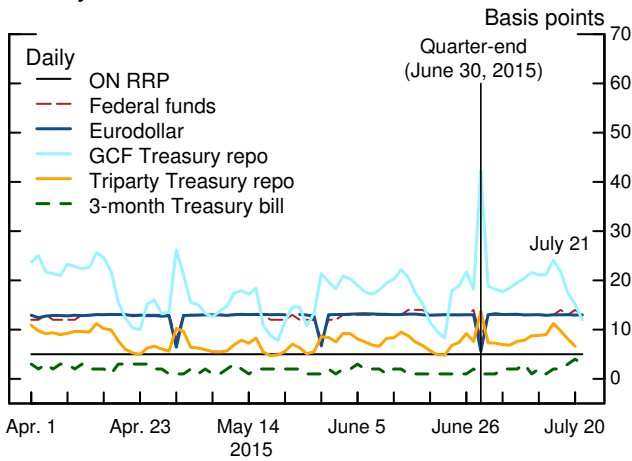
Short-term funding markets remained stable, and the Federal Reserve's RRP testing operations continued to provide a soft floor on money market rates.⁵ The Desk

⁴ The Federal Reserve Board's approval of the final rule on risk-based capital surcharges applicable to U.S. global systemically important banks on July 20 induced no apparent reaction in banks' equity prices.

⁵ The effective federal funds rate averaged 13 basis points over the intermeeting period, with the intraday standard deviation averaging 4 basis points. The announcement that the calculation of the effective federal funds rate would change next year to a volume-weighted median in conjunction with the transition to the FR 2420 (Report of Selected Money Market Rates) data source—as noted in both the June FOMC minutes and a Federal Reserve Bank of New York statement—did not elicit any price reaction.

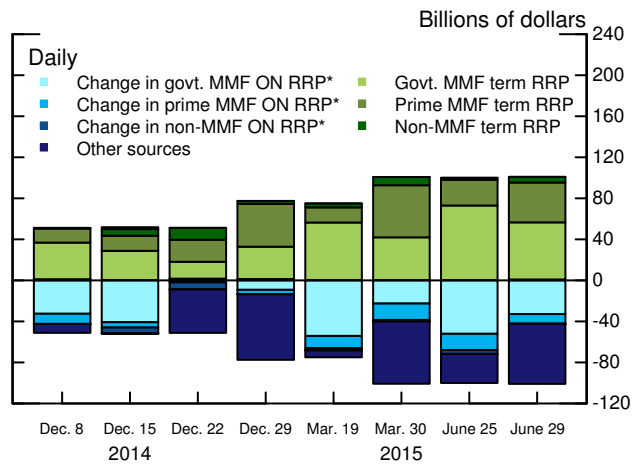
Federal Reserve Operations and Short-Term Funding Markets

Money Market Rates



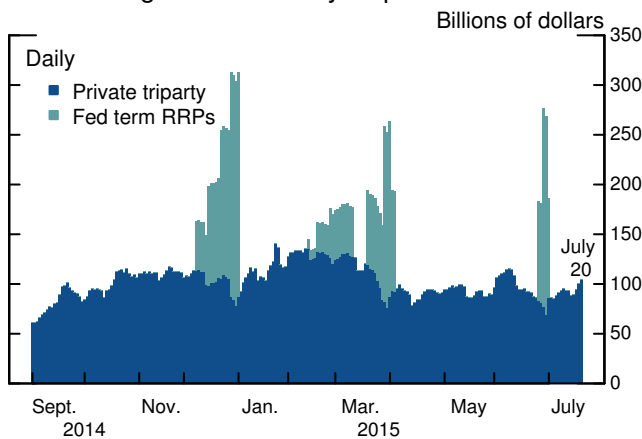
Note: GCF is General Collateral Finance; repo is repurchase agreement.
 Source: Depository Trust & Clearing Corporation; Federal Reserve Bank of New York; Federal Reserve Board.

Sources of Term RRP Awards at Quarter-End



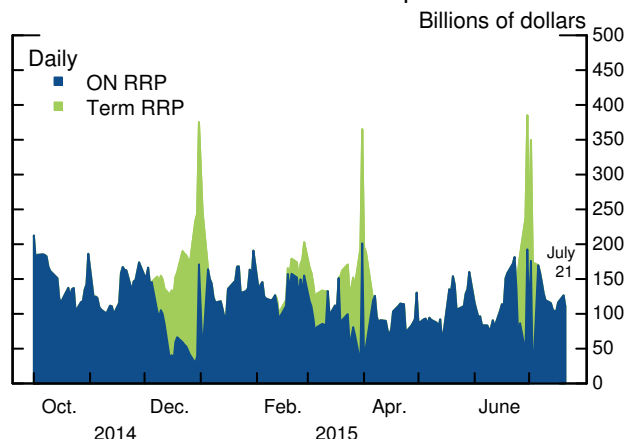
Note: MMF is money market fund.
 * 1-day change in ON RRP allotment from the previous day.
 Source: Federal Reserve Bank of New York.

Outstanding Term Treasury Repo



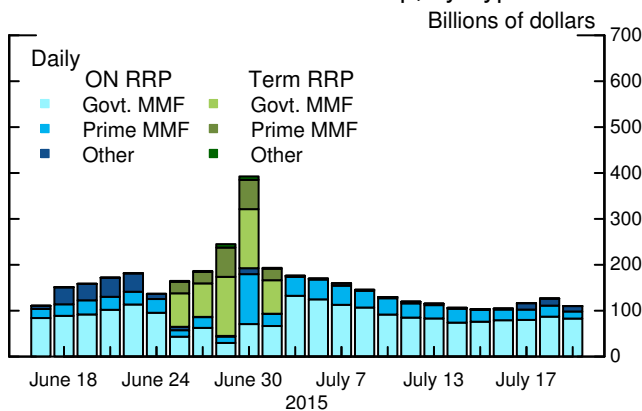
Source: Federal Reserve Bank of New York.

ON RRP and Term RRP Take-Up



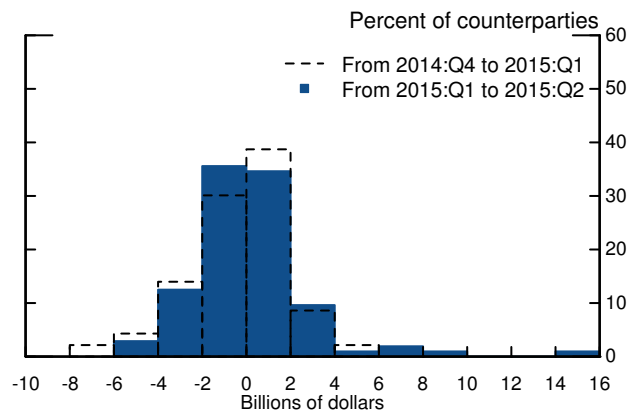
Source: Federal Reserve Bank of New York.

ON RRP and Term RRP Take-Up, by Type



Note: MMF is money market fund.
 Source: Federal Reserve Bank of New York.

Distribution of the Change in Total RRP Take-Up from Previous Quarter-End



Source: Federal Reserve Bank of New York.

Note: Overnight reverse repurchase agreements (ON RRP) specify operations in which the trade matures on the next business day. Term reverse repurchase agreements (term RRP) specify operations in which the trade matures more than 1 business day after the settlement date.

auctioned two term RRP's covering June quarter-end, each with an offered amount of \$100 billion and a maximum bid rate of 8 basis points. Both operations were slightly oversubscribed, with awards allocated at 7 basis points. Similar to previous quarter-ends, counterparties generally substituted from ON RRP into term RRP, with limited apparent substitution out of private term reverse repo positions into term RRP. Moreover, at \$393 billion, total take-up of term and ON RRP's on June 30, as well as the pattern of take-up at the counterparty level, was consistent with recent quarter-ends.⁶

Over the intermeeting period, the Desk purchased \$36 billion of agency MBS under the reinvestment program and rolled \$0.1 billion in expected settlements.

⁶ The monetary base contracted in June because of temporary factors, including the greater take-up at the Federal Reserve's RRP operations over quarter-end and an increase in the Treasury's General Account.

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Risks and Uncertainty

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. The first two scenarios illustrate risks associated with the possibility that labor productivity could turn out weaker than in the staff projection. In both of these scenarios, the economy suffers an adverse shock to aggregate supply. In the first, aggregate demand moves down in line with aggregate supply, while in the second, aggregate demand continues along its baseline trajectory, resulting in a stronger labor market and tighter resource utilization. In the third scenario, economic activity is significantly stronger than in the baseline and inflation turns out to be more sensitive to cyclical pressures. In the fourth scenario, we explore the risk that losses within the financial sector could weaken economic activity more materially if their effects were amplified by high leverage in the financial system. In the fifth scenario, a disorderly exit of Greece from the euro-area monetary union causes Europe to plunge into recession with substantial adverse effects on the global economy. In the final scenario, a deterioration of financial conditions and confidence in China triggers spillovers to other emerging markets and a flight to quality that appreciates the dollar.

We generate the first and second scenarios using the FRB/US model, while the third uses the EDO model. The fourth scenario uses a model similar in spirit to EDO but explicitly models the behavior of leveraged financial intermediaries. 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.

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.

