Prefatory Note

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

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

Content last modified 01/08/2021.

Report to the FOMC on Economic Conditions and Monetary Policy

Book A

Economic and Financial Conditions:
Current Situation and Outlook

March 11, 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 information that has become available during the intermeeting period suggests that aggregate spending has been weaker, and the labor market somewhat stronger, than we had projected in the January Tealbook. In particular, real GDP is estimated to have increased at a 2 percent annual rate in the fourth quarter of last year and we project a 2¼ percent pace of growth in the first half of this year. These growth rates are both about ½ percentage point below our previous projection. In contrast, payroll employment increases have averaged about 50,000 per month faster over the past three months than we expected, and we have raised projected employment growth in the near term by 30,000 per month.

While we anticipate that some of the recent weakness in GDP growth will be transitory, our forecast of output at the end of 2017 is revised down by 1 percent compared with the January Tealbook—largely in response to a further appreciation of the dollar. We now project that real GDP will expand 2¼ percent in both 2015 and 2016, supported by accommodative monetary policy. In 2017, the continued normalization of monetary policy induces a slightly easing of growth to 2 percent.

Confronted with the fact that aggregate spending appears to have been disappointingly sluggish of late and yet sufficient to have generated at least as much labor market improvement as we had expected, we trimmed our assumption for structural productivity growth in the second half of last year. In addition, we propagated forward a small part of that adjustment to structural productivity growth through the medium-term projection. Consequently, potential output at the end of 2017 is a little more than ½ percent below its level in the January Tealbook. The combination of lower actual and potential GDP generates a GDP gap that is weaker than in our January projection, but not by as much as the downward revision to actual GDP alone would suggest. Even so, over the course of the projection, actual GDP swings from an estimated 1 percent below potential in the current quarter to ½ percent above potential at the end of 2017.

The unemployment rate declines in this projection from 5.5 percent last month to 5.0 percent in the final quarter of 2017, 0.2 percentage point below our estimate of its natural rate. The decrease in the unemployment rate continues to be more gradual than one would infer from the change in the GDP gap, as some of the economy's cyclical

Revisions to the Staff Projection since the Previous SEP

The FOMC most recently published its Summary of Economic Projections, or SEP, following the December 2014 FOMC meeting. The table below compares the staff's current economic projection with the one we presented in the December Tealbook.

Since the December projection, we have revised down, on net, our forecast for real GDP growth over the next three years, primarily reflecting the effects of a higher projected path for the foreign exchange value of the dollar. We also have slightly lowered our assumed path for potential GDP growth over both the medium- and longer-term portions of the projection period. Altogether, these revisions leave our projection for the GDP gap next year and in 2017 somewhat weaker than in the December forecast. The unemployment rate has declined a bit more than we expected in December and is projected to average 5.2 percent over the second half of this year, equal to the staff's estimate of its natural rate. By the end of the medium-term projection, the unemployment rate is revised up just a touch to 5.0 percent, still ¼ percentage point below its natural rate.

The staff's projections for both headline and core PCE inflation have been revised down in the near term, partly reflecting recent soft readings for core inflation; on net, consumer energy prices have declined only a little more than we had expected in December. Given our assumptions that longer-run inflation expectations will remain stable over the medium term and that declines in energy prices and core import prices will be transitory, our forecasts for headline and core inflation after this year are little changed. We continue to project that inflation will run below the Committee's 2 percent objective through 2017.

Staff Economic Projections Compared with the December Tealbook

Variable	2014	2015		2015	2016	2017	Longer run
		H1	H2				
Real GDP[1]	2.4	2.2	2.3	2.2	2.3	2.0	1.9
December Tealbook	2.2	2.4	2.7	2.5	2.7	2.2	2.0
Unemployment rate[2]	5.7	5.3	5.2	5.2	5.1	5.0	5.2
December Tealbook	5.7	5.4	5.2	5.2	5.0	4.9	5.2
PCE inflation[1]	1.1	-.3	1.6	.6	1.7	1.9	2.0
December Tealbook	1.2	.4	1.6	1.0	1.7	1.8	2.0
Core PCE inflation[1]	1.4	1.1	1.5	1.3	1.6	1.8	n.a.
December Tealbook	1.6	1.5	1.5	1.5	1.6	1.8	n.a.
Federal funds rate[2]	.10	.16	.66	.66	1.75	2.67	3.50
December Tealbook	.13	.42	.98	.98	2.05	3.03	3.75
Memo: Federal funds rate, end of period	.13	.20	.76	.76	1.84	2.73	3.50
December Tealbook	.13	.52	1.07	1.07	2.14	3.09	3.75
GDP gap[2,3]	-1.0	-.7	-.4	-.4	.2	.5	n.a.
December Tealbook	-1.3	-1.0	-.6	-.6	.4	.8	n.a.

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

As discussed in the box "Changes to Longer-Run Interest Rates," we adjusted downward our assumptions about long-run equilibrium interest rates. Specifically, we lowered our assumed longer-run nominal value of the federal funds rate by ¼ percentage point, to 3½ percent. By design, we insulated our projection of real economic activity from being boosted by this adjustment. With the downward revision to our assumption for longer-run equilibrium interest rates and relatively small changes in our projections for the GDP gap and inflation, the medium-term path for the federal funds rate in the current projection is only a bit more than ¼ percentage point lower than in December.

Because FOMC participants are providing additional information about their expectations of the economic conditions that will exist at the time they anticipate it will first become appropriate to increase the target range for the federal funds rate, we include the table below providing quarterly information from the staff projection. In the second quarter of this year—the quarter when our baseline projection assumes liftoff of the federal funds rate will occur—we forecast the unemployment rate to average 5.3 percent and the trailing four-quarter change in real GDP to be 2.8 percent.[1] We project the trailing four-quarter change in core PCE inflation to be 1.1 percent, and the four-quarter change in headline PCE prices to be flat because of the declines in energy prices. (We do not anticipate that the recent decreases in energy prices will fall out of the four-quarter change in headline inflation until early next year.)

Staff Economic Projections Compared with the December Tealbook, Quarterly

Variable	2015				2016			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Four-quarter percent change								
Real GDP	3.3	2.8	2.2	2.2	2.4	2.3	2.3	2.3
December Tealbook	3.3	2.8	2.4	2.5	2.6	2.7	2.8	2.7
PCE inflation	.3	.0	.1	.6	1.5	1.6	1.6	1.7
December Tealbook	.7	.5	.6	1.0	1.6	1.6	1.6	1.7
Core PCE inflation	1.3	1.1	1.2	1.3	1.5	1.5	1.6	1.6
December Tealbook	1.6	1.5	1.5	1.5	1.5	1.6	1.6	1.6
Percent								
Unemployment rate	5.5	5.3	5.2	5.2	5.1	5.1	5.1	5.1
December Tealbook	5.5	5.4	5.3	5.2	5.2	5.1	5.1	5.0
Federal funds rate	.13	.16	.40	.66	.95	1.23	1.50	1.75
December Tealbook	.13	.42	.71	.98	1.25	1.52	1.79	2.05
Memo								
Federal funds rate, end of period	.13	.20	.49	.76	1.05	1.33	1.59	1.84
December Tealbook	.13	.52	.80	1.07	1.34	1.61	1.88	2.14

[1] Because the data are published with a lag, some of the data pertaining to the second quarter will not be available until after the quarter has ended.

Comparing the Staff Projection with Other Forecasts

The staff forecasts of real GDP growth and inflation are, on balance, a little lower than the most recent Survey of Professional Forecasters (SPF) median and Blue Chip Consensus outlooks. Meanwhile, the staff's forecast of the unemployment rate is in line with those surveys in 2015 but a little higher than the Blue Chip in 2016.

Comparison of Tealbook and Outside Forecasts

	2015	2016
GDP (Q4/Q4 percent change)		
March Tealbook	2.2	2.3
Blue Chip (3/10/15)	2.8	2.8
SPF median (2/13/15)	2.8	n.a.
Unemployment rate (Q4 level)		
March Tealbook	5.2	5.1
Blue Chip (3/10/15)	5.2	4.9
SPF median (2/13/15)	5.2	n.a.
Consumer price inflation (Q4/Q4 percent change)		
March Tealbook	0.6	2.1
Blue Chip (3/10/15)	0.9	2.3
SPF median (2/13/15)	1.1	2.1
PCE price inflation (Q4/Q4 percent change)		
March Tealbook	0.6	1.7
SPF median (2/13/15)	1.1	1.9
Core PCE price inflation (Q4/Q4 percent change)		
March Tealbook	1.3	1.6
SPF median (2/13/15)	1.4	1.7

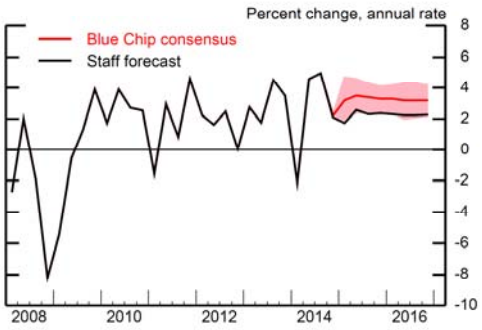
Note: SPF is the Survey of Professional Forecasters. Blue Chip does not provide results for PCE price inflation. The Blue Chip Consensus contains about 50 panelists, and the SPF about 40. Roughly 20 panelists contribute to both surveys.

n.a. Not available.

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

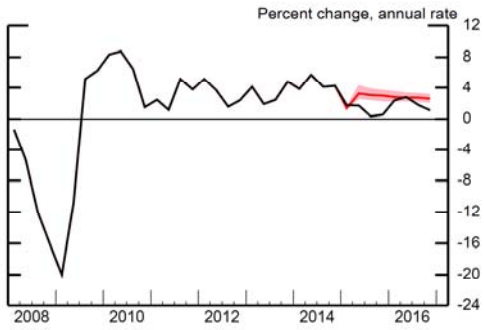
Tealbook Forecast Compared with Blue Chip
(Blue Chip survey released March 10, 2015)

Real GDP

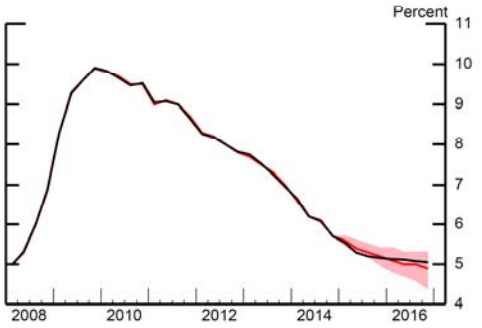


Note: The shaded area represents the area between the Blue Chip top 10 and bottom 10 averages.