Alternative Scenarios

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

Measure and scenario	2015		2016	2017	2018-19
	H1	H2			
<i>Real GDP</i>					
Extended Tealbook baseline	1.1	2.0	2.3	2.1	1.8
Weaker labor prod., slower output growth	1.1	1.3	1.9	1.7	1.5
Weaker labor prod., stronger labor market	1.1	2.0	2.2	1.9	1.4
Faster growth with higher inflation	1.1	3.2	3.8	2.2	1.5
Adverse credit shock with high leverage	1.1	2.0	-2	3.8	2.4
Greek exit with sizable spillovers	1.1	1.8	1.5	1.8	2.0
China-driven EME slump with stronger dollar	1.1	1.6	1.3	2.1	2.2
<i>Unemployment rate¹</i>					
Extended Tealbook baseline	5.4	5.2	5.2	5.1	5.0
Weaker labor prod., slower output growth	5.4	5.2	5.2	5.1	5.0
Weaker labor prod., stronger labor market	5.4	5.0	4.7	4.5	4.4
Faster growth with higher inflation	5.4	5.0	4.4	4.4	4.6
Adverse credit shock with high leverage	5.4	5.2	6.1	5.4	4.8
Greek exit with sizable spillovers	5.4	5.2	5.5	5.6	5.4
China-driven EME slump with stronger dollar	5.4	5.3	5.6	5.7	5.4
<i>Total PCE prices</i>					
Extended Tealbook baseline	.0	.7	1.6	1.7	1.9
Weaker labor prod., slower output growth	.0	.7	1.8	1.9	1.9
Weaker labor prod., stronger labor market	.0	.8	1.8	1.9	2.1
Faster growth with higher inflation	.0	1.5	1.9	2.2	2.3
Adverse credit shock with high leverage	.0	.7	1.6	1.7	1.9
Greek exit with sizable spillovers	.0	.5	.9	1.2	1.6
China-driven EME slump with stronger dollar	.0	-.1	.6	1.5	1.9
<i>Core PCE prices</i>					
Extended Tealbook baseline	1.2	1.4	1.5	1.7	1.9
Weaker labor prod., slower output growth	1.2	1.4	1.7	1.8	2.0
Weaker labor prod., stronger labor market	1.2	1.4	1.7	1.9	2.1
Faster growth with higher inflation	1.2	1.5	1.9	2.2	2.3
Adverse credit shock with high leverage	1.2	1.4	1.6	1.7	1.9
Greek exit with sizable spillovers	1.2	1.2	1.0	1.2	1.6
China-driven EME slump with stronger dollar	1.2	1.1	.9	1.4	1.8
<i>Federal funds rate¹</i>					
Extended Tealbook baseline	.1	.4	1.2	2.1	3.1
Weaker labor prod., slower output growth	.1	.4	1.3	2.2	3.2
Weaker labor prod., stronger labor market	.1	.4	1.7	2.9	4.3
Faster growth with higher inflation	.1	.5	2.3	3.8	4.9
Adverse credit shock with high leverage	.1	.4	.4	1.0	3.1
Greek exit with sizable spillovers	.1	.4	.8	.9	2.2
China-driven EME slump with stronger dollar	.1	.4	.7	1.0	2.5

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

Weaker Labor Productivity, Slower Output Growth

Labor productivity growth has been quite weak over the past few years. In the baseline, we assume that productivity growth rebounds to a pace in line with its average over the past 10 years. Here we present two alternative scenarios in which productivity growth is weaker than in the baseline (though still somewhat stronger than the meager ½ percent growth over the past four years). Specifically, in both we assume that labor productivity growth is 50 basis points below baseline in 2016 and 2017. However, the weakness occurs in two different environments, with differing policy implications.

In the first scenario, we assume a slowdown in structural productivity growth that, through permanent income effects, also reduces spending and, hence, actual output growth, leaving the output gap and unemployment rate broadly unchanged relative to the baseline. The weakness in structural productivity raises core inflation around 15 basis points relative to baseline in 2016 and 2017; this increase is because weaker productivity growth implies a faster rise in unit labor costs, which has a direct role in determining inflation in the FRB/US model.² The prescription for policy is therefore largely unchanged from the baseline—and, in fact, is marginally tighter in response to the higher inflation.

Weaker Labor Productivity, Stronger Labor Market

In the second scenario illustrating risks to the labor productivity forecast, the slower growth in output per hour again reflects weakness on the supply side of the economy, but this time we assume that household and business spending continues along its baseline trajectory. In effect, the adverse aggregate supply shock is counterbalanced by a favorable aggregate demand shock. As a result, actual output growth is broadly unchanged compared with the baseline, but employment grows more rapidly and the unemployment rate falls more steeply. With a more rapid take-up of slack than in the first scenario, inflation is higher still.

In this scenario, the output gap closes in 2016 and moves up to 1 percent in 2017, about 1 percentage point above the baseline. With resource utilization noticeably tighter

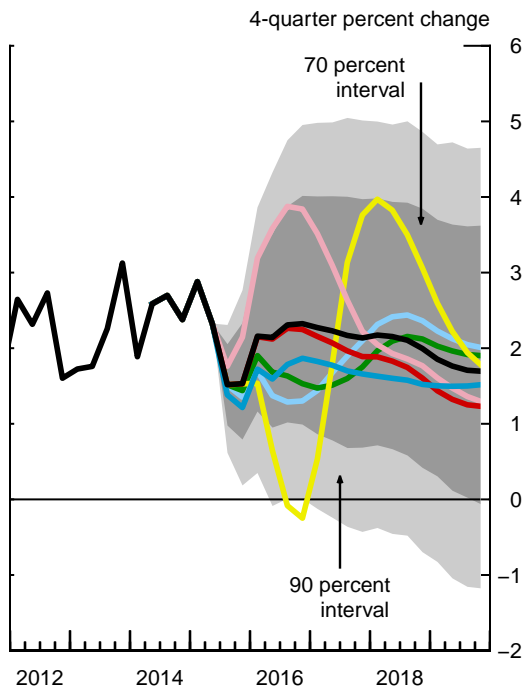
² The staff's judgmental apparatus does not have a direct role for unit labor costs in determining inflation. As such, under the staff's judgmental apparatus the lower productivity would have little effect on price inflation but would instead lower wage inflation. The resulting prescription for monetary policy in this scenario using the judgmental apparatus would be even closer to the baseline.

Forecast Confidence Intervals and Alternative Scenarios

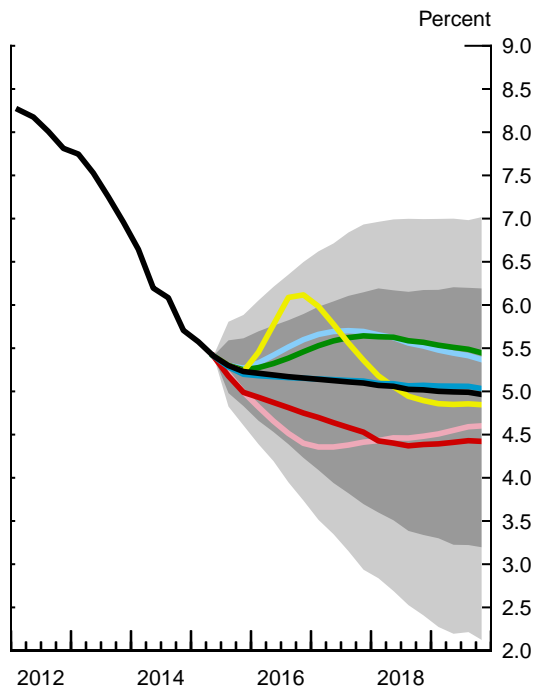
Confidence Intervals Based on FRB/US Stochastic Simulations

- Extended Tealbook baseline
- Faster growth with higher inflation
- Greek exit with sizable spillovers
- Weaker labor prod., slower output growth
- Adverse credit shock with high leverage
- China-driven EME slump with stronger dollar
- Weaker labor prod., stronger labor market

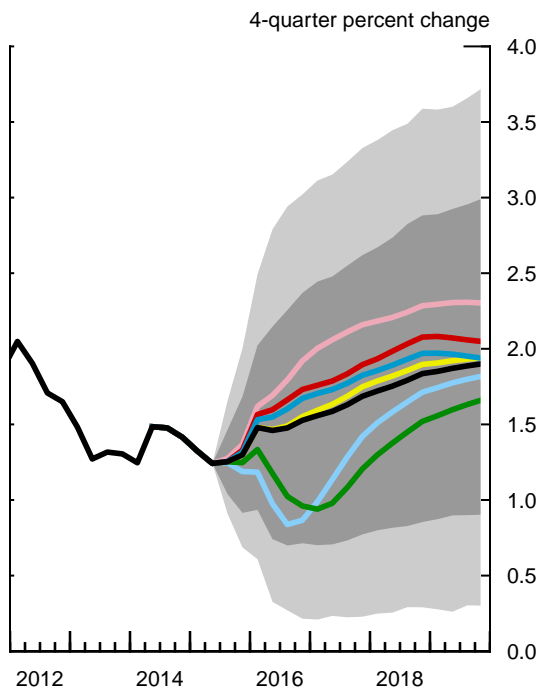
Real GDP



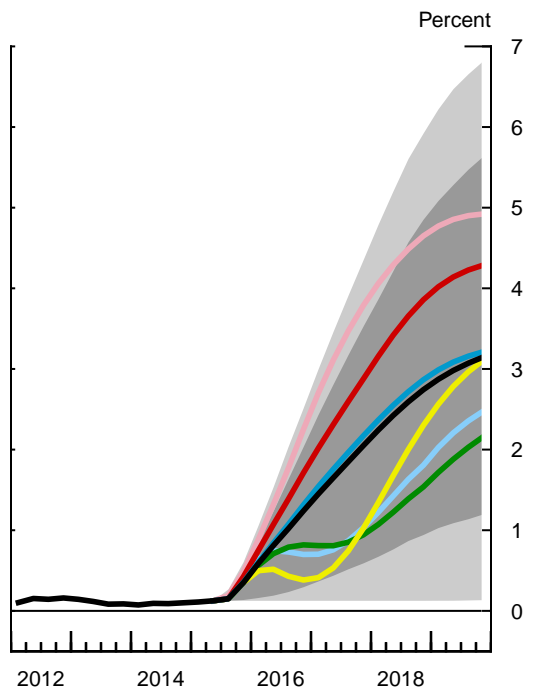
Unemployment Rate



PCE Prices excluding Food and Energy



Federal Funds Rate



Risks & Uncertainty

and inflation higher, the policy prescription is for a markedly steeper funds rate path, and the policy rate reaches 4¼ percent by the end of 2019.

Faster Growth with Higher Inflation

Labor market indicators continue to be relatively strong: Overall payrolls rose an average of 210,000 per month over the first half of the year, for example, and the unemployment rate declined 0.3 percentage point despite measured GDP growth averaging only 1 percent at an annual rate. One plausible interpretation is that the underlying state of the economy is, in fact, considerably more robust than assumed in the baseline. In this scenario, households' and businesses' confidence about the underlying strength of the economy 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.³

As a result, real GDP growth averages about 3¼ percent in the second half of 2015 and 3¾ percent in 2016, compared with 2 percent and 2¼ percent, respectively, in the baseline. The unemployment rate falls to nearly 4¼ percent early in 2017 before rising back slowly toward the natural rate. With resource utilization tighter and the Phillips curve steeper, inflation rises faster than in the baseline, reaching 2¼ percent by the end of 2017.⁴ The federal funds rate rises more quickly than in the baseline, reaching 5 percent by the end of 2019. Given enough time, tighter monetary policy would eventually return output to a sustainable trajectory and bring inflation back to 2 percent.

Adverse Credit Shock with High Leverage

The most recent QS Assessment of Financial Stability notes that lenders' risk appetite for nonfinancial business sector credit remains elevated, presumably spurred, in part, by "reach for yield" in the context of the prolonged period of low interest rates. Although the staff's baseline outlook does not envisage a marked deterioration in credit

³ 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.

⁴ The larger rise in inflation depends importantly on the smaller adjustment costs for wages and prices in this scenario. Had we used our standard coefficients in these equations, inflation would have peaked at 2 percent.