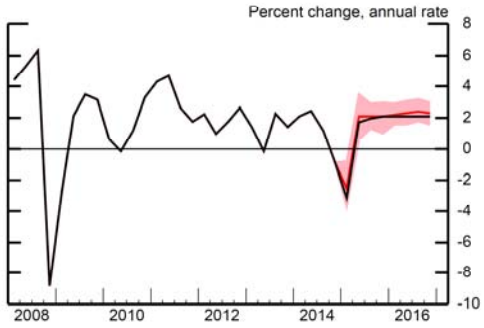
Industrial Production



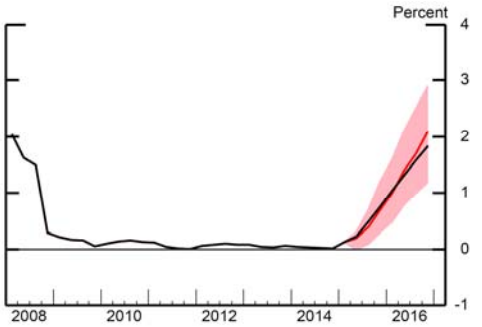
Unemployment Rate



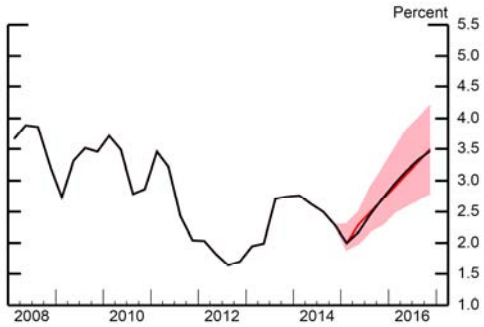
Consumer Price Index



Treasury Bill Rate



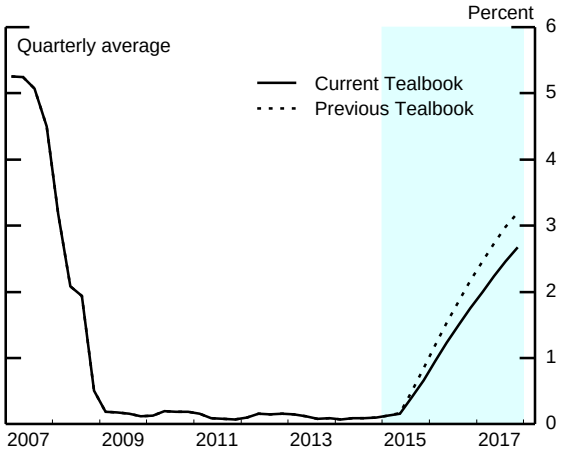
10-Year Treasury Yield



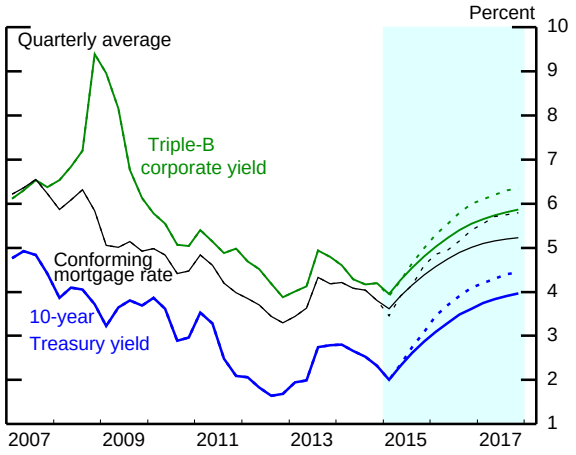
Note: The yield is for on-the-run Treasury securities. Over the forecast period, the staff's projected yield is assumed to be 15 basis points below the off-the-run yield.

Key Background Factors underlying the Baseline Staff Projection

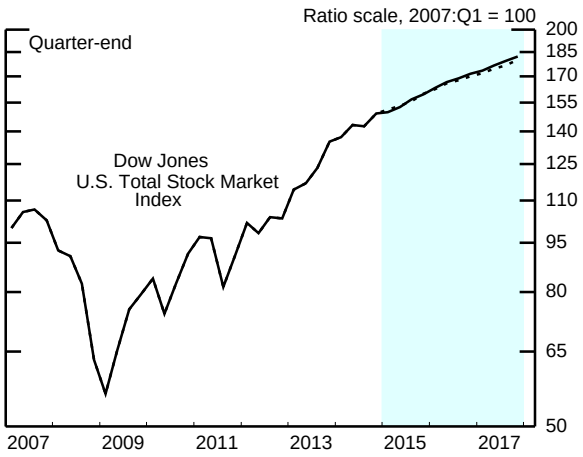
Federal Funds Rate



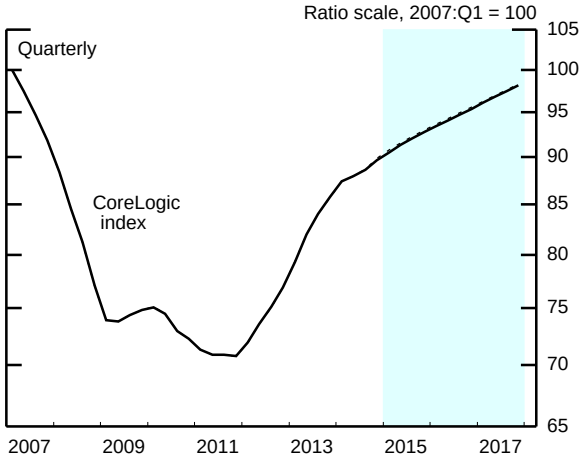
Long-Term Interest Rates



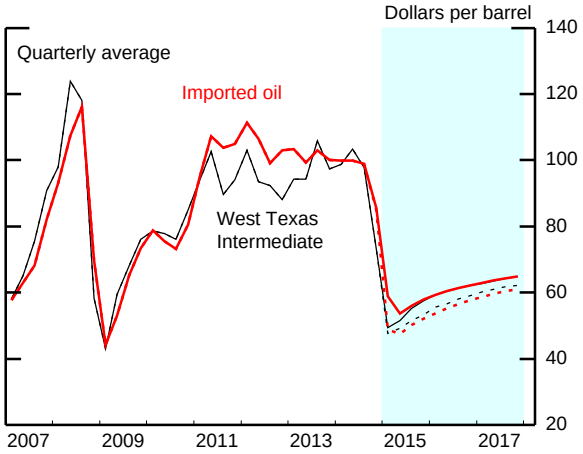
Equity Prices



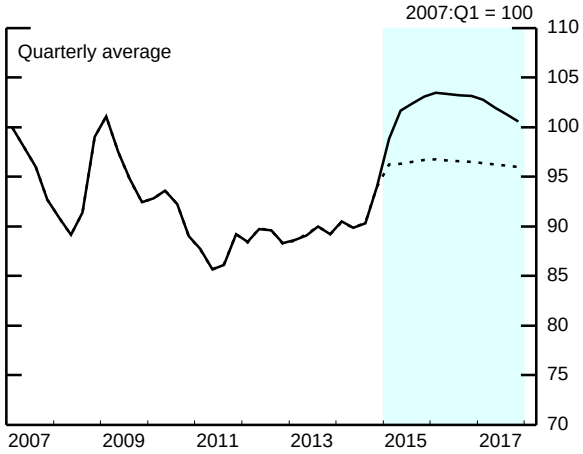
House Prices



Crude Oil Prices



Broad Real Dollar



improvement takes the form of an unwinding of the current unusual weakness in the labor force participation rate and some diminishment of the currently elevated number of involuntary part-time workers.

As a result of the earlier sharp declines in crude oil prices, headline PCE prices decreased last quarter, and we expect an even larger decline this quarter. In addition, we have marked down our forecast for core PCE inflation in the current quarter to just ¾ percent in response to softness in the incoming price data and to the higher exchange value of the dollar. Nevertheless, we still expect core PCE price inflation to step up gradually to 1¾ percent by 2017, as resource utilization tightens further and import prices increase. With oil prices having turned up in recent weeks and projected to rise further, total PCE inflation follows a slightly higher trajectory than core inflation over the medium term.

KEY BACKGROUND FACTORS

Monetary Policy

- We continue to assume that the federal funds rate will lift off from its current target range after the June FOMC meeting, and that following liftoff, the rate will rise at a pace determined by the prescriptions of an inertial version of the Taylor (1999) policy rule. However, we lowered our assumption for the equilibrium real federal funds rate by 25 basis points this round, which, in conjunction with a somewhat weaker path for the output gap, resulted in a shallower trajectory of the federal funds rate in this projection. (See the box "Changes to Interest Rates in the Longer Run.") We now project that the federal funds rate will average 2.7 percent in the fourth quarter of 2017, about 0.5 percentage point lower than was projected in the January Tealbook.

Other Interest Rates

- Over the next couple of years the increase in 10-year Treasury yields is less steep than in the previous Tealbook, reflecting the lower path of short-term interest rates. Our projection continues to call for a significant rise in Treasury yields through 2017, as the effects of the FOMC's balance sheet policies wane and the 10-year valuation window moves through the period of extremely low short-term interest rates.

Changes to Interest Rates in the Longer Run

In this Tealbook, we lowered our assumptions for the longer-run values of the federal funds rate and the 10-year Treasury yield by ¼ percentage point, to 3½ percent and 4¼ percent, respectively. Because longer-run inflation remains unchanged at the Committee's objective of 2 percent, these reductions in nominal interest rates reflect a reduction in long-run equilibrium real interest rates.

Our decision to reconsider our longer-run interest rate assumptions is motivated by the decline in long-term interest rates in both the United States and abroad since we last updated our assumptions in June 2014. As discussed in a recent memo to the FOMC, there is good reason to ascribe a large portion of the recent downward movement in long-term interest rates to term premiums, but we now judge that lower levels of equilibrium interest rates have been playing a larger role than we previously thought.[1] This reassessment is supported by evidence from time-series models, such as that of Laubach and Williams (2003), the latest update of which indicates that the equilibrium real interest rate has moved down considerably over the past decade or so to levels well below historical averages.[2]

One likely source of downward pressure on global interest rates is higher global saving—a factor that was noted even before the financial crisis and may stem from the larger share of world output coming from developing countries with relatively high saving rates. Greater risk aversion after the financial crisis is also sometimes mentioned as pushing up precautionary savings demand. In addition, investment demand has likely been depressed by low trend growth rates in the United States and other advanced economies owing to smaller gains in working-age populations. In this forecast, we have revised down slightly our assessment of longer-run potential GDP growth to 1.9 percent, reflecting our judgment that recent subdued productivity gains contain some signal about longer-run increases as well. This pace for potential output growth is well below that seen in the decade prior to the financial crisis (1997 to 2006), when we estimate that potential output growth averaged 3 percent. Given the global nature of recent interest rate movements, one probably should not look at U.S. potential output growth in isolation. Still, it is worth noting that our downward revision to longer-run interest rates in this forecast could be viewed as moving these rates into better alignment with our estimate of potential GDP growth.

Taken together, these forces imply that, all else being equal, aggregate demand will be lower in the longer run. As such, to achieve the target level of resource utilization and the Committee's inflation objectives, interest rates will need to be lower. To ensure that monetary policy will be consistent with this new lower level of aggregate demand, we adjusted the constant term in our inertial Taylor rule down to be consistent with a longer-run real federal funds rate of 1½ percent.

[1] See the March 2015 memorandum to the FOMC, "Recent Declines in Long-Term Interest Rates: Causes and Potential Policy Implications," by David Bowman and others.

[2] Thomas Laubach and John C. Williams (2003), "Measuring the Natural Rate of Interest," *Review of Economics and Statistics*, vol. 85 (4), pp. 1063–70. Updated estimates are provided at www.frbsf.org/economic-research/economists/john-williams.

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

Equity Prices and Home Prices

- Equity prices have risen a bit less, on net, than in our projection from the January Tealbook, and over the forecast period they remain close to their previous trajectory. Overall, our projection has stock prices rising at about 7 percent per year.

- On net, the house price forecast is little changed since the January Tealbook. We continue to project that house price appreciation will slow further—from 4½ percent in 2014 to an average rate of about 3 percent per year from 2015 to 2017.

Fiscal Policy

- Our fiscal policy assumptions are also little different than in the January Tealbook. We continue to anticipate that the small drag on real GDP growth from fiscal policy actions across all levels of government in 2014 will swing to a small stimulus from 2015 through 2017.

Foreign Economic Activity and the Dollar

- We project foreign real GDP to grow at a 2½ percent pace in the current quarter and then strengthen to a 3 percent rate by the end of the year, reflecting accommodative monetary policies, depreciated currencies, and still-low oil prices. Foreign growth is anticipated to remain at 3 percent, roughly its trend pace, in 2016 and 2017. The projected pace of foreign growth is ¼ percentage point lower this year than in the January Tealbook and essentially unrevised in 2016 and 2017.