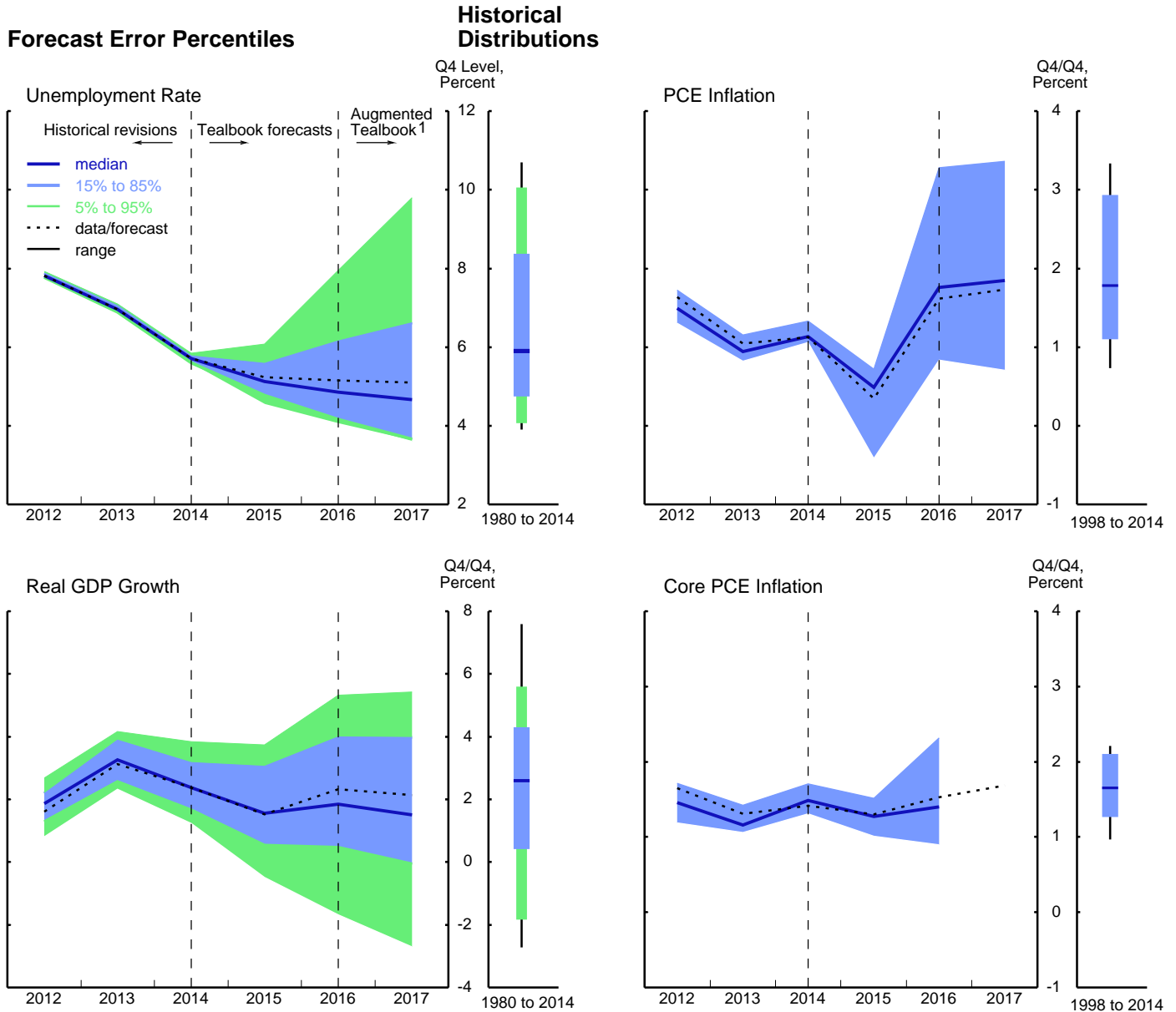
Selected Tealbook Projections and 70 Percent Confidence Intervals Derived from Historical Tealbook Forecast Errors and FRB/US Simulations

Measure	2015	2016	2017	2018	2019
<i>Real GDP</i>					
<i>(percent change, Q4 to Q4)</i>					
Projection	1.5	2.3	2.1	2.0	1.7
Confidence interval					
Tealbook forecast errors	.5–3.1	.5–4.0	-.1–4.0
FRB/US stochastic simulations	.8–2.3	1.0–4.0	.7–4.0	.4–3.8	-.1–3.6
<i>Civilian unemployment rate</i>					
<i>(percent, Q4)</i>					
Projection	5.2	5.2	5.1	5.0	5.0
Confidence interval					
Tealbook forecast errors	4.8–5.6	4.2–6.2	3.6–6.6
FRB/US stochastic simulations	4.8–5.6	4.2–5.9	3.7–6.1	3.3–6.2	3.2–6.2
<i>PCE prices, total</i>					
<i>(percent change, Q4 to Q4)</i>					
Projection	.3	1.6	1.7	1.8	1.9
Confidence interval					
Tealbook forecast errors	-.4–.7	.8–3.3	.7–3.4
FRB/US stochastic simulations	-.1–.9	.7–2.6	.7–2.8	.8–3.0	.8–3.0
<i>PCE prices excluding food and energy</i>					
<i>(percent change, Q4 to Q4)</i>					
Projection	1.3	1.5	1.7	1.8	1.9
Confidence interval					
Tealbook forecast errors	1.0–1.5	.9–2.3
FRB/US stochastic simulations	.9–1.7	.7–2.4	.8–2.6	.9–2.9	.9–3.0
<i>Federal funds rate</i>					
<i>(percent, Q4)</i>					
Projection	.4	1.2	2.1	2.7	3.1
Confidence interval					
FRB/US stochastic simulations	.1–.5	.3–2.0	.6–3.5	.9–4.8	1.2–5.6

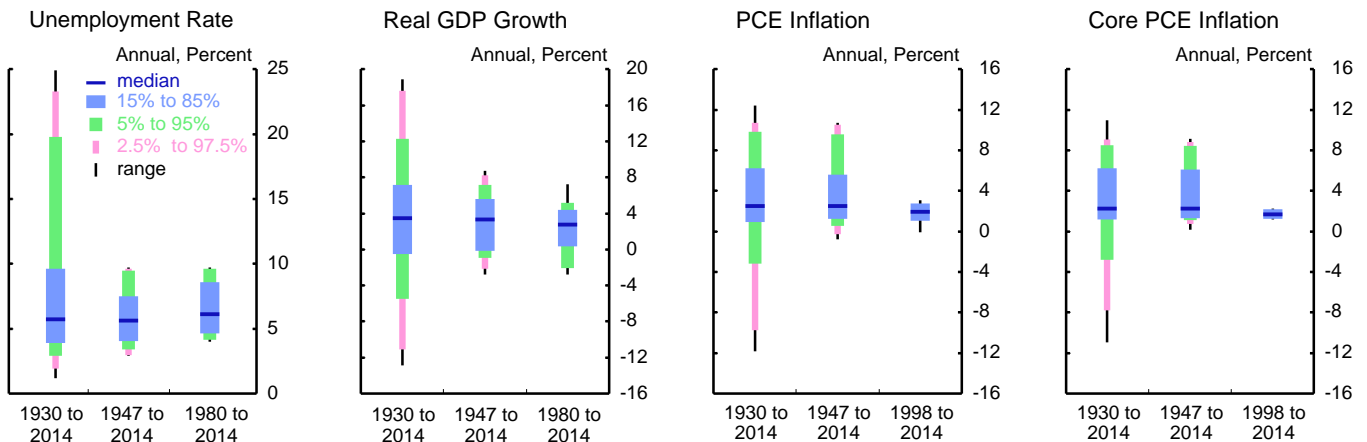
Note: Shocks underlying FRB/US stochastic simulations are randomly drawn from the 1969–2014 set of model equation residuals. Intervals derived from Tealbook forecast errors are based on projections made from 1980 to 2014 for real GDP and unemployment and from 1998 to 2014 for PCE prices. The intervals 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.

Prediction Intervals Derived from Historical Tealbook Forecast Errors



Historical Distributions



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.

performance, this alternative scenario assumes that a large fraction of that risky credit sours in the near term.

The model used to generate this scenario includes a leveraged financial sector with sizable credit risk exposure that serves as an important amplification mechanism. In particular, higher leverage leaves the system more vulnerable to adverse shocks that reduce the net worth of financial firms. In the aftermath of an adverse shock to financial firms' net worth, the financial sector sharply curtails lending and thus imposes a material drag on economic activity.⁵

We suppose that effective leverage in the financial system moves by early next year to a level as high as that observed pre-crisis. Losses at financial institutions are then assumed to spike significantly. As a result, real GDP contracts in 2016 and the unemployment rate climbs back to almost 6¼ percent.⁶ The tightening of policy called for in the baseline by the inertial Taylor rule in late 2015 is halted, and the federal funds rate hovers around ½ percent in 2016 and early 2017 until economic conditions improve. Inflation in the scenario moves little from the baseline in part because the model assumes a flat Phillips curve, but also because the deterioration of banks' balance sheets leads to a reduction in investment, which reduces the marginal productivity of labor and so limits the decline in marginal cost.

Greek Exit with Sizable Spillovers

Despite recent actions by the Greek government and its official-sector creditors laying the groundwork for a new three-year aid program, Greece's continued membership in the euro area is far from assured. In particular, given substantial political uncertainty within Greece, dire economic conditions, and the unpopularity of the austerity measures, there is some risk that negotiations with creditors over the new bailout may break down completely; alternatively, even if a new bailout is agreed upon, there is risk that the Greek government may fail to adhere to its terms, leading the European authorities to

⁵ This scenario is conditioned on the financial system being fairly highly leveraged: Given the currently strong capital position of the banking sector, the scenario might best be thought of as reflecting risks emanating from the nonbank financial sector, where leverage is challenging to comprehensively measure in real time.

⁶ In contrast, the same adverse shock without the additional leverage would cause unemployment in the model to reach only 5¾ percent. The notion that lower leverage implies less amplification of the macroeconomic effects of losses within the financial system was also discussed in simulations of a related DSGE model in the box "CCAR/DFAST Trends" in the April QS Assessment of Financial Stability, pages 26–28.

withdraw financial support. While we think that the firewalls erected during the past few years would keep spillovers from a possible Greek exit from the euro area largely contained, this scenario considers a more adverse outcome in which a Greek exit causes both a severe recession in the euro area and broader financial market turmoil.

Specifically, our scenario assumes that euro-area real GDP falls about 4 percent relative to the baseline by early 2017 as peripheral sovereign bond spreads rise sharply above baseline and euro-area confidence tumbles. These developments have substantial adverse spillovers to the United States. U.S. corporate bond spreads are assumed to rise about 50 basis points, while flight-to-safety flows help push the trade-weighted dollar up nearly 7 percent.⁷

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 tighter credit conditions, and U.S. real GDP expands only 1½ percent in 2016. Lower U.S. output and lower import price inflation slow U.S. core inflation to 1 percent in 2016, about ½ percentage point below baseline. The inertial Taylor rule prescribes a considerably shallower path for the federal funds rate than in the baseline.