- The broad nominal dollar has appreciated 4 percent since the time of the January Tealbook, responding to a shift up in market expectations for the federal funds rate as well as increased policy accommodation by many foreign central banks. Expectations of continued investor focus on Federal Reserve tightening and ongoing concerns about the global outlook lead us to project that the dollar will appreciate an additional 3¼ percent through the remainder

of this year. Thereafter, as foreign growth firms and some prominent tail risks (such as Greek exit) recede, the dollar is projected to begin weakening. On average, over the forecast period, the broad real dollar is 6¼ percent above its level in the January Tealbook.

Oil and Other Commodity Prices

- The spot price of Brent crude oil has moved up $8 per barrel since the time of the January Tealbook, reaching $56 per barrel on March 10. The rise appears to reflect greater market confidence that the growth of global crude oil production will slow over the coming year. Prices for futures contracts with delivery at the end of 2017 also rose, but by less than the increase in the spot price, reducing the upward tilt in the futures curve. Consistent with those futures contracts, we project the price of imported oil to move up from $59 per barrel this quarter to about $65 per barrel by the end of the forecast period—a projected path that is $7 per barrel higher this year and $4 per barrel higher by the end of 2017 than in the January Tealbook.

- In contrast to the recent increases in oil prices, metals prices have generally remained depressed, reflecting both dollar appreciation and continued concerns about global growth.

RECENT DEVELOPMENTS AND THE NEAR-TERM OUTLOOK FOR REAL GDP

As noted in the introduction, the incoming spending data have been disappointing. We now estimate that real GDP rose at an annual rate of 2 percent in the fourth quarter, ½ percentage point below the January Tealbook estimate, and we have revised down our forecast for the first half of this year by a comparable amount, to an average annual rate of 2¼ percent. We judge that severe weather may have held down activity a little in the first quarter, but any such effect will be reversed in the second quarter.[1]

- A little more than half of the downward surprise to GDP has been in net exports. Reflecting past appreciation of the dollar, net exports are now estimated to have subtracted 1 percentage point from real GDP growth in the

[1] Although some anecdotal evidence points to the labor disruptions at West Coast ports as having restrained exports or consumer spending on imports, our assessment is that the GDP implications of those effects have been small.

fourth quarter and are expected to subtract nearly 1 percentage point in the first half of this year.

- Real PCE growth appears to have been solid last quarter but to have slowed modestly in the current quarter. Anecdotal reports suggest consumer purchases, particularly for motor vehicles, in the current quarter may have been inhibited somewhat by unseasonably cold and snowy weather, though this damping effect is partially offset by increased outlays for energy services. As the fundamental forces supporting consumer spending remain strong, we expect consumption growth to pick up in the second quarter and to average a 4 percent pace in the first half of the year.[2]

- The incoming data on housing starts and home sales have continued to fall short of our expectations. We remain puzzled by the failure of a more robust recovery to resume in this sector; for the near term, we are essentially projecting more of the same and expect residential investment to increase only 5 percent at an annual rate in the first of the year, close to its rate in the fourth quarter. (Also see the box "Evaluating Mortgage Availability.")

- After rising at a solid pace through much of last year, business fixed investment decelerated in the fourth quarter and is expected to decelerate further in the first half of this year, as sharp declines in outlays for drilling structures (at more than 30 percent at an annual rate over the first half of the year) in response to the large drop in crude oil prices largely offset moderate increases in other capital expenditures.

THE MEDIUM-TERM OUTLOOK FOR REAL GDP

Over the medium term, the ongoing normalization of monetary policy contributes to the slowing of GDP growth toward its potential rate. Real GDP is projected to increase 2¼ percent both this year and in 2016 before edging down to 2 percent in 2017.

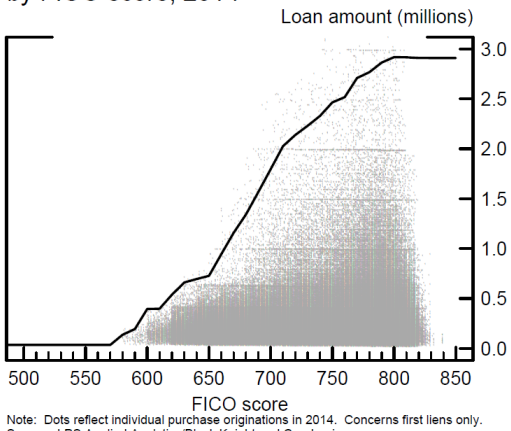
[2] The Quarterly Services Survey for the fourth quarter of 2014, released as the Tealbook projection was closing, is not incorporated in the projections here. In addition, retail sales for February are scheduled to be released on March 12, 2015, the day after the Tealbook is published.

Evaluating Mortgage Availability

In the aftermath of the mortgage crisis and amid the slow recovery in housing market activity, a number of researchers have developed new measures of mortgage credit availability. For example, analysts at the American Enterprise Institute (AEI) and at the Urban Institute have both constructed measures of the riskiness of newly originated mortgages, while the Mortgage Bankers Association summarizes the attributes of loans that lenders are willing to make. While valuable, these measures do not convey the heterogeneity in credit conditions that potential buyers face, and they may confound changes in mortgage availability with changes in mortgage demand. In this discussion, we present some new measures of mortgage availability that Board staff have developed with the aim of addressing these issues.

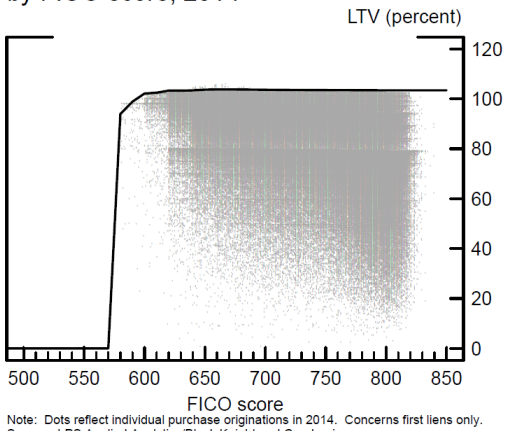
We consider two measures of mortgage availability. First, we measure the maximum loan amount in real terms that borrowers are able to obtain in a particular period given their credit score—the "loan-amount frontier." The solid line in figure 1 shows this frontier for 2014, which we construct using data on all types of first-lien purchase originations that amortize over 30 years (the grey dots in the figure).[1] Second, we estimate the "LTV frontier," which shows the maximum loan-to-value (LTV) ratio that borrowers can obtain given their credit score. The LTV frontier and the underlying purchase originations data for 2014 are shown in figure 2. Of course, these two measures do not completely characterize mortgage availability conditions, as they abstract from other relevant borrower characteristics, such as income and other debt, as well as other aspects of mortgage availability, such as overall cost to the borrower.

Figure 1. Loan amounts, by FICO score, 2014



Note: Dots reflect individual purchase originations in 2014. Concerns first liens only.
Source: LPS Applied Analytics/Black Knight and CoreLogic.

Figure 2. Loan-to-value ratio, by FICO score, 2014



Note: Dots reflect individual purchase originations in 2014. Concerns first liens only.
Source: LPS Applied Analytics/Black Knight and CoreLogic.

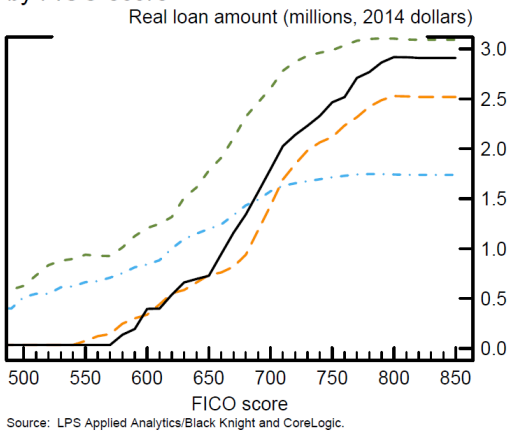
[1] The frontier is estimated using a method that is more robust to outliers than standard frontier estimation techniques. See Catherine Cazals, Jean-Pierre Florens, and Léopold Simar (2002), "Nonparametric Frontier Estimation: A Robust Approach," *Journal of Econometrics*, vol. 106 (1), pp. 1–25.

Not surprisingly, both frontiers indicate that lenders in 2014 were willing to extend larger loans with lower down payments to borrowers with better credit scores. The frontiers also show that borrowers with very low credit scores were essentially unable to obtain a loan at all last year. We think that our measures are not strongly influenced by demand for mortgage credit. Put in simplest terms, we think there must have been at least a small number of people in the country with a credit score of less than 570 who wanted a mortgage, yet effectively no one with such a credit score shows up in our data set as having obtained a loan, suggesting that lender policy drives the estimate of the frontier.

Figures 3 and 4 plot the two types of frontiers in recent years and in the couple of years before the housing market collapse. Both the loan-amount frontier and the LTV frontier in 2014 were well below those seen in the early part of the 2000s for borrowers with lower credit scores. In fact, the LTV frontier suggests that credit has tightened further for these borrowers since 2012. However, for borrowers with credit scores above 700, mortgage availability has eased somewhat in recent years, and in 2014, availability by this metric was comparable with availability in the early 2000s.

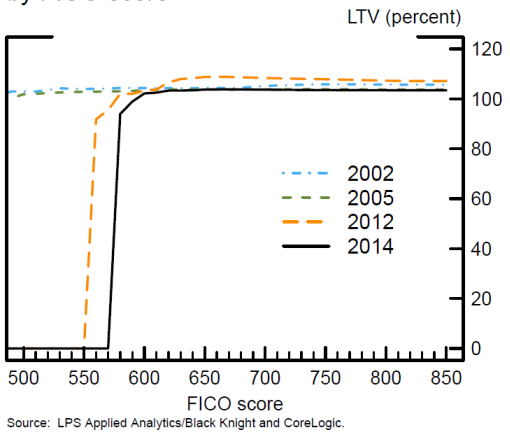
Like most other measures of mortgage availability, our measures provide a straightforward way to assess *changes* in credit conditions, but assessing whether credit is tight or loose in an absolute sense requires some judgment about the appropriate level of risk. For example, the AEI analysts conclude that the current level of risk is elevated, while the Urban Institute analysts conclude that mortgage credit is tight; in part, this difference is because they have different assessments of the appropriate level of risk. Board staff take the view that mortgage availability is tight for borrowers with lower credit scores, but conditions seem favorable for borrowers with higher credit scores, at least in that the loan-amount and LTV frontiers for such borrowers in 2014 were comparable with their levels over the past 10 to 15 years.

Figure 3. Loan−amount frontiers, by FICO score



Source: LPS Applied Analytics/Black Knight and CoreLogic.

Figure 4. Loan−to−value ratio frontiers, by FICO score



Source: LPS Applied Analytics/Black Knight and CoreLogic.

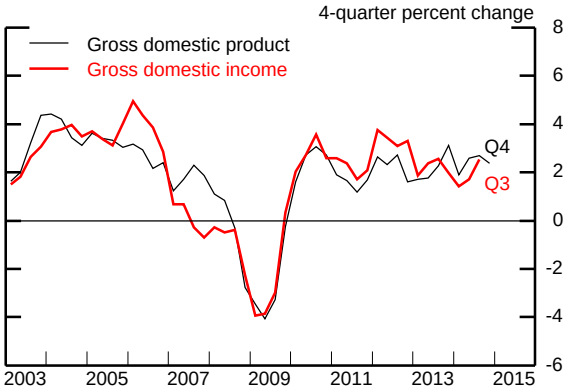
Summary of the Near-Term Outlook
(Percent change at annual rate except as noted)

Measure	2014:Q4		2015:Q1		2015:Q2	
	Previous Tealbook	Current Tealbook	Previous Tealbook	Current Tealbook	Previous Tealbook	Current Tealbook
Real GDP	**2.6**	**2.1**	**2.8**	**1.7**	**2.7**	**2.6**
Private domestic final purchases	3.7	4.3	3.9	3.0	4.1	4.1
Personal consumption expenditures	3.8	4.2	4.1	3.5	4.4	4.4
Residential investment	3.7	4.5	7.2	1.4	11.1	8.5
Nonres. private fixed investment	3.5	4.4	1.9	.7	.8	1.5
Government purchases	-3.9	-2.0	.5	-.8	.1	.1
Contributions to change in real GDP						
Inventory investment[1]	.8	-.1	-.2	.1	.1	.1
Net exports[1]	-.6	-1.0	-.3	-.7	-.8	-1.0
Unemployment rate[2]	**5.7**	**5.7**	**5.4**	**5.5**	**5.3**	**5.3**
PCE chain price index	**-.5**	**-.4**	**-2.5**	**-2.0**	**1.1**	**1.3**
Ex. food and energy	1.1	1.1	1.1	.8	1.3	1.4

1. Percentage points.
2. Percent.

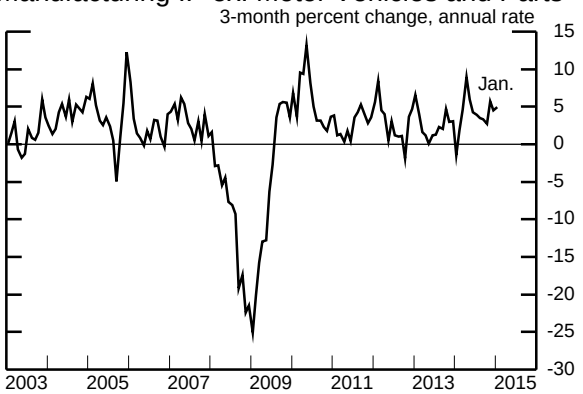
Recent Nonfinancial Developments (1)

Real GDP and GDI



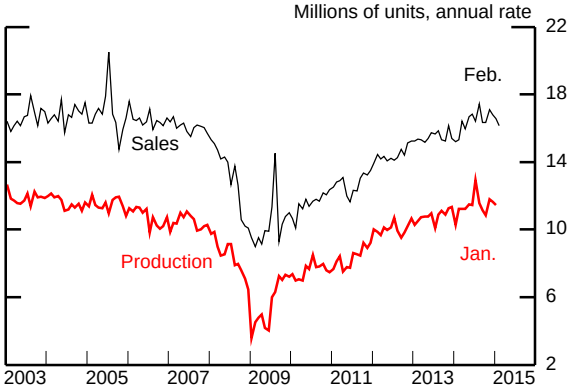
Source: U.S. Dept. of Commerce, Bureau of Economic Analysis.

Manufacturing IP ex. Motor Vehicles and Parts



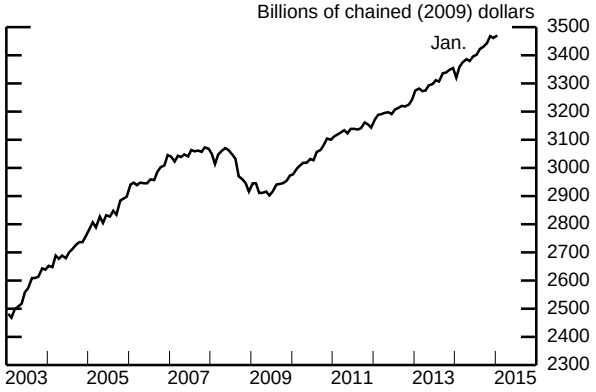
Source: Federal Reserve Board, G.17 Statistical Release, "Industrial Production and Capacity Utilization."

Sales and Production of Light Motor Vehicles



Source: Ward's Communications.

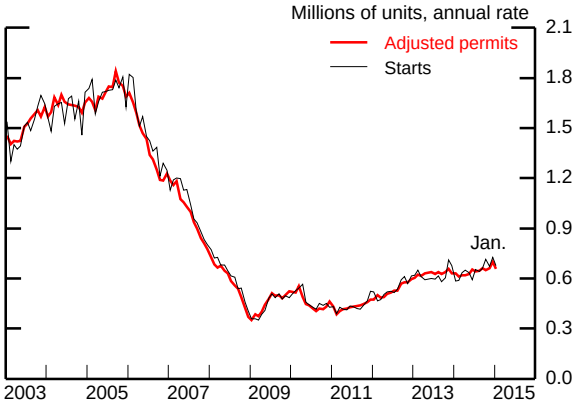
Real PCE Goods ex. Motor Vehicles



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

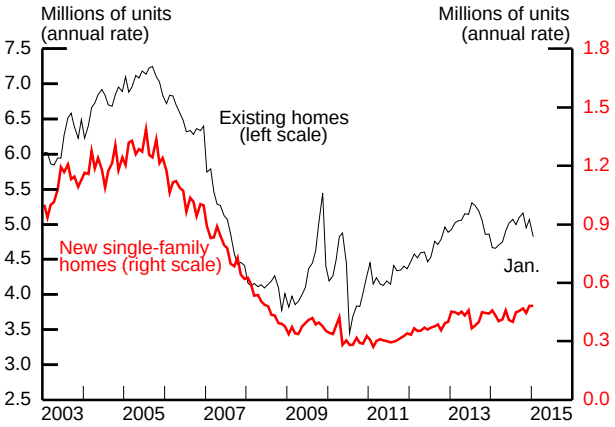
Recent Nonfinancial Developments (2)

Single-Family Housing Starts and Permits



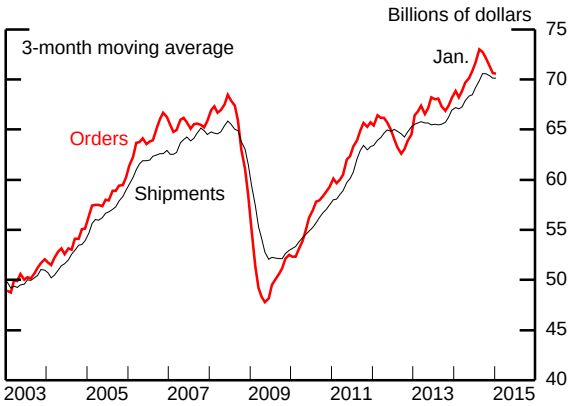
Note: Adjusted permits equal permit issuance plus total starts outside of permit-issuing areas.
Source: U.S. Census Bureau.

Home Sales



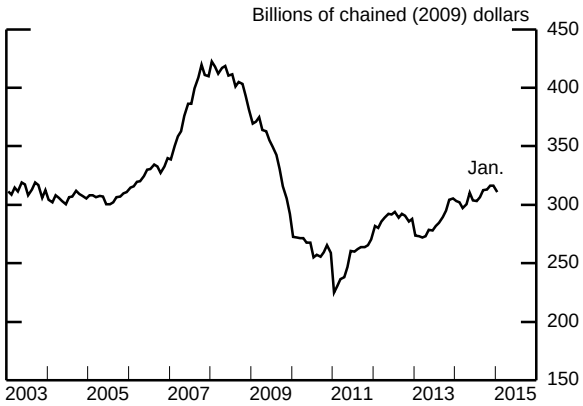
Source: For existing, National Association of Realtors; for new, U.S. Census Bureau.

Nondefense Capital Goods ex. Aircraft



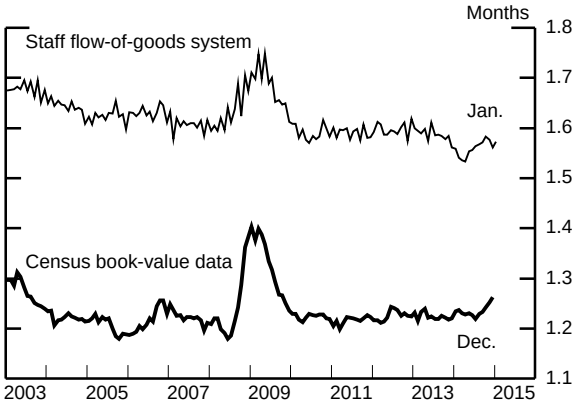
Source: U.S. Census Bureau.

Nonresidential Construction Put in Place



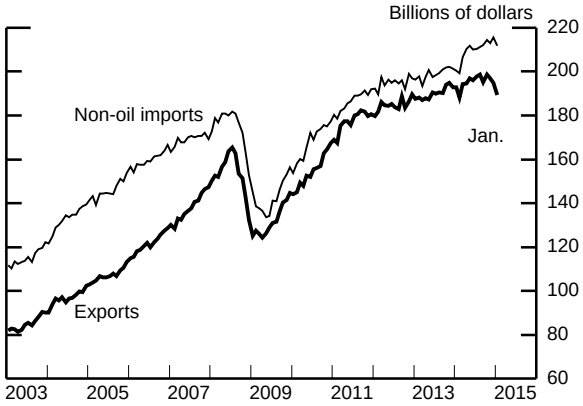
Note: Nominal CPIP deflated by BEA prices through 2014:Q3 and by the staff's estimated deflator thereafter.
Source: U.S. Census Bureau.

Inventory Ratios ex. Motor Vehicles



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

Exports and Non-oil Imports



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

- Relative to the January Tealbook, we have taken down our forecast for the level of real GDP at the end of 2017 by 1 percent. The downward revision largely reflects a stronger dollar, but also higher oil prices.

- In response to the slower productivity growth implied by the stronger recent labor market data and weaker incoming GDP data, we lowered our estimate of structural productivity growth in 2014 by ¼ percentage point. We also took a bit of forward signal from the disappointing productivity performance and nudged down our assumption for structural productivity growth in the projection period to 1½ percent per year. On balance, the level of structural productivity, and hence the level of potential output, at the end of 2017 is ½ percent lower than in the January Tealbook.

- Over the past couple of years, we have been too optimistic in our assessment of aggregate supply conditions; put differently, relative to our assessment in real time, currently available data suggest that a smaller amount of GDP growth has been required to generate a given amount of labor market improvement. In another of a succession of steps we have taken to try to balance the risks around this aspect of the projection, we did not allow the modestly slower growth of potential GDP over the next few years to feed through directly into a weaker outlook for aggregate demand. Instead, this lower potential implies a slightly faster improvement in the GDP gap, and hence the unemployment rate gap, all else being equal. Taking into account our revisions to both aggregate demand and aggregate supply, actual GDP is now projected to be about ½ percent above the level of potential at the end of 2017, a relative position about ½ percentage point weaker than in the January Tealbook.

THE OUTLOOK FOR THE LABOR MARKET

Since the January Tealbook, the employment reports for January and February were published. Taken together, these reports were more positive than we had expected.

- Over the past three months, payroll employment growth has averaged 290,000 per month, roughly 50,000 higher than projected at the time of the January Tealbook. In response, we raised our forecast for payroll gains to 280,000 in

March and to an average of 250,000 per month in the second quarter—30,000 more than we had previously projected.[3]

- The unemployment rate was 5.5 percent in February, 0.1 percentage point higher than projected in the January Tealbook. The small upside surprise for the unemployment rate was accompanied by a higher-than-expected labor force participation rate, thus leaving the employment-to-population ratio in February in line with our previous forecast.

- We expect the unemployment rate to move down to 5.2 percent by June and the labor force participation rate to hold steady at 62.8 percent, which, relative to its declining trend, is consistent with a modest cyclical improvement.

- The staff's labor market conditions index, which summarizes the movements in 19 labor market indicators, continued to improve in January and February at a pace similar to the one observed in the second half of last year.

Consistent with the revisions to the GDP gap, the medium-term outlook for the labor market is a little weaker in this projection.