China-Driven EME Slump with Stronger Dollar

China's economy faces important financial-sector vulnerabilities, as suggested by its weakened property market, high credit-to-GDP ratio, and, most recently, the plunge in its stock market following its earlier run-up. Our baseline projection assumes that the stock market correction has little effect on the Chinese economy and financial system. But in this scenario, we assume that a further plunge in equity prices interacts with other weaknesses in the financial system to trigger a more generalized crisis and recession. Specifically, China's GDP falls about 7 percent below baseline by the end of next year, and there are marked spillovers to other EMEs that reduce their GDP about 3½ percent. In addition, considerable flight-to-quality flows into dollar-denominated assets contribute to an appreciation of the broad real dollar of 8 percent.

⁷ The adverse spillovers from a Greek exit in this scenario are smaller than those featured in the June 2015 Tealbook scenario "Greek Exit with Severe Spillovers." The surprising resilience displayed by financial markets in recent weeks—even as tensions between Greece and its creditors mounted—has given us a bit more confidence that a Greek exit would not generate a 2008-style global financial crisis. That said, the possibility that more severe spillovers could ensue following Greek exit—along the lines considered in the June Tealbook, or even worse—should not be entirely discounted.

The weaker foreign economic activity and the appreciation of the dollar cause U.S. real net exports to fall relative to baseline. As a result, U.S. real GDP growth slows to only 1¼ percent at an annual rate in 2016, and the unemployment rate increases to 5½ percent, about ½ percentage point higher than in the baseline. Core PCE inflation declines to slightly less than 1 percent in 2016 as a result of both the dollar's appreciation and lower resource utilization. As a result, the federal funds rate rises more gradually going forward.

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
<i>Greater than 3 percent</i>				
Current Tealbook	.03	.04	.13	.08
Previous Tealbook	.04	.07	.14	.08
<i>Less than 1 percent</i>				
Current Tealbook	.42	.28	.24	.15
Previous Tealbook	.29	.19	.22	.16

Probability of Unemployment Events

(4 quarters ahead—2016:Q2)

Probability that the unemployment rate will ...	Staff	FRB/US	EDO	BVAR
<i>Increase by 1 percentage point</i>				
Current Tealbook	.04	.04	.27	.01
Previous Tealbook	.05	.04	.25	.01
<i>Decrease by 1 percentage point</i>				
Current Tealbook	.11	.04	.03	.37
Previous Tealbook	.10	.04	.04	.35

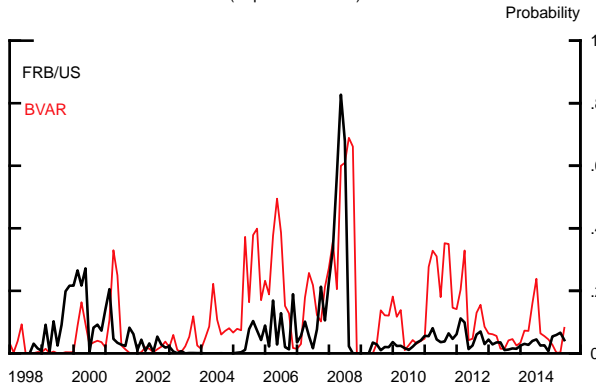
Probability of Near-Term Recession

Probability that real GDP declines in each of 2015:Q3 and 2015:Q4	Staff	FRB/US	EDO	BVAR	Factor Model
Current Tealbook	.05	.02	.03	.03	.17
Previous Tealbook	.04	.03	.03	.03	.41

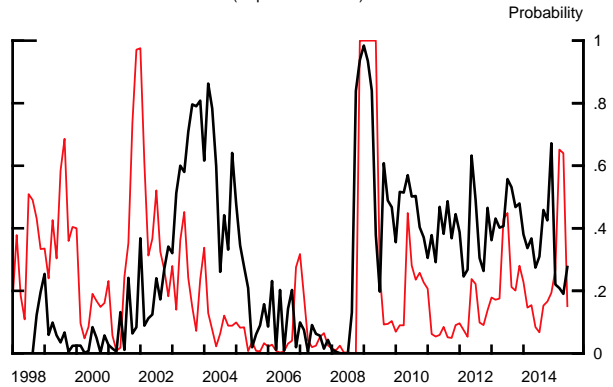
Note: "Staff" represents Tealbook forecast errors applied to the Tealbook baseline; baselines for FRB/US, BVAR, EDO, and the factor model are generated by those models themselves, up to the current-quarter estimate. Data for the current quarter are taken from the staff estimate for the second Tealbook 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.

Assessment of Key Macroeconomic Risks (2)

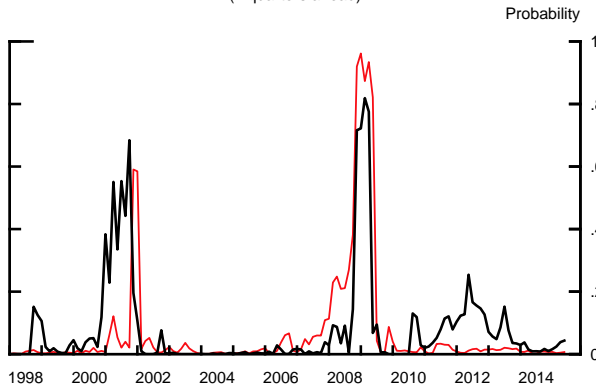
Probability that Total PCE Inflation Is above 3 Percent
(4 quarters ahead)



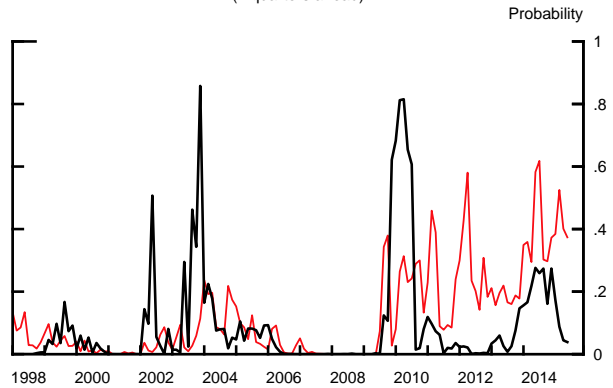
Probability that Total PCE Inflation Is below 1 Percent
(4 quarters ahead)



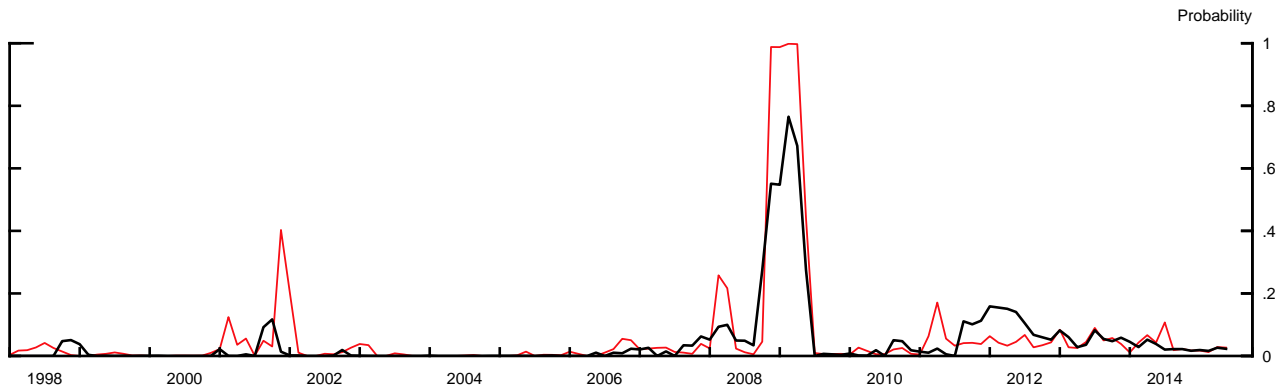
Probability that the Unemployment Rate Increases 1 ppt
(4 quarters ahead)



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.

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.

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.

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.

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	
	06/10/15	07/22/15	06/10/15	07/22/15	06/10/15	07/22/15	06/10/15	07/22/15	06/10/15	07/22/15
<i>Quarterly</i>										
2014:Q1	-8	-8	-2.1	-2.1	1.4	1.4	1.2	1.2	6.6	6.6
2014:Q2	6.8	6.8	4.6	4.6	2.3	2.3	2.0	2.0	6.2	6.2
2014:Q3	6.4	6.4	5.0	5.0	1.2	1.2	1.4	1.4	6.1	6.1
2014:Q4	2.4	2.4	2.2	2.2	-4	-4	1.1	1.1	5.7	5.7
2015:Q1	-6	-2	-5	-2	-2.0	-2.0	.8	.8	5.6	5.6
2015:Q2	5.0	4.7	2.5	2.4	1.9	2.0	1.6	1.7	5.5	5.4
2015:Q3	3.0	3.4	1.9	1.7	1.4	1.2	1.5	1.4	5.4	5.3
2015:Q4	3.6	2.7	2.3	2.3	1.2	.2	1.3	1.3	5.3	5.2
2016:Q1	4.2	4.2	2.3	2.3	1.6	1.7	1.6	1.6	5.3	5.2
2016:Q2	4.1	4.0	2.5	2.3	1.6	1.6	1.6	1.6	5.3	5.2
2016:Q3	4.2	4.0	2.5	2.3	1.6	1.6	1.6	1.5	5.3	5.2
2016:Q4	4.0	4.0	2.4	2.3	1.6	1.6	1.5	1.5	5.2	5.2
<i>Two-quarter²</i>										
2014:Q2	2.9	2.9	1.2	1.2	1.9	1.9	1.6	1.6	-8	-8
2014:Q4	4.4	4.4	3.6	3.6	.4	.4	1.2	1.2	-5	-5
2015:Q2	2.2	2.2	1.0	1.1	-1	.0	1.2	1.2	-2	-3
2015:Q4	3.3	3.0	2.1	2.0	1.3	.7	1.4	1.4	-2	-2
2016:Q2	4.2	4.1	2.4	2.3	1.6	1.7	1.6	1.6	.0	.0
2016:Q4	4.1	4.0	2.4	2.3	1.6	1.6	1.5	1.5	-1	.0
<i>Four-quarter³</i>										
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	2.7	2.6	1.6	1.5	.6	.3	1.3	1.3	-4	-5
2016:Q4	4.1	4.1	2.4	2.3	1.6	1.6	1.6	1.5	-1	.0
2017:Q4	4.1	4.0	2.2	2.1	1.8	1.7	1.8	1.7	.0	-1
<i>Annual</i>										
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	3.0	3.1	2.0	2.1	.3	.3	1.3	1.3	5.4	5.4
2016	4.0	3.8	2.3	2.2	1.5	1.3	1.5	1.5	5.3	5.2
2017	4.1	4.0	2.3	2.2	1.7	1.7	1.7	1.6	5.2	5.1

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

Changes in Real Gross Domestic Product and Related Items

(Percent, annual rate except as noted)

Item	2014				2015				2016				2014 ¹	2015 ¹	2016 ¹	2017 ¹
	Q2	Q3	Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Real GDP	4.6	5.0	2.2		-2	2.4	1.7	2.3	2.3	2.3	2.3	2.3	2.4	1.5	2.3	2.1
<i>Previous Tealbook</i>	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
Final sales	3.2	5.0	2.3		-6	2.5	1.8	2.3	1.8	2.6	2.4	2.9	2.4	1.5	2.4	2.5
<i>Previous Tealbook</i>	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
Priv. dom. final purch.	3.8	4.1	4.5		1.6	3.0	3.0	3.4	3.6	3.8	3.7	3.5	3.3	2.7	3.7	2.9
<i>Previous Tealbook</i>	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
Personal cons. expend.	2.5	3.2	4.4		2.1	2.8	2.9	3.3	3.4	3.3	3.2	3.1	2.9	2.8	3.3	2.7
<i>Previous Tealbook</i>	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
Durables	14.1	9.2	6.2		1.3	10.1	6.7	7.5	7.0	6.8	6.5	5.6	8.1	6.4	6.5	4.2
Nondurables	2.2	2.5	4.1		.8	2.6	3.2	2.8	2.5	2.7	2.7	2.8	2.2	2.4	2.7	2.5
Services	.9	2.5	4.3		2.7	1.7	2.2	2.8	3.2	3.0	2.9	2.8	2.2	2.3	3.0	2.5
Residential investment	8.8	3.2	3.8		6.5	8.4	5.8	5.0	11.7	12.9	11.4	10.4	2.5	6.4	11.6	6.9
<i>Previous Tealbook</i>	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
Nonres. priv. fixed invest.	9.7	8.9	4.7		-2.0	2.5	2.6	3.1	2.6	4.0	3.8	3.6	6.2	1.5	3.5	2.9
<i>Previous Tealbook</i>	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
Equipment & intangibles	8.9	10.1	4.4		3.5	4.5	2.9	3.6	4.2	4.4	4.2	4.1	6.1	3.6	4.2	3.3
<i>Previous Tealbook</i>	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
Nonres. structures	12.6	4.8	5.9		-18.8	-4.3	1.4	1.3	-3.3	2.5	2.0	1.9	6.5	-5.5	.8	1.4
<i>Previous Tealbook</i>	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
Net exports ²	-460	-431	-471		-548	-558	-591	-621	-677	-711	-751	-763	-453	-580	-726	-804
<i>Previous Tealbook</i> ²	-460	-431	-471		-546	-554	-591	-617	-667	-699	-738	-746	-453	-577	-712	-785
Exports	11.1	4.5	4.5		-5.9	3.1	.0	1.8	-2.2	1.9	1.3	3.5	2.4	-3	1.1	3.0
Imports	11.3	-9	10.4		7.1	4.0	5.1	6.0	6.5	6.5	6.8	4.2	5.6	5.5	6.0	3.7
Gov't. cons. & invest.	1.7	4.4	-1.9		-6	1.1	.2	.6	.3	.6	.8	.6	.8	.3	.6	.8
<i>Previous Tealbook</i>	1.7	4.4	-1.9		-6	1.3	.3	.5	.6	.3	1.6	.6	.8	.4	.8	1.1
Federal	-9	9.9	-7.3		.0	-1.1	-1.4	-7	-1.6	-1.1	-6	-1.4	.2	-8	-1.1	-1.0
Defense	.9	16.0	-12.2		-1.2	-2.0	-1.9	-9	-2.6	-1.8	-9	-2.3	-3	-1.5	-1.9	-1.7
Nondefense	-3.8	.4	1.5		2.0	.5	-5	-4	.0	.0	.0	.0	1.1	.4	.0	.1
State & local	3.4	1.1	1.6		-1.0	2.4	1.2	1.4	1.5	1.6	1.7	1.7	1.2	1.0	1.6	1.9
Change in priv. inventories ²	85	82	80		100	95	92	92	112	101	101	80	71	95	98	50
<i>Previous Tealbook</i> ²	85	82	80		98	100	96	88	92	84	80	67	71	95	81	39

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	1.5	2.3	2.1
<i>Previous Tealbook</i>	-2.8	-2	2.7	1.7	1.6	3.1	2.4	1.6	2.4	2.2
Final sales	-2.1	-4	2.0	1.5	2.1	2.6	2.4	1.5	2.4	2.5
<i>Previous Tealbook</i>	-2.1	-4	2.0	1.5	2.1	2.6	2.4	1.5	2.6	2.6
Priv. dom. final purch.	-4.1	-2.4	3.5	2.6	2.6	3.2	3.3	2.7	3.7	2.9
<i>Previous Tealbook</i>	-4.1	-2.4	3.5	2.6	2.6	3.2	3.3	2.8	3.7	3.0
Personal cons. expend.	-2.0	-2	3.1	1.5	2.0	2.8	2.9	2.8	3.3	2.7
<i>Previous Tealbook</i>	-2.0	-2	3.1	1.5	2.0	2.8	2.9	2.9	3.3	2.7
Durables	-12.9	2.5	9.3	4.8	7.5	5.9	8.1	6.4	6.5	4.2
Nondurables	-2.7	-2	3.3	4	1.0	2.5	2.2	2.4	2.7	2.5
Services	.3	-8	2.0	1.4	1.5	2.4	2.2	2.3	3.0	2.5
Residential investment	-24.3	-10.8	-5.2	6.0	15.8	6.9	2.5	6.4	11.6	6.9
<i>Previous Tealbook</i>	-24.3	-10.8	-5.2	6.0	15.8	6.9	2.5	7.6	12.0	8.0
Nonres. priv. fixed invest.	-8.9	-12.2	8.1	9.0	3.7	4.7	6.2	1.5	3.5	2.9
<i>Previous Tealbook</i>	-8.9	-12.2	8.1	9.0	3.7	4.7	6.2	.9	3.7	2.9
Equipment & intangibles	-11.8	-6.0	12.0	9.2	3.3	4.8	6.1	3.6	4.2	3.3
<i>Previous Tealbook</i>	-11.8	-6.0	12.0	9.2	3.3	4.8	6.1	3.4	4.6	3.6
Nonres. structures	-1.2	-27.1	-4.0	8.0	4.8	4.4	6.5	-5.5	.8	1.4
<i>Previous Tealbook</i>	-1.2	-27.1	-4.0	8.0	4.8	4.4	6.5	-7.3	.2	.3
Net exports ¹	-558	-395	-459	-459	-452	-420	-453	-580	-726	-804
<i>Previous Tealbook</i> ¹	-558	-395	-459	-459	-452	-420	-453	-577	-712	-785
Exports	-2.8	.8	10.1	4.2	2.4	5.1	2.4	-3	1.1	3.0
Imports	-6.0	-6.2	12.0	3.5	.4	2.5	5.6	5.5	6.0	3.7
Gov't. cons. & invest.	3.3	2.3	-1.1	-3.0	-1.7	-1.9	.8	.3	.6	.8
<i>Previous Tealbook</i>	3.3	2.3	-1.1	-3.0	-1.7	-1.9	.8	.4	.8	1.1
Federal	8.4	3.9	3.2	-4.0	-2.6	-6.3	.2	-.8	-1.1	-1.0
Defense	9.4	3.6	2.0	-4.1	-4.9	-6.1	-.3	-1.5	-1.9	-1.7
Nondefense	6.5	4.6	5.5	-3.9	1.4	-6.6	1.1	.4	.0	.1
State & local	.2	1.3	-4.0	-2.3	-1.0	1.2	1.2	1.0	1.6	1.9
Change in priv. inventories ¹	-34	-148	58	38	57	64	71	95	98	50
<i>Previous Tealbook</i> ¹	-34	-148	58	38	57	64	71	95	81	39

1. Billions of chained (2009) dollars.

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

Item	2014				2015				2016				2014 ¹	2015 ¹	2016 ¹	2017 ¹
	Q2	Q3	Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Real GDP <i>Previous Tealbook</i>	4.6	5.0	2.2		-2	2.4	1.7	2.3		2.3	2.3	2.3	2.4	1.5	2.3	2.1
	4.6	5.0	2.2		-5	2.5	1.9	2.3		2.3	2.5	2.4	2.4	1.6	2.4	2.2
Final sales <i>Previous Tealbook</i>	3.2	5.0	2.3		-6	2.5	1.8	2.3		1.8	2.6	2.3	2.4	1.5	2.4	2.4
	3.2	5.0	2.3		-9	2.4	2.0	2.5		2.2	2.6	2.7	2.4	1.5	2.5	2.6
Priv. dom. final purch. <i>Previous Tealbook</i>	3.2	3.5	3.7		1.4	2.5	2.5	2.8		3.1	3.2	3.1	2.8	2.3	3.1	2.5
	3.2	3.5	3.7		1.1	2.4	2.8	3.0		3.3	3.3	3.2	2.8	2.3	3.2	2.6
Personal cons. expend. <i>Previous Tealbook</i>	1.8	2.2	3.0		1.4	1.9	2.0	2.3		2.4	2.3	2.2	1.9	1.9	2.3	1.9
	1.8	2.2	3.0		1.2	1.9	2.3	2.4		2.5	2.4	2.3	1.9	2.0	2.3	1.9
Durables	1.0	.7	.5		.1	.7	.5	.6		.5	.5	.4	.6	.5	.5	.3
Nondurables	.3	.4	.6		.1	.4	.5	.4		.4	.4	.4	.3	.3	.4	.4
Services	.4	1.2	1.9		1.2	.8	1.0	1.3		1.5	1.4	1.4	1.0	1.1	1.4	1.2
Residential investment <i>Previous Tealbook</i>	.3	.1	.1		.2	.3	.2	.2		.4	.4	.4	.1	.2	.4	.3
	.3	.1	.1		.2	.4	.2	.2		.4	.4	.4	.1	.2	.4	.3
Nonres. priv. fixed invest. <i>Previous Tealbook</i>	1.2	1.1	.6		-.3	.3	.3	.4		.3	.5	.5	.8	.2	.4	.4
	1.2	1.1	.6		-.4	.1	.3	.5		.4	.5	.5	.8	.1	.5	.4
Equipment & intangibles <i>Previous Tealbook</i>	.8	1.0	.4		.3	.4	.3	.4		.4	.4	.4	.6	.4	.4	.3
	.8	1.0	.4		.2	.4	.3	.4		.5	.4	.5	.6	.3	.5	.4
Nonres. structures <i>Previous Tealbook</i>	.4	.1	.2		-.6	-.1	.0	.0		-.1	.1	.1	.2	-.2	.0	.0
	.4	.1	.2		-.6	-.2	-.1	.0		-.1	.0	.0	.2	-.2	.0	.0
Net exports <i>Previous Tealbook</i>	-.3	.8	-1.0		-1.9	-.2	-.8	-.7		-1.3	-.8	-.9	-.6	-.9	-.8	-.2
	-.3	.8	-1.0		-1.8	-.2	-.9	-.6		-1.2	-.7	-.9	-.6	-.9	-.8	-.2
Exports	1.4	.6	.6		-.8	.4	.0	.2		-.3	.2	.4	.3	.0	.1	.4
Imports	-1.8	.2	-1.6		-1.1	-.6	-.8	-.9		-1.0	-1.0	-1.1	-.9	-.9	-.9	-.6
Gov't. cons. & invest. <i>Previous Tealbook</i>	.3	.8	-.4		-.1	.2	.0	.1		.1	.1	.1	.1	.1	.1	.1
	.3	.8	-.4		-.1	.2	.1	.1		.1	.1	.3	.1	.1	.1	.2
Federal	-.1	.7	-.5		.0	-.1	-.1	.0		-.1	-.1	.0	-.1	-.1	-.1	-.1
Defense	.0	.7	-.6		-.1	-.1	-.1	.0		-.1	-.1	.0	-.1	-.1	-.1	-.1
Nondefense	-.1	.0	.0		.1	.0	.0	.0		.0	.0	.0	.0	.0	.0	.0
State & local	.4	.1	.2		-.1	.3	.1	.2		.2	.2	.2	.1	.1	.2	.2
Change in priv. inventories <i>Previous Tealbook</i>	1.4	.0	-.1		.5	-.1	-.1	.0		.5	-.3	.0	.0	.1	-.1	-.3
	1.4	.0	-.1		.4	.1	-.1	-.2		.1	-.2	-.1	.0	.0	-.1	-.3