- We expect monthly job gains to average about 240,000 this year before slowing to around 180,000 in 2016 and 140,000 in 2017. These projected gains are a little faster this year than we had forecast in January, but they are about 50,000 lower per month in 2016 and 10,000 lower in 2017.

- The unemployment rate is projected to move down to 5.0 percent at the end of 2017, 0.2 percentage point higher than in the January Tealbook and 0.2 percentage point below our estimate of the natural rate.

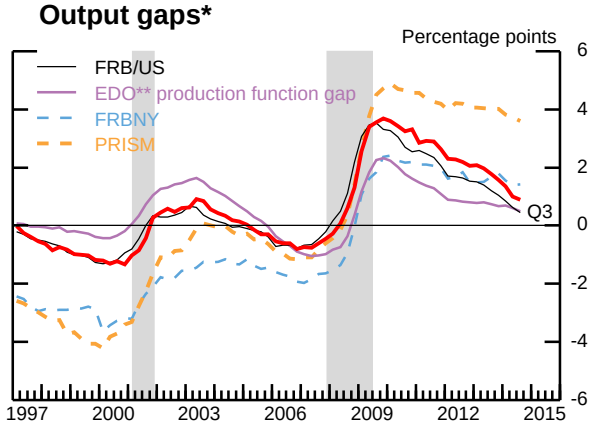
- As in previous Tealbooks, we judge that the unemployment rate gap currently understates the amount of slack remaining in the labor market, reflecting an unusually weak recovery in the labor force participation rate and, we think, an unusually elevated level of involuntary part-time employment. With the economy improving and real wages rising, we expect additional individuals to

[3] The January employment report incorporated the annual benchmark revisions and a number of associated adjustments (including revised seasonal factors) as well as newly available survey data. Taken together, these adjustments raised the level of payroll employment in December 2014 by 245,000 compared with the value published at the time of the January Tealbook.

Alternative Measures of Slack

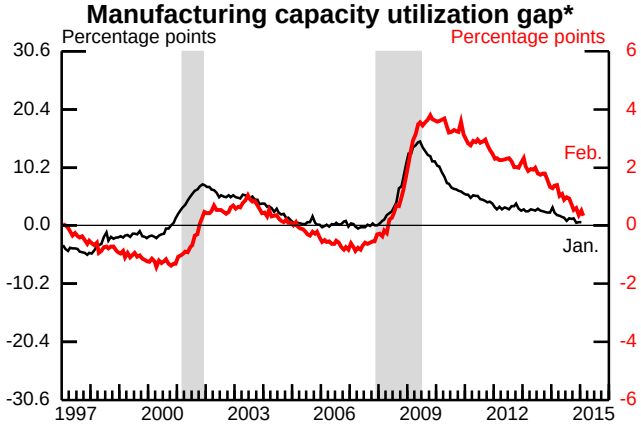
The red line in each panel is the staff's measure of the unemployment rate gap (right axis).

Output gaps*



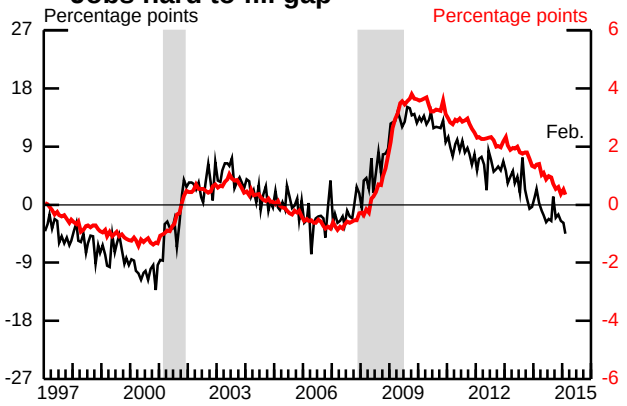
** EDO is Estimated, Dynamic, Optimization-based model.
Source: Federal Reserve Board; PRISM: Federal Reserve Board Bank of Philadelphia, PRISM Model Documentation (June 2011); FRBNY: Federal Reserve Bank of New York Staff Report 618 (May 2013, revised April 2014).

Manufacturing capacity utilization gap*



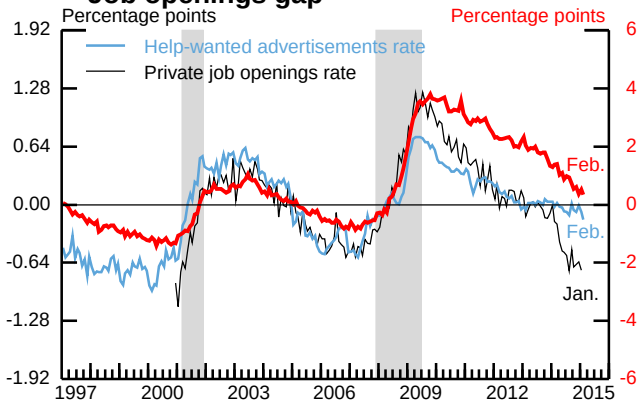
Source: Federal Reserve Board.

Jobs hard to fill gap*



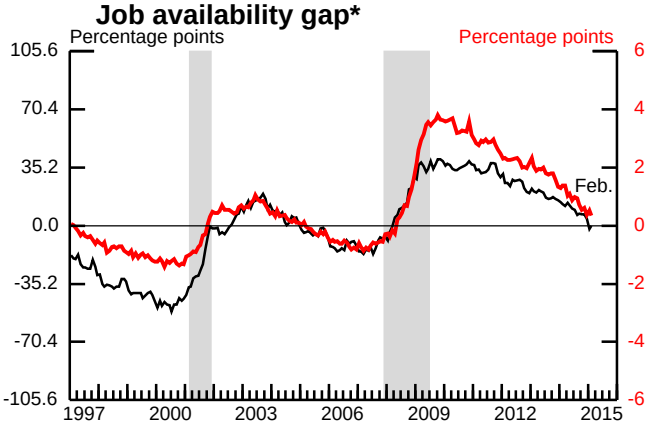
Note: Percent of small businesses surveyed with at least one "hard to fill" job opening. Seasonally adjusted by Federal Reserve Board Staff.
Source: National Federation of Independent Business, Small Business Economic Trends Survey.

Job openings gap*



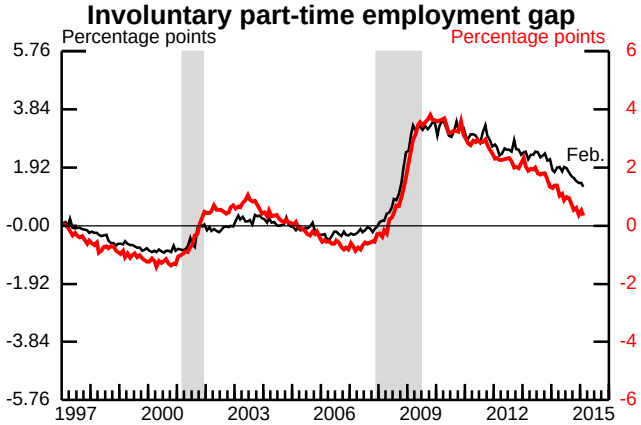
Note: Job openings rate is the number of job openings divided by employment plus job openings.
Source: Job Openings and Labor Turnover Survey; U.S. Department of Labor, Bureau of Labor Statistics, Current Employment Statistics.

Job availability gap*



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

Involuntary part-time employment gap



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

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

be drawn into the labor market and the rate of involuntary part-time employment to move down. The improvement in the labor force participation rate relative to its trend attenuates the decline in the unemployment rate, and, as a result, we expect that the unemployment rate will only edge down during 2016 and 2017 even as GDP continues to increase moderately faster than its potential.

- As shown in the exhibit "Alternative Measures of Slack," output gaps from the Philadelphia Fed's PRISM model and the New York Fed's DSGE model suggest more slack than the staff's unemployment rate gap. Alternatively, gaps derived from the National Federation of Independent Business measure of jobs that are hard to fill and the JOLTS job openings rate suggest somewhat tighter labor market conditions.[4]

- We considered lowering our assumption for the current natural rate of unemployment by ¼ percentage point, to 5 percent. Arguments in favor of such an adjustment include evidence that increases in disability rolls and changes in the age distribution of the population may have resulted in less structural unemployment. A lower natural rate of unemployment (and hence a larger unemployment rate gap) might also be consistent with the muted levels of inflation observed in the past couple of years. Arguments against such an adjustment include a possible deterioration of matching efficiency and persistent labor market scarring implied by the continued elevated level of long-term unemployment. At this point, we opted to leave our natural rate assumption unrevised.

THE OUTLOOK FOR INFLATION

The BEA now reports that total PCE prices decreased at an annual rate of ½ percent in the fourth quarter of last year, and we anticipate a decline of 2 percent this quarter; both declines reflect the steep drop in crude oil prices since last June. The recent upturn in crude oil prices has led us to raise our near-term projection for headline PCE

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

price inflation, and we now project total PCE prices to rise at a 1¼ percent pace in the second quarter.[5]

- Core PCE price inflation in the final quarter of last year, at about 1 percent, was in line with our estimate in the January Tealbook. However, we have lowered our estimate of core PCE price inflation in the current quarter to ¾ percent: Medical services prices came in weaker than expected in January; also, core goods prices fell more than expected and are likely to be held down in future months by the rise in the dollar.

- Consumer food price inflation has continued to slow from the elevated rates observed in the middle of last year, and we now project only a very small increase in prices for food purchased for home consumption in the first quarter of this year. Given the substantial declines in farm commodity prices observed in recent months, consumer food price inflation is expected to remain soft in the next few quarters. In the medium term, we project that consumer food prices will rise at a pace roughly in line with core inflation.

Beyond the near term, we continue to expect inflation to gradually move higher, as energy and core import prices turn up and resource slack diminishes in an environment of well-anchored long-run inflation expectations.

- Core import prices are expected to decline at an average annual rate of 4 percent in the first half of this year, reflecting the appreciation of the dollar and net declines in commodity prices. Given our projection that the dollar will top out and foreign CPI inflation will pick up, core import price inflation is expected to turn positive by the end of 2015 and to reach 1¾ percent in 2017.

- Most survey-based measures of long-run inflation expectations, such as those from the University of Michigan Surveys of Consumers and PCE price inflation expectations from the Survey of Professional Forecasters (SPF), have remained within the narrow range of values seen in recent years.[6] TIPS-based

[5] Despite a projected upturn of headline PCE prices, the 12-month change is expected to edge lower and be near zero in June.

[6] Median expectations of CPI inflation over the next 10 years in the SPF have edged down to 2.1 percent, from 2.2 percent at the time of January Tealbook and 2.5 percent in mid-2012. The decline

measures of inflation compensation are little changed from the low levels observed at the time of the January Tealbook.

- Because import prices are projected to bottom out late this year, and we think the decline in medical care prices will prove transitory, we have not carried the recent surprise in core inflation forward beyond the near term. We continue to expect core PCE price inflation to edge up gradually from 1¼ percent this year to 1¾ percent in 2017 as the restraint from import prices wanes and slack continues to diminish. We see some role for the drop in energy prices to hold down business costs and so restrain core inflation this year and next, but we estimate those effects to be small. (See the box "The Pass-Through of Energy Prices to Core Inflation.")

- With consumer energy prices projected to rise faster than core prices beginning later this year, total PCE inflation follows a slightly higher trajectory than core inflation in 2016 and 2017—increasing at a rate just a touch below 2 percent in 2017.