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				2015				2016				2014 ¹	2015 ¹	2016 ¹	2017 ¹
	Q2	Q3	Q4		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
GDP chain-wt. price index <i>Previous Tealbook</i>	2.1	1.4	.1	.4	-.0	2.3	1.7	1.6	1.6	1.8	1.7	1.6	1.2	1.1	1.7	1.8
PCE chain-wt. price index <i>Previous Tealbook</i>	2.1	1.4	.1	1.2	-1	2.5	1.1	1.2	1.6	1.9	1.7	1.6	1.2	1.2	1.7	1.8
Energy <i>Previous Tealbook</i>	2.3	1.2	-.4	.2	-2.0	2.0	1.2	.2	1.6	-2.0	1.9	1.6	1.1	.3	1.6	1.7
Food <i>Previous Tealbook</i>	2.3	1.2	-.4	1.2	-2.0	1.9	1.4	1.2	1.6	-2.0	1.9	1.6	1.1	.6	1.6	1.8
Ex. food & energy <i>Previous Tealbook</i>	5.2	-4.0	-26.0	-2.15	-44.5	15.7	-3.0	-2.8	3.1	-44.5	15.6	2.8	-6.1	-16.4	3.3	2.3
Ex. food & energy, market based <i>Previous Tealbook</i>	5.2	-4.0	-26.0	-2.8	-44.5	15.6	-7	-2.8	2.1	-44.5	15.6	2.3	-6.1	-11.3	2.3	1.3
CPI <i>Previous Tealbook</i>	4.5	3.1	2.1	1.5	-2	-1.1	1.0	1.5	1.8	-2	1.1	1.7	2.8	.3	1.8	2.0
Ex. food & energy <i>Previous Tealbook</i>	4.5	3.1	2.1	1.4	-2	-.9	.8	1.4	1.7	-2	1.1	1.6	2.8	.3	1.6	1.9
ECI, hourly compensation ² <i>Previous Tealbook</i>	2.0	1.4	1.1	1.3	.8	1.7	1.4	1.3	1.5	.8	1.7	1.6	1.4	1.3	1.5	1.7
Business sector Output per hour <i>Previous Tealbook</i>	2.2	1.4	1.1	1.3	.8	1.6	1.5	1.3	1.6	.8	1.6	1.6	1.4	1.3	1.6	1.8
Compensation per hour <i>Previous Tealbook</i>	1.8	1.4	.7	1.3	.6	1.7	1.4	1.3	1.5	.6	1.7	1.6	1.2	1.2	1.5	1.7
Unit labor costs <i>Previous Tealbook</i>	1.8	1.4	.7	1.3	.5	1.8	1.5	1.3	1.6	.5	1.8	1.6	1.2	1.3	1.6	1.8
Core goods imports chain-wt. price index ³ <i>Previous Tealbook</i>	2.4	1.2	-.9	.1	-3.1	3.0	1.6	1.7	2.1	-3.1	3.0	2.0	1.2	.4	2.1	2.1
	2.4	1.2	-.9	1.4	-3.1	3.0	1.7	1.4	2.0	-3.1	3.0	2.0	1.2	.7	2.0	2.1
	2.2	1.4	1.5	1.7	1.7	2.5	1.9	1.7	2.0	1.7	2.5	2.0	1.7	2.0	2.0	2.1
	2.2	1.4	1.5	1.7	1.7	2.6	1.9	1.7	2.0	1.7	2.6	2.0	1.7	2.0	2.0	2.1
	3.4	2.7	2.0	2.6	3.0	2.5	2.6	2.6	2.8	3.0	2.5	2.8	2.3	2.7	2.8	2.8
	3.4	2.7	2.0	2.6	3.0	2.5	2.6	2.6	2.9	3.0	2.5	2.9	2.3	2.7	2.9	2.9
Business sector Output per hour <i>Previous Tealbook</i>	2.9	3.3	-2.3	2.2	-2.4	2.1	1.9	2.2	1.8	-2.4	2.1	1.7	-4	1.0	1.7	1.7
Compensation per hour <i>Previous Tealbook</i>	2.9	3.3	-2.3	2.9	-2.8	2.3	2.2	2.9	2.0	-2.8	2.3	2.0	-4	1.1	1.9	1.9
Unit labor costs <i>Previous Tealbook</i>	-1.0	2.1	3.1	3.2	3.1	2.6	2.3	3.2	3.5	3.1	2.6	3.1	2.6	2.8	3.2	3.3
	-1.0	2.1	3.1	3.4	3.1	2.7	2.9	3.4	3.5	3.3	3.3	3.4	2.6	3.0	3.4	3.4
	-3.9	-1.2	5.5	1.0	5.6	.4	.3	1.0	1.7	1.4	1.4	1.4	3.0	1.8	1.4	1.5
	-3.9	-1.2	5.5	.5	6.1	.4	.7	.5	1.5	1.3	1.3	1.4	3.0	1.9	1.4	1.4
Core goods imports chain-wt. price index ³ <i>Previous Tealbook</i>	.2	.5	-.8	-.8	-4.4	-3.0	-.8	-.8	.3	-4.4	-3.0	1.2	.6	-2.3	.9	1.4
	.2	.5	-.8	-.2	-4.3	-4.0	-.6	-.2	.5	-4.3	-4.0	1.2	.6	-2.3	1.0	1.5

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

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 <i>Previous Tealbook</i>	1.9 1.9	.4 .4	1.8 1.8	1.9 1.9	1.8 1.8	1.4 1.4	1.2 1.2	1.1 1.2	1.7 1.7	1.8 1.8
PCE chain-wt. price index <i>Previous Tealbook</i>	1.5 1.5	1.2 1.2	1.3 1.3	2.7 2.7	1.6 1.6	1.0 1.0	1.1 1.1	.3 .6	1.6 1.6	1.7 1.8
Energy <i>Previous Tealbook</i>	-8.2 -8.2	2.3 2.3	6.4 6.4	12.0 12.0	2.1 2.1	-2.6 -2.6	-6.1 -6.1	-16.4 -11.3	3.3 2.3	2.3 1.3
Food <i>Previous Tealbook</i>	6.9 6.9	-1.8 -1.8	1.3 1.3	5.1 5.1	1.2 1.2	.7 .7	2.8 2.8	.3 .3	1.8 1.6	2.0 1.9
Ex. food & energy <i>Previous Tealbook</i>	1.6 1.6	1.4 1.4	1.0 1.0	1.9 1.9	1.6 1.6	1.3 1.3	1.4 1.4	1.3 1.3	1.5 1.6	1.7 1.8
Ex. food & energy, market based <i>Previous Tealbook</i>	2.2 2.2	1.8 1.8	.7 .7	1.9 1.9	1.5 1.5	1.2 1.2	1.2 1.2	1.2 1.3	1.5 1.6	1.7 1.8
CPI <i>Previous Tealbook</i>	1.6 1.6	1.5 1.5	1.2 1.2	3.3 3.3	1.9 1.9	1.2 1.2	1.2 1.2	.4 .7	2.1 2.0	2.1 2.1
Ex. food & energy <i>Previous Tealbook</i>	2.0 2.0	1.8 1.8	.6 .6	2.2 2.2	1.9 1.9	1.7 1.7	1.7 1.7	2.0 2.0	2.0 2.0	2.1 2.1
ECI, hourly compensation ¹ <i>Previous Tealbook</i> ¹	2.4 2.4	1.2 1.2	2.1 2.1	2.2 2.2	1.8 1.8	2.0 2.0	2.3 2.3	2.7 2.7	2.8 2.9	2.8 2.9
Business sector Output per hour <i>Previous Tealbook</i>	-2 -2	5.6 5.6	1.7 1.7	.0 .0	.2 .2	2.3 2.3	-4 -4	1.0 1.1	1.7 1.9	1.7 1.9
Compensation per hour <i>Previous Tealbook</i>	2.9 2.9	1.3 1.3	1.2 1.2	.6 .6	5.6 5.6	-1 -1	2.6 2.6	2.8 3.0	3.2 3.4	3.3 3.4
Unit labor costs <i>Previous Tealbook</i>	3.2 3.2	-4.2 -4.2	-4 -4	.6 .6	5.4 5.4	-2.3 -2.3	3.0 3.0	1.8 1.9	1.4 1.4	1.5 1.4
Core goods imports chain-wt. price index ² <i>Previous Tealbook</i> ²	3.9 3.9	-1.9 -1.9	2.3 2.3	4.3 4.3	.2 .2	-1.0 -1.0	.6 .6	-2.3 -2.3	.9 1.0	1.4 1.5

1. Private-industry workers.

2. Core goods imports exclude computers, semiconductors, oil, and natural gas.

Class II FOMC - Restricted (FR)

July 22, 2015

Other Macroeconomic Indicators

Item	2014				2015				2016				2015 ¹	2016 ¹	2017 ¹
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2014 ¹			
<i>Employment and production</i>															
Nonfarm payroll employment ²	.8	.7	.9	.8	.6	.7	.6	.6	.5	.5	.5	2.9	2.7	2.1	1.7
Unemployment rate ³	6.2	6.1	5.7	5.6	5.4	5.3	5.2	5.2	5.2	5.2	5.2	5.7	5.2	5.2	5.1
<i>Previous Tealbook³</i>	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
Natural rate of unemployment ³	5.2	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
<i>Previous Tealbook³</i>	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	59.4	59.4	59.4	59.4	59.2	59.4	59.4	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	-1.4	-1.0	-1.5	-1.3	-1.2	-1.0	-1.0	-7	-5	-4	-1.0	-1.0	-4	.1
<i>Previous Tealbook⁴</i>	-2.3	-1.3	-1.0	-1.5	-1.3	-1.2	-1.0	-1.0	-7	-5	-4	-1.0	-1.0	-4	.1
Industrial production ⁵	5.7	3.9	4.7	-2	-1.7	1.2	.0	.0	2.7	2.1	1.9	4.5	-2	2.0	2.0
<i>Previous Tealbook⁵</i>	5.7	4.1	4.6	-7	-1.8	1.3	-5	-5	2.6	1.8	1.7	4.6	-4	1.8	1.9
Manufacturing industr. prod. ⁵	5.9	3.8	3.4	-7	1.5	1.7	1.2	1.2	2.5	2.3	2.2	3.4	.9	2.1	1.8
<i>Previous Tealbook⁵</i>	7.0	4.4	3.8	-1.0	.1	1.3	1.1	1.1	2.4	2.1	2.0	4.1	.4	1.9	1.7
Capacity utilization rate - mfg. ³	75.1	75.7	76.2	75.9	75.9	76.0	76.0	76.0	76.1	76.3	76.4	76.2	76.0	76.4	76.6
<i>Previous Tealbook³</i>	77.1	77.5	77.8	77.3	77.0	76.9	76.8	76.8	76.9	76.9	76.9	77.8	76.8	76.9	76.8
Housing starts ⁶	1.0	1.0	1.1	1.0	1.1	1.1	1.1	1.1	1.3	1.4	1.4	1.0	1.1	1.3	1.5
Light motor vehicle sales ⁶	16.5	16.7	16.7	16.6	17.1	16.9	16.8	16.8	16.8	16.8	16.8	16.4	16.8	16.8	16.7
<i>Income and saving</i>															
Nominal GDP ⁵	6.8	6.4	2.4	-2	4.7	3.4	2.7	2.7	4.0	4.0	4.0	3.7	2.6	4.1	4.0
Real disposable pers. income ⁵	3.1	2.4	4.1	5.3	3.0	1.7	2.6	2.6	3.9	2.3	2.3	3.3	3.2	2.7	2.5
<i>Previous Tealbook⁵</i>	3.1	2.4	4.1	5.4	2.3	2.1	2.0	2.0	3.6	2.4	2.5	3.3	2.9	2.8	2.5
Personal saving rate ³	5.1	4.8	4.7	5.4	5.4	5.1	5.0	5.0	5.1	4.8	4.6	4.7	5.0	4.4	4.2
<i>Previous Tealbook³</i>	5.1	4.8	4.7	5.5	5.3	5.0	4.6	4.6	4.7	4.4	4.2	4.7	4.6	4.2	4.0
Corporate profits ⁷	38.3	12.8	-5.5	-19.2	16.3	4.0	-9.9	-9.9	-7	3.4	4.5	-2	-3.1	1.6	-1
Profit share of GNP ³	12.0	12.2	12.0	11.4	11.7	11.7	11.3	11.3	11.2	11.1	11.1	12.0	11.3	11.1	10.6
Gross national saving rate ³	17.9	18.1	18.2	18.5	18.0	17.9	17.8	17.8	17.6	17.5	17.4	18.2	17.8	17.4	17.2
Net national saving rate ³	2.9	3.1	3.2	3.4	3.1	2.9	2.8	2.8	2.5	2.4	2.1	3.2	2.8	2.1	1.6

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.

5. Annual values are for the fourth quarter of the year indicated.

6. Level, millions; annual values are annual averages.

7. Percent change, annual rate, with inventory valuation and capital consumption adjustments.

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
<i>Employment and production</i>										
Nonfarm payroll employment ¹	-2.8	-5.6	.8	2.0	2.2	2.5	2.9	2.7	2.1	1.7
Unemployment rate ²	6.9	9.9	9.5	8.7	7.8	7.0	5.7	5.2	5.2	5.1
<i>Previous Tealbook²</i>	6.9	9.9	9.5	8.7	7.8	7.0	5.7	5.3	5.2	5.2
Natural rate of unemployment ²	5.6	6.2	6.2	6.0	5.8	5.4	5.1	5.1	5.1	5.1
<i>Previous Tealbook²</i>	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	59.4	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
<i>Previous Tealbook³</i>	-3.8	-5.5	-4.4	-4.2	-4.1	-2.8	-1.0	-1.0	-4	.1
Industrial production ⁴	-8.9	-5.4	5.9	2.8	2.1	2.3	4.5	-2	2.0	2.0
<i>Previous Tealbook⁴</i>	-8.9	-5.5	6.2	3.2	3.2	3.3	4.6	-4	1.8	1.9
Manufacturing industr. prod. ⁴	-11.5	-6.1	6.0	2.7	1.5	1.3	3.4	.9	2.1	1.8
<i>Previous Tealbook⁴</i>	-11.6	-6.1	6.4	3.1	3.5	2.9	4.1	.4	1.9	1.7
Capacity utilization rate - mfg. ²	70.2	67.1	72.5	74.4	74.1	74.2	76.2	76.0	76.4	76.6
<i>Previous Tealbook²</i>	70.0	67.1	72.7	74.6	75.5	76.4	77.8	76.8	76.9	76.8
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
<i>Income and saving</i>										
Nominal GDP ⁴	-9	.1	4.6	3.6	3.5	4.6	3.7	2.6	4.1	4.0
Real disposable pers. income ⁴	1.1	-7	2.6	1.7	5.0	-1.9	3.3	3.2	2.7	2.5
<i>Previous Tealbook⁴</i>	1.1	-7	2.6	1.7	5.0	-1.9	3.3	2.9	2.8	2.5
Personal saving rate ²	6.1	5.6	5.5	5.8	8.6	4.4	4.7	5.0	4.4	4.2
<i>Previous Tealbook²</i>	6.1	5.6	5.5	5.8	8.6	4.4	4.7	4.6	4.2	4.0
Corporate profits ⁶	-30.8	53.7	18.0	6.8	3.8	4.7	-2	-3.1	1.6	-1
Profit share of GNP ²	6.9	10.6	12.0	12.3	12.4	12.4	12.0	11.3	11.1	10.6
Gross national saving rate ²	14.9	14.6	15.2	16.1	17.8	17.9	18.2	17.8	17.4	17.2
Net national saving rate ²	-1.6	-1.7	-4	.8	2.8	3.0	3.2	2.8	2.1	1.6

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.
 4. Values are for the fourth quarter of the year indicated.
 5. Percent change.
 6. Level, millions; values are annual averages.
 7. 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			
	2014	2015	2016	2017	Q1 ^a	Q2 ^a	Q3 ^a	Q4 ^a	Q1 ^a	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Unified budget					Not seasonally adjusted											
Receipts	3,021	3,259	3,426	3,550	656	938	760	739	680	1,027	812	751	722	1,087	866	803
Outlays	3,504	3,652	3,869	4,029	897	890	877	916	943	901	892	1,003	946	950	971	983
Surplus/deficit	-482	-393	-443	-478	-241	47	-117	-177	-263	126	-80	-253	-223	138	-105	-180
<i>Previous Tealbook</i>	-482	-441	-444	-470	-241	47	-117	-177	-263	81	-82	-239	-230	130	-106	-166
Means of financing:																
Borrowing	798	323	401	596	262	-46	211	240	67	-16	32	29	353	-94	113	195
Cash decrease	-70	-51	62	2	20	3	-19	-65	123	-154	45	154	-99	-14	21	16
Other ¹	-245	122	-20	-120	-42	-4	-74	1	73	44	3	70	-30	-30	-30	-30
Cash operating balance, end of period	158	209	147	145	142	139	158	223	100	254	209	56	155	169	147	132
NIPA federal sector					Seasonally adjusted annual rates											
Receipts	3,267	3,436	3,566	3,703	3,243	3,277	3,342	3,349	3,418	3,471	3,508	3,522	3,539	3,579	3,625	3,669
Expenditures	3,844	3,977	4,135	4,341	3,803	3,875	3,953	3,901	3,906	4,041	4,061	4,035	4,142	4,155	4,209	4,260
Consumption expenditures	963	962	970	982	957	956	988	961	962	963	962	963	971	971	973	973
Defense	617	612	613	616	610	610	641	614	612	612	611	611	614	613	614	613
Nondefense	346	350	356	366	347	345	347	347	350	351	352	352	357	358	359	361
Other spending	2,882	3,015	3,166	3,359	2,846	2,920	2,965	2,940	2,944	3,078	3,099	3,072	3,172	3,183	3,236	3,287
Current account surplus	-577	-541	-569	-638	-560	-599	-611	-552	-488	-571	-553	-514	-603	-575	-584	-591
Gross investment	256	253	250	248	251	255	254	256	254	253	251	251	250	249	249	248
Gross saving less gross investment ²	-561	-516	-534	-595	-539	-580	-589	-532	-464	-544	-524	-482	-569	-539	-546	-551
Fiscal indicators																
High-employment (HEB) surplus/deficit ³	-403.1	-445.9	-490.1	-584.0	-342.2	-425.5	-486.4	-453.9	-386.6	-479.9	-463.3	-427.3	-519.0	-497.8	-516.2	-531.7
Change in HEB, percent of potential GDP	-1.0	.2	.2	.4	-1	.5	.3	-.2	-.4	.5	-.1	-.2	.5	-.1	.1	.1
Fiscal impetus (FI), percent of GDP ⁴	-1	.2	.2	.2	-6	.0	.7	-.4	-.2	.4	.3	.3	.1	.2	.3	.2
<i>Previous Tealbook</i>	-1	.2	.3	.3	-6	.0	.7	-.4	-.1	.4	.3	.3	.2	.2	.4	.2
Federal purchases	.0	-1	-1	-1	.0	-1	.7	-5	.0	-1	-1	.0	-1	-1	.0	-1
State and local purchases	.1	.1	.2	.2	-1	.4	.1	.2	-1	.3	-.1	.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.