- Incoming data continue to show a fairly modest pace of wage increases. Average hourly earnings of all employees were up 2 percent in the 12 months through February, in line with the January Tealbook projection. Likewise, the employment cost index for the fourth quarter was close to our expectation, showing a modest acceleration to a 2¼ percent rate of increase over the past year. The growth rate of business-sector compensation per hour from the "Productivity and Costs" release was revised up in the second half of 2014, and this measure now also shows a four-quarter change of 2¼ percent last year. With labor and product markets tightening over the projection period, we expect the productivity and cost measure of hourly compensation to accelerate to about 3 percent this year and 3½ percent in 2016 and 2017; this projection is essentially unrevised from the one in the January Tealbook. (For a different perspective on the recent wage data, see the box "Alternative View: Wages Have Been Accelerating.")

from 2.2 percent to 2.1 percent appears to be the result of changes in the composition of panelists between surveys rather than a shift in individual panelist views. The movement in CPI expectations since 2012 largely reflects a downward movement in expectations of inflation in the next 5 years. Indeed, expected CPI inflation for the period 5 to 10 years ahead shows less decline and currently stands at 2.3 percent.

The Pass-Through of Energy Prices to Core Inflation

Crude oil prices have fallen about 50 percent, on net, since the middle of 2014, placing substantial downward pressure on consumer energy prices and overall inflation. As shown by the blue bars in figure 1 on the next page, the direct contribution of the sharp fall in consumer energy prices was to reduce the annual rate of total PCE inflation by 1½ percentage points in the fourth quarter of last year and by an estimated 2¾ percentage points in the first quarter of this year. Unless oil prices fall further, we anticipate that these effects on headline PCE inflation will be transitory. Indeed, oil prices already appear to have bottomed out, and the futures path for crude oil points to rising oil prices going forward. Accordingly, we project that consumer energy prices will begin to rise moderately in the second quarter (red line)—after declining 20 percent, on average, over the previous four quarters—and that they will make a small positive contribution to PCE inflation over the medium term.

While the direct effect of oil prices on consumer energy prices is relatively straightforward to quantify, there is considerable uncertainty about the magnitude and timing of the pass-through of energy price changes to core inflation. Much of the empirical literature finds that the pass-through of energy prices to core inflation was appreciable following the energy price shocks in the 1970s but has diminished since the early 1980s. There are many possible reasons that the pass-through has declined, including a reduction in the energy intensity of U.S. output, the decline in the persistence of core inflation, and the anchoring of inflation expectations. Current estimates of energy price pass-through are typically small but are very imprecisely estimated. However, even if the pass-through of energy price changes to core inflation is small, the question remains whether the recent decline in energy prices is large enough to produce policy-relevant contributions to the path of core inflation.

The starting point for many of the models that inform the staff's inflation forecast is the expectations-augmented Phillips curve.[1] In this model, core inflation depends on long-run inflation expectations, usually proxied by survey-based measures; economic slack; and supply shock terms, including relative energy price inflation. Depending on the exact specification of the Phillips curve, these models estimate that a permanent decline in the level of PCE energy prices of 10 percent lowers core PCE prices by a cumulative 0.1 to 0.2 percent after eight quarters.

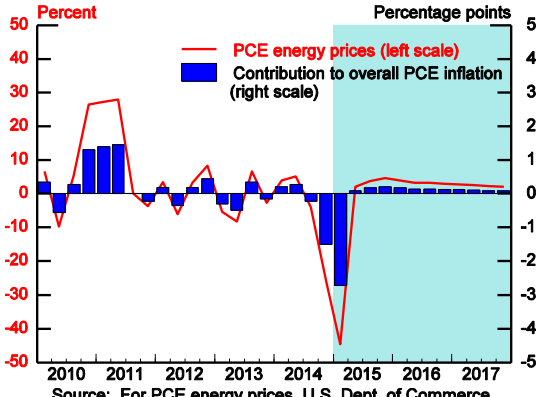
Given these small estimates for the pass-through of energy price changes to core inflation, even the very large declines in consumer energy prices since the middle of 2014 are projected to have relatively small effects on core PCE inflation. Figure 2

[1] For additional background on staff models of core price inflation, see the January 17, 2014, memorandum to the FOMC, "The Staff's Outlook for Price Inflation," by Alan Detmeister, Jean-Philippe Laforte, and Jeremy Rudd.

shows the estimated contribution of energy price changes to core inflation from two of our Phillips curve models along with the staff's judgmental estimate. The contributions plotted as red bars in the figure come from a model where inflation expectations are proxied by long-run inflation expectations from the Michigan survey; the blue bars report contributions from a model where expectations are proxied by the 10-year forecast of PCE inflation from the Survey of Professional Forecasters, or SPF. The magnitude and timing of the response of core inflation to energy price movements is only slightly different in these two models, and the staff's judgmental estimate, shown by the black line, is similar to both models' estimates.[2] Changes in energy prices are estimated to have had little effect on core inflation in 2013 and 2014, but the drop in energy prices since the middle of last year is projected to hold down core inflation slightly this year and by one-tenth to two-tenths of a percentage point in 2016. In 2017, the energy price effect on core inflation is roughly neutral.

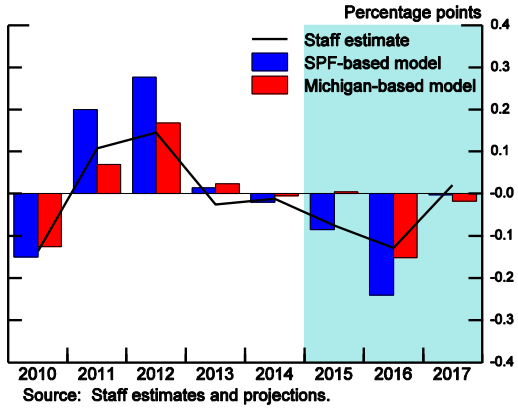
All of the estimates presented here—like the staff's inflation projection as a whole—are based on the assumption that inflation expectations remain stable. While survey-based measures have moved relatively little in recent years, market-based measures of inflation compensation have declined notably, on net, since the middle of last year. If the energy price declines since June were to bring about a reduction in the inflation expectations that are relevant for price-setting behavior, then energy pass-through likely would be larger and more persistent than the staff assumes and would produce additional downward pressure on our medium-term inflation forecast. However, in the absence of a change in inflation expectations, estimates from our models suggest that it is unlikely that the drop in energy prices to date poses a significant downside risk to our medium-term forecast of PCE inflation.

Figure 1. Energy price inflation and contribution to total PCE inflation (annual rates)



Source: For PCE energy prices, U.S. Dept. of Commerce, Bureau of Economic Analysis and staff assumptions; for contributions, staff estimates.

Figure 2. Contribution of energy price pass-through to core PCE inflation (Q4/Q4)



Source: Staff estimates and projections.

[2] These differences greatly understate the uncertainty around estimates of the energy pass-through because they do not incorporate, for example, model specification and parameter uncertainty or uncertainty about the staff energy price forecast.

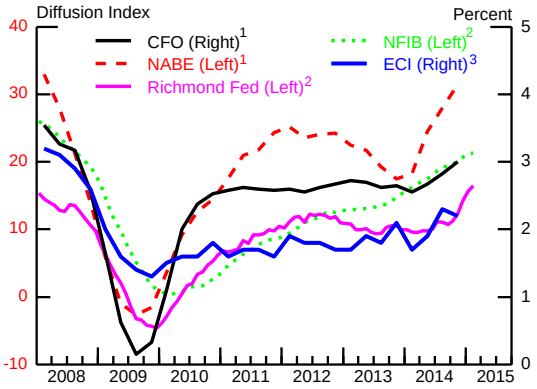
Alternative View: Wages Have Been Accelerating

Few signs of acceleration are evident in the wage series that typically appear in the Tealbook, as they have been presented there. However, the evidence on acceleration is more mixed when those series are presented differently. Furthermore, a variety of other data series, which have proven reliable in recent years, indicate wages have been accelerating over most of this recovery and continue to accelerate now.

Figure 1 plots four sources of survey data on wage changes not reported in the Tealbook along with one that is, the wage and salary component of the employment cost index (ECI) from the Bureau of Labor Statistics (BLS). Each alternative series extends back to the late 1990s or earlier. Three are diffusion indexes, measuring the breadth of firms reporting that they have raised wages recently (the National Association for Business Economics, or NABE; the National Federation of Independent Business, or NFIB; and the Richmond Fed measures), while the Duke/CFO survey reports the average expected wage increase at respondent firms over the next year. The ECI (the blue line) appears noisier than the alternative wage measures and shows a less pronounced cyclical pattern. In particular, all the alternative measures show wage growth as having been extraordinarily low in 2009 before stepping up early in the expansion, and all show wages accelerating again in 2014.

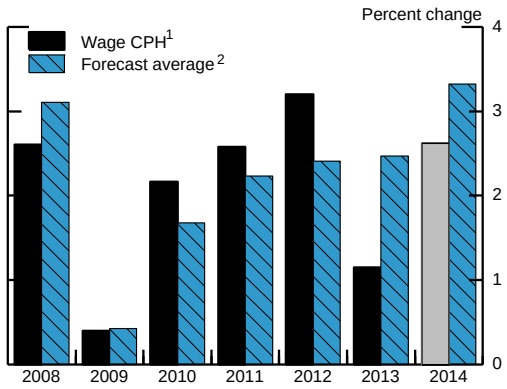
The main text of the Tealbook plots two other wage measures along with the ECI: average hourly earnings (AHE), from the BLS establishment survey, and the BLS productivity and costs measure of compensation per hour (CPH). Among these, CPH is unique in that its wages and salaries component is benchmarked to unemployment insurance tax records. Paradoxically, because those records are comprehensive and capture irregular payments missed by surveys, CPH is more volatile than AHE or ECI, making its trend hard to see in the

Figure 1. Wage Measures



1. National Association for Business Economics, Business Conditions Survey: net percent of firms reporting increased wages and salaries. Duke's Fuqua School of Business/CFO Magazine Business Outlook Survey: average own-firm expected wage and salary increase over the next 12 months. 4-quarter moving averages.
2. Federal Reserve Bank of Richmond, Fifth District Survey of Service Sector Activity: net percent reporting increased average wage. National Federation of Independent Business: net percent reporting increased compensation over last 3 months. 12-month moving averages.
3. BLS, private-sector wages and salaries. 4-quarter percent change.

Figure 2. Wage Compensation per Hour



1. Black bars: nonfarm business sector wages and salaries (from the BEA) over all employee hours (from BLS productivity and costs release). Gray bar: private wages and salaries over nonfarm business sector all employee hours. Annual percent changes.
2. Equal-weighted average of six out-of-sample forecasts, computed from 1997-2007 regressions of annual wage CPH growth on the annual average of the wage measure from either the NABE survey, the CFO survey, the NFIB survey, the Richmond Fed service sector survey, the ECI for wages and salaries, or the average hourly earnings of production and non-supervisory workers.

Note: This alternative view was prepared by Jeremy Nalewaik.

way it is normally presented in the Tealbook. But smoothing into annual average growth rates shows clear acceleration from 2009 to 2012 in the wage and salary component of nonfarm business CPH (or wage CPH, for short), as shown by the black bars in figure 2.[1]

Because wage CPH is the only one of these measures benchmarked to tax records, it should be accorded heavy weight in assessments of wage growth. However, tax records are not perfect—not least because irregular payments can obscure the trend even in annual averages, and the hours series used in the denominator of CPH may be measured with error—so placing some weight on an average of the other measures does make sense. The striped blue bars in figure 2 show such an equal-weighted average of wage CPH growth forecasts from the five measures shown in figure 1 and AHE. Note that, while the Bureau of Economic Analysis uses AHE as their primary extrapolator in wage estimates computed before tax data are available—wage estimates that are then used in the numerator of CPH—AHE has the lowest correlation of all these six measures with later estimates of wage CPH that have been benchmarked to tax data.[2] Equal weighting the six measures follows the literature on optimal forecast combination, but if any wage measure merits less weight, it is AHE. This bears keeping in mind when evaluating movements like the anomalous decline in AHE in December 2014.