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

Measure and country	2014				2015				Projected			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Real GDP¹												
Total foreign	2.2	2.4	2.9	2.5	1.6	1.7	2.5	2.8	3.0	3.1	3.1	3.1
<i>Previous Tealbook</i>	2.1	2.3	2.8	2.4	1.6	2.2	2.7	2.9	3.0	3.0	3.1	3.1
Advanced foreign economies	1.7	1.4	1.8	2.0	.8	.7	1.8	2.1	2.3	2.3	2.3	2.3
Canada	1.0	3.4	3.2	2.2	-6	-2	2.0	2.4	2.6	2.6	2.5	2.3
Japan	4.4	-6.8	-2.0	1.2	3.9	.5	1.5	1.4	1.3	1.3	1.2	1.4
United Kingdom	3.6	3.7	2.9	3.4	1.5	2.4	2.5	2.5	2.8	2.8	2.8	2.8
Euro area	.9	.4	.7	1.4	1.5	1.6	1.4	1.8	1.9	2.1	2.2	2.3
Germany	3.1	-3	.3	2.8	1.1	1.7	1.7	1.9	2.0	2.2	2.3	2.4
Emerging market economies	2.8	3.3	3.9	3.0	2.4	2.7	3.2	3.5	3.8	3.8	4.0	4.0
Asia	4.5	4.9	6.2	4.0	4.0	4.8	5.0	5.1	5.2	5.2	5.2	5.2
Korea	4.4	2.0	3.2	1.1	3.3	2.3	3.5	4.2	4.2	4.2	4.2	4.1
China	6.4	7.6	8.1	7.0	5.1	7.8	7.2	6.8	6.6	6.6	6.6	6.6
Latin America	1.2	2.1	2.1	2.1	1.1	1.0	1.8	2.1	2.6	2.6	2.9	2.9
Mexico	2.0	3.7	2.1	2.7	1.6	2.3	2.9	3.0	3.1	3.1	3.1	3.1
Brazil	2.9	-5.5	.6	1.1	-6	-4.2	-1.1	.4	1.2	1.6	1.7	1.9
Consumer prices²												
Total foreign	2.0	2.9	2.0	1.1	-1	2.6	2.2	2.2	2.4	2.4	2.4	2.5
<i>Previous Tealbook</i>	2.0	3.0	2.0	1.1	-1	2.1	2.2	2.4	2.4	2.4	2.5	2.5
Advanced foreign economies	1.4	3.0	.8	-4	-9	1.9	1.0	1.3	1.4	1.5	1.6	1.6
Canada	3.2	3.3	1.2	.0	-2	2.5	1.4	1.8	1.8	1.8	1.9	1.9
Japan	.7	9.3	1.3	-8	-3	1.0	.2	.5	.8	1.0	1.1	1.2
United Kingdom	1.5	1.7	1.2	-7	-1.7	1.1	1.5	1.6	1.8	1.8	1.8	1.9
Euro area	.4	.4	.4	-5	-1.5	2.5	1.1	1.3	1.4	1.4	1.5	1.6
Germany	.4	.3	1.4	-4	-1.7	2.3	1.4	1.4	1.5	1.6	1.7	1.8
Emerging market economies	2.5	2.9	2.9	2.3	.4	3.1	3.1	2.9	3.1	3.1	3.1	3.1
Asia	1.4	2.4	2.1	1.2	-3	2.8	2.7	2.5	2.8	2.8	2.8	2.8
Korea	1.4	2.2	.6	-2	-3	2.0	2.6	2.8	3.1	3.2	3.2	3.2
China	.8	2.0	2.2	1.0	-4	2.6	2.5	2.2	2.5	2.5	2.5	2.5
Latin America	5.3	4.3	4.9	4.8	1.6	3.9	3.9	3.9	3.9	3.8	3.8	3.8
Mexico	4.8	3.3	4.4	4.2	.3	2.8	3.1	3.3	3.3	3.3	3.3	3.3
Brazil	6.5	7.4	6.2	6.0	11.1	10.8	7.9	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	-----Projected-----									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	
Real GDP¹										
Total foreign	.9	4.8	3.2	2.3	2.7	2.5	2.2	3.1	3.0	
<i>Previous Tealbook</i>	.9	4.8	3.2	2.3	2.6	2.4	2.3	3.0	2.9	
Advanced foreign economies	-1.5	3.1	1.8	.3	1.9	1.7	1.3	2.3	1.9	
Canada	-1.4	3.6	3.0	1.0	2.7	2.5	.9	2.5	2.1	
Japan	-6	3.6	.3	.0	2.3	-9	1.8	1.3	-3	
United Kingdom	-1.5	2.2	1.5	.4	2.4	3.4	2.2	2.8	2.4	
Euro area	-2.4	2.3	.6	-9	.5	.9	1.6	2.1	2.2	
Germany	-3.0	4.4	2.4	.1	1.1	1.5	1.6	2.2	2.2	
Emerging market economies	3.7	6.7	4.6	4.3	3.4	3.2	2.9	3.9	3.9	
Asia	7.5	8.3	4.9	5.7	5.3	4.9	4.7	5.2	5.1	
Korea	4.9	6.1	2.9	2.1	3.4	2.7	3.3	4.2	3.8	
China	11.4	9.7	8.7	7.8	7.5	7.3	6.7	6.6	6.5	
Latin America	.0	4.7	4.2	3.4	1.5	1.9	1.5	2.7	3.0	
Mexico	-1.2	4.4	4.2	3.4	1.0	2.6	2.4	3.1	3.1	
Brazil	5.2	5.8	2.5	2.3	2.1	-3	-1.4	1.6	2.3	
Consumer prices²										
Total foreign	1.2	3.2	3.4	2.3	2.3	2.0	1.7	2.4	2.6	
<i>Previous Tealbook</i>	1.2	3.2	3.4	2.3	2.3	2.0	1.6	2.4	2.6	
Advanced foreign economies	.2	1.7	2.2	1.3	1.0	1.2	.8	1.5	2.0	
Canada	.8	2.2	2.7	1.0	1.0	1.9	1.4	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	.6	1.8	2.0	
Euro area	.4	2.0	2.9	2.3	.8	.2	.8	1.5	1.7	
Germany	.3	1.6	2.6	2.0	1.3	.4	.8	1.6	1.8	
Emerging market economies	2.0	4.3	4.3	3.1	3.3	2.6	2.4	3.1	3.1	
Asia	1.2	4.3	4.5	2.6	3.1	1.8	1.9	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	1.7	2.5	2.5	
Latin America	3.9	4.4	4.0	4.3	4.0	4.8	3.3	3.8	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	8.9	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.

U.S. Current Account

Quarterly Data

	2014				2015				Projected			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
U.S. current account balance	-385.8	-368.2	-391.6	-412.6	-453.3	-440.7	-470.5	-507.2	-586.6	-596.3	-643.9	-664.0
<i>Previous Tealbook</i>	-411.5	-383.1	-403.4	-459.0	-499.4	-496.2	-535.4	-561.7	-628.4	-630.0	-676.9	-697.8
Current account as percent of GDP	-2.3	-2.1	-2.2	-2.3	-2.6	-2.5	-2.6	-2.8	-3.2	-3.2	-3.4	-3.5
<i>Previous Tealbook</i>	-2.4	-2.2	-2.3	-2.6	-2.8	-2.8	-3.0	-3.1	-3.4	-3.4	-3.6	-3.7
Net goods & services	-501.7	-514.8	-503.5	-513.3	-521.0	-508.1	-521.6	-555.5	-615.1	-642.2	-686.7	-707.3
Investment income, net	242.1	241.2	256.4	249.9	212.7	206.5	192.7	187.5	186.3	185.0	184.5	182.5
Direct, net	302.8	289.6	306.9	302.5	283.6	295.6	284.2	286.7	295.1	305.3	318.9	332.4
Portfolio, net	-60.7	-48.4	-50.4	-52.7	-71.0	-89.1	-91.5	-99.2	-108.8	-120.3	-134.4	-149.9
Other income and transfers, net	-126.2	-94.6	-144.6	-149.1	-145.0	-139.1	-141.7	-139.3	-157.8	-139.1	-141.7	-139.3

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

Annual Data

	Projected											
	2009	2010	2011	2012	2013	2014	2015	2016	2017			
U.S. current account balance	-384.0	-442.0	-460.4	-449.7	-376.8	-389.5	-468.0	-622.7	-723.0			
<i>Previous Tealbook</i>	-380.8	-443.9	-459.3	-459.9	-402.3	-414.2	-523.2	-658.3	-747.6			
Current account as percent of GDP	-2.7	-3.0	-3.0	-2.8	-2.2	-2.2	-2.6	-3.3	-3.7			
<i>Previous Tealbook</i>	-2.6	-3.0	-3.0	-2.8	-2.4	-2.4	-2.9	-3.5	-3.8			
Net goods & services	-383.8	-494.7	-548.6	-536.8	-478.4	-508.3	-526.6	-662.8	-754.6			
Investment income, net	132.3	185.7	229.0	220.8	233.6	247.4	199.9	184.6	176.1			
Direct, net	257.7	288.0	298.6	290.2	301.7	300.5	287.6	312.9	371.4			
Portfolio, net	-125.4	-102.3	-69.5	-69.4	-68.1	-53.1	-87.7	-128.3	-195.3			
Other income and transfers, net	-132.5	-133.0	-140.8	-133.7	-132.0	-128.6	-141.2	-144.4	-144.4			

Billions of dollars

Abbreviations

ABS	asset-backed securities
AFE	advanced foreign economy
BEA	Bureau of Economic Analysis
BOC	Bank of Canada
BOE	Bank of England
C&I	commercial and industrial
CMBS	commercial mortgage-backed securities
CPI	consumer price index
CRE	commercial real estate
Desk	Open Market Desk
DPI	disposable personal income
DSGE	dynamic stochastic general equilibrium
ECB	European Central Bank
EDO	Estimated Dynamic Optimization-based Model
EMBI	Emerging Market Bond Index
EME	emerging market economy
FOMC	Federal Open Market Committee; also, the Committee
GDP	gross domestic product
GSE	government-sponsored enterprise
M&A	mergers and acquisitions
MBS	mortgage-backed securities
MERS	Middle East Respiratory Syndrome
OIS	overnight index swap
ON RRP	overnight reverse repurchase agreement
OPEC	Organization of the Petroleum Exporting Countries
PCE	personal consumption expenditures
PMI	purchasing managers index
QE	quantitative easing

QS	quantitative surveillance
repo	repurchase agreement
RRP	reverse repurchase agreement
SEP	Summary of Economic Projections
SLOOS	Senior Loan Officer Opinion Survey on Bank Lending Practices
SNB	Swiss National Bank
SOMA	System Open Market Account
S&P	Standard & Poor's
TIPS	Treasury Inflation-Protected Securities