Comparing the black and blue striped bars in figure 2, the forecast average tracks wage CPH growth well from 2008 to 2011. Income shifting from 2013:Q1 into 2012:Q4 in anticipation of 2013 tax increases probably pulled about ½ percentage point of CPH growth from 2013 into 2012. Netting out that effect, which is likely not fully reflected in the other wage measures, puts wage CPH growth ¼ percentage point above the forecast average in 2012 and ¾ percentage point below it in 2013. For 2014, industry data necessary to compute nonfarm business wage CPH growth are not yet available, but available estimates of private wages and salaries suggest growth slightly above 2½ percent, shown by the gray bar. However, that estimate is still subject to revisions, which have been well predicted by the forecast average over the past six years, so it would be reasonable to place close to full weight on the 3¼ percent forecast average in estimating 2014 wage CPH growth. Doing so shows wages growing at a pace of more than 3 percent last year and accelerating.

[1] Unlike most of the wage and salary measures plotted in figure 1, headline CPH includes estimates of other types of employee compensation like employer contributions for health insurance, and recent changes to the health-care system make these estimates hard to interpret. Figure 1 focuses on the wage and salary component of CPH to avoid these complications and provide more of an apples-to-apples comparison with the other measures. Average annual headline CPH growth looks similar, but from 2010 to 2013, it averaged about ¼ percentage point less than the wage and salary component shown in the figure because of low estimated growth rates of nonwage compensation.

[2] In regressions from 1997 to 2013 of annual wage CPH growth on the annual average of each of the measures, the adjusted R-squared statistics using the four alternative measures range from 0.62 to 0.75, while those using the ECI and AHE growth are only 0.53 and 0.25, respectively. AHE growth is least correlated with wage CPH growth at the quarterly frequency as well. Note that this box focuses on the AHE of production and non-supervisory workers because it has a relatively long history, and the Bureau of Economic Analysis now uses the AHE of all employees for its extrapolations, a measure with no history prior to 2006. That measure is uncorrelated with quarterly or annual CPH growth, though, over its short history.

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 now assumes a long-run equilibrium level of the nominal federal funds rate of 3½ percent.

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

- Risk premiums on corporate equities and corporate bonds are assumed to edge down toward their longer-run levels.

- The natural rate of unemployment remains at 5¼ percent, and potential GDP is assumed to rise 1.8 percent per year on average from 2017 to 2020.

- As monetary accommodation is withdrawn, real GDP growth slows to 1½ percent in 2018 and then continues to run for a while at a pace just below the growth rate of potential output. The unemployment rate stays flat at about 5 percent in 2018 before gradually edging up toward its natural rate.

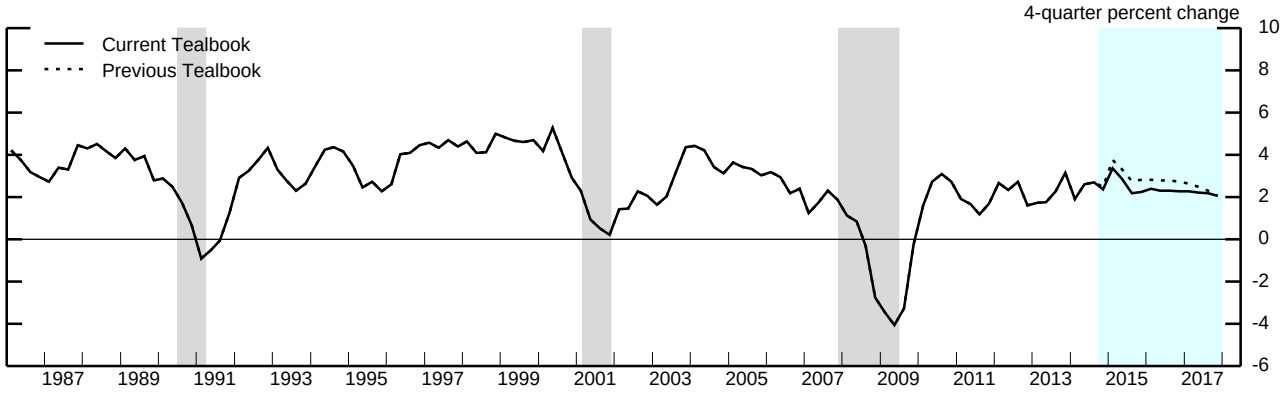
- PCE price inflation remains slightly below the Committee's long-run objective at the end of 2017. However, with the unemployment rate below the natural rate, longer-run inflation expectations gradually edge up and PCE price inflation moves up to 2 percent by 2019.

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**	**2.2**	**2.3**	**2.2**	**2.3**	**2.0**
Previous Tealbook	2.5	2.8	2.8	2.8	2.7	2.0
Final sales	2.3	2.1	2.5	2.3	2.3	2.2
Previous Tealbook	2.2	2.9	2.8	2.8	2.8	2.4
Personal consumption expenditures	2.8	3.9	3.9	3.9	3.2	2.6
Previous Tealbook	2.7	4.2	4.0	4.1	3.4	2.7
Residential investment	2.7	4.9	13.7	9.2	9.7	5.1
Previous Tealbook	2.5	9.1	13.0	11.0	9.2	4.1
Nonresidential structures	6.5	-8.8	-3.6	-6.2	1.5	.7
Previous Tealbook	6.0	-8.1	-3.0	-5.6	2.4	1.2
Equipment and intangibles	6.0	4.1	4.1	4.1	4.0	2.5
Previous Tealbook	5.9	4.3	5.3	4.8	4.2	2.7
Federal purchases	.2	-2.8	-1.8	-2.3	-1.3	-.9
Previous Tealbook	-.8	-1.5	-2.1	-1.8	-1.3	-1.1
State and local purchases	1.2	1.2	1.7	1.5	2.0	2.2
Previous Tealbook	1.0	1.4	1.7	1.6	2.0	2.2
Exports	2.4	-.3	.0	-.1	.7	2.9
Previous Tealbook	1.9	2.1	2.0	2.0	2.5	3.6
Imports	5.5	5.3	6.8	6.1	6.2	3.8
Previous Tealbook	4.5	5.3	7.2	6.3	5.4	4.0
	Contributions to change in real GDP (percentage points)					
Inventory change	.0	.1	-.1	.0	.0	-.2
Previous Tealbook	.3	-.1	.1	.0	.0	-.3
Net exports	-.6	-.9	-1.0	-1.0	-.9	-.3
Previous Tealbook	-.5	-.5	-.8	-.7	-.5	-.2

Real GDP

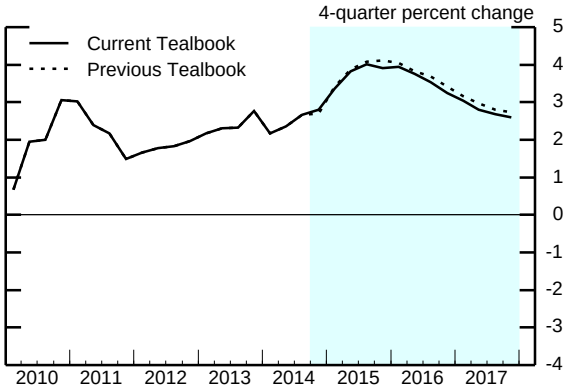


Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

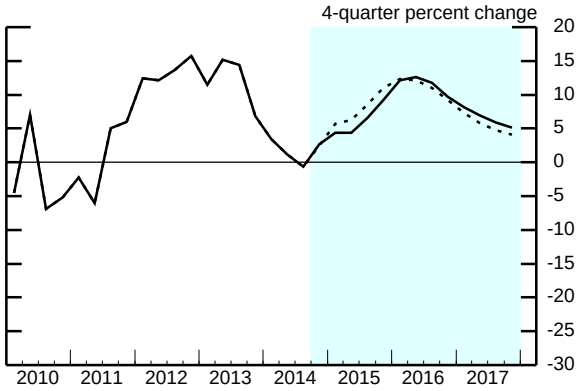
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Components of Final Demand

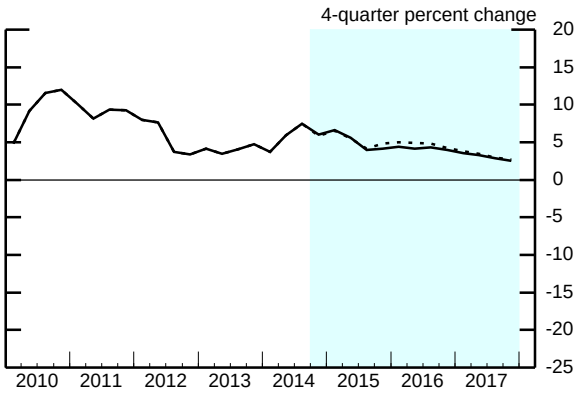
Personal Consumption Expenditures



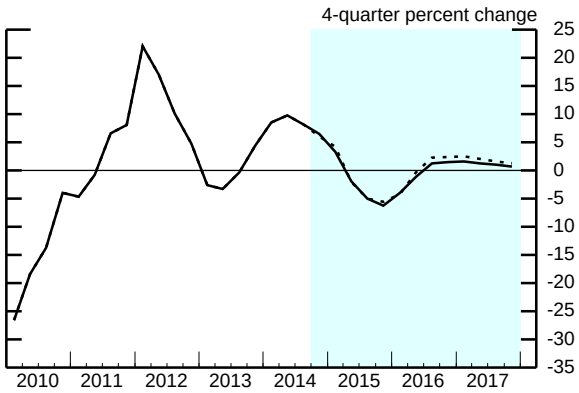
Residential Investment



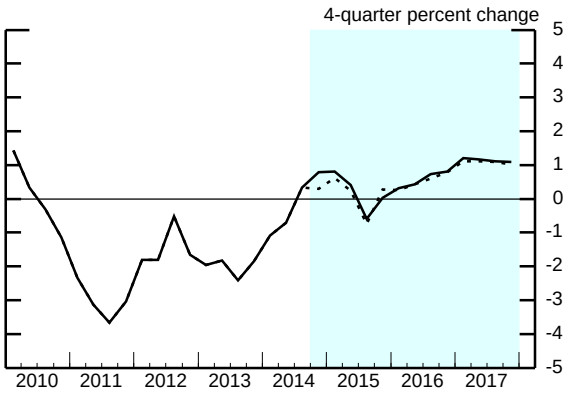
Equipment and Intangibles



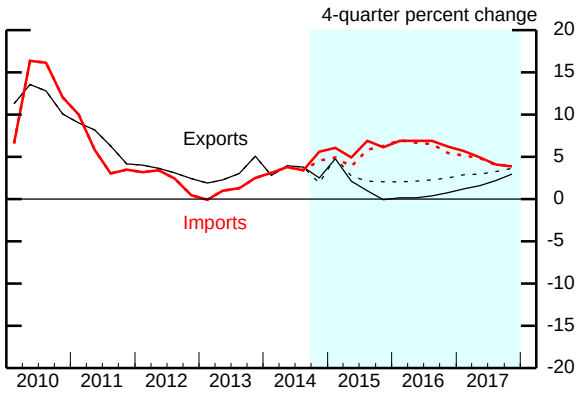
Nonresidential Structures



Government Consumption & Investment



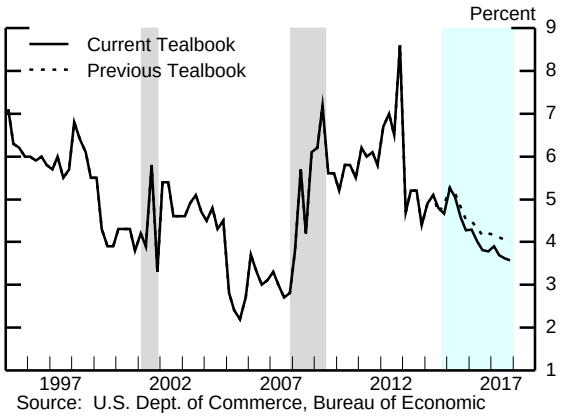
Exports and Imports



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

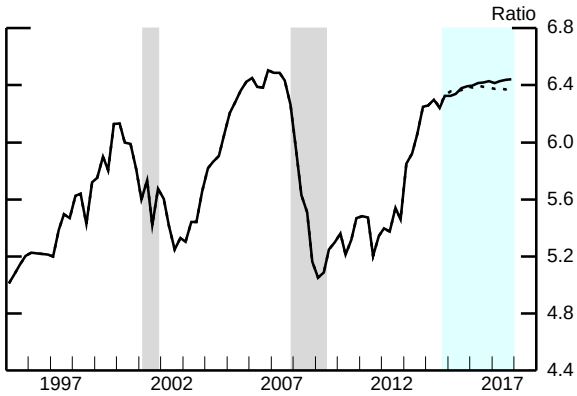
Aspects of the Medium-Term Projection

Personal Saving Rate



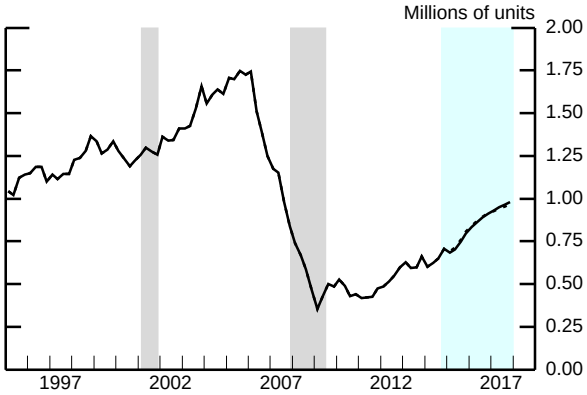
Source: U.S. Dept. of Commerce, Bureau of Economic Analysis.

Wealth-to-Income Ratio



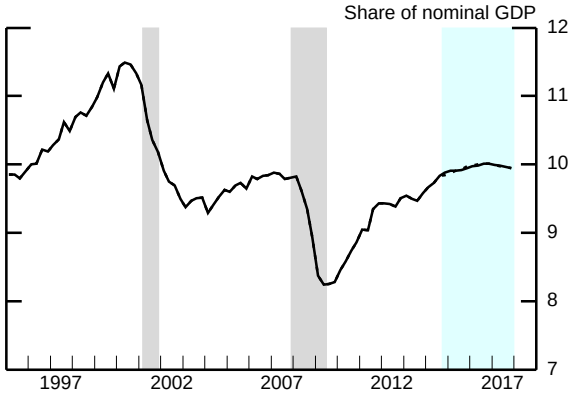
Note: Ratio of household net worth to disposable personal income.
Source: For net worth, Federal Reserve Board, Financial Accounts of the United States; for income, U.S. Dept. of Commerce, Bureau of Economic Analysis.

Single-Family Housing Starts



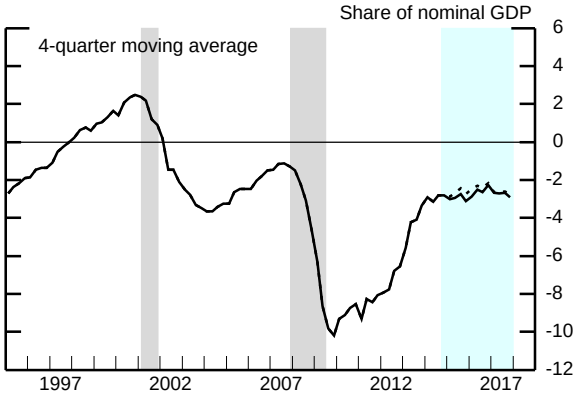
Source: U.S. Census Bureau.

Equipment and Intangibles Spending



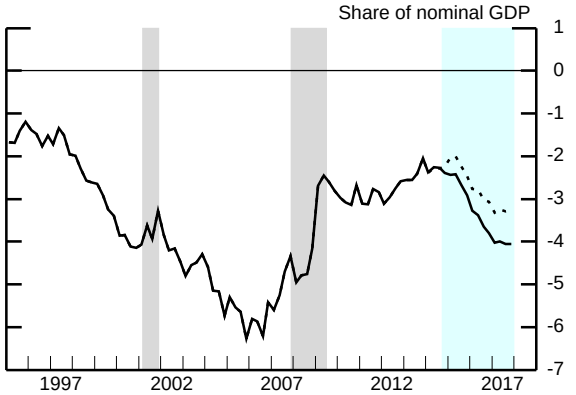
Source: U.S. Dept. of Commerce, Bureau of Economic Analysis.

Federal Surplus/Deficit



Source: *Monthly Treasury Statement.*

Current Account Surplus/Deficit



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

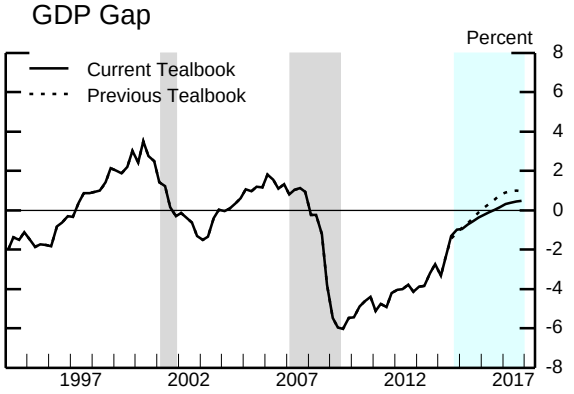
Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

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

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

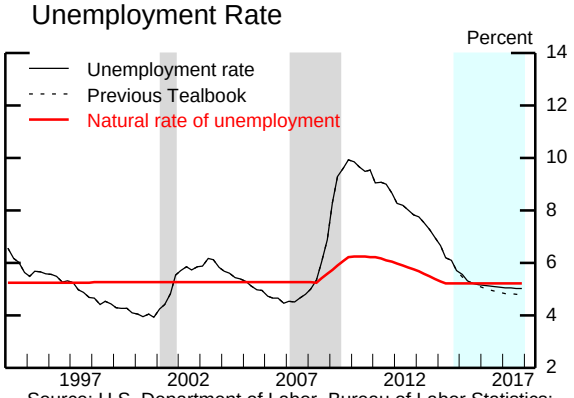
Note: For multiyear periods, the percent change is the annual average from Q4 of the year preceding the first year shown to Q4 of the last year shown.
1. Percentage points.
2. Total business sector.
3. Percent difference between actual and potential GDP in the final quarter of the period indicated. A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

GDP Gap



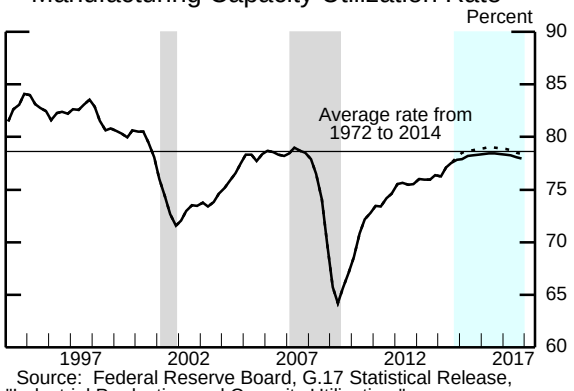
Note: The GDP gap is the percent difference between actual and potential GDP; a negative number indicates that the economy is operating below potential.
Source: U.S. Department of Commerce, Bureau of Economic Analysis; staff assumptions.

Unemployment Rate



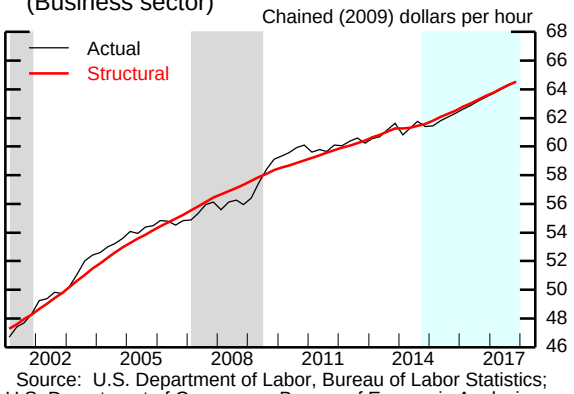
Source: U.S. Department of Labor, Bureau of Labor Statistics; staff assumptions.

Manufacturing Capacity Utilization Rate



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

Structural and Actual Labor Productivity
(Business sector)



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

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

The Outlook for the Labor Market

Measure	2014	2015		2015	2016	2017
		H1	H2			
Output per hour, business[1]	-.4	1.3	1.8	1.6	1.7	1.7
Previous Tealbook	-.4	2.2	2.1	2.2	1.7	1.7
Nonfarm private employment[2]	254	253	208	230	165	123
Previous Tealbook	238	218	215	216	216	132
Labor force participation rate[3]	62.8	62.8	62.7	62.7	62.6	62.4
Previous Tealbook	62.8	62.7	62.6	62.6	62.6	62.5
Civilian unemployment rate[3]	5.7	5.3	5.2	5.2	5.1	5.0
Previous Tealbook	5.7	5.3	5.1	5.1	4.9	4.8

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)

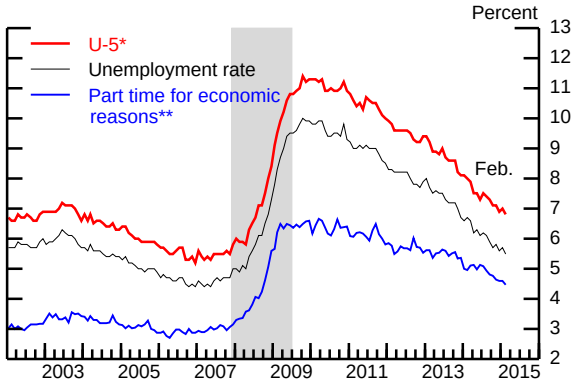
Measure	2014	2015		2015	2016	2017
		H1	H2			
PCE chain-weighted price index	1.1	-.3	1.6	.6	1.7	1.9
Previous Tealbook	1.1	-.7	1.8	.5	1.7	1.9
Food and beverages	2.8	.4	1.2	.8	1.6	1.9
Previous Tealbook	2.8	1.1	1.1	1.1	1.6	1.9
Energy	-6.1	-24.9	4.3	-11.5	3.3	2.4
Previous Tealbook	-6.4	-34.6	9.1	-15.5	4.7	3.0
Excluding food and energy	1.4	1.1	1.5	1.3	1.6	1.8
Previous Tealbook	1.4	1.2	1.5	1.4	1.6	1.8
Prices of core goods imports[1]	.6	-4.2	-.7	-2.4	1.1	1.7
Previous Tealbook	.5	-2.9	.6	-1.2	1.2	1.3

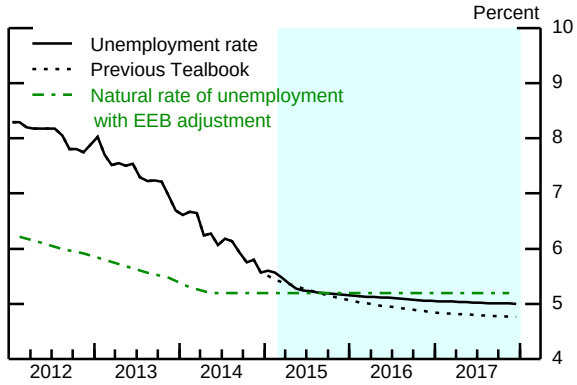
1. Core goods imports exclude computers, semiconductors, oil, and natural gas.
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Domestic Econ Devel & Outlook

Labor Market Developments and Outlook (1)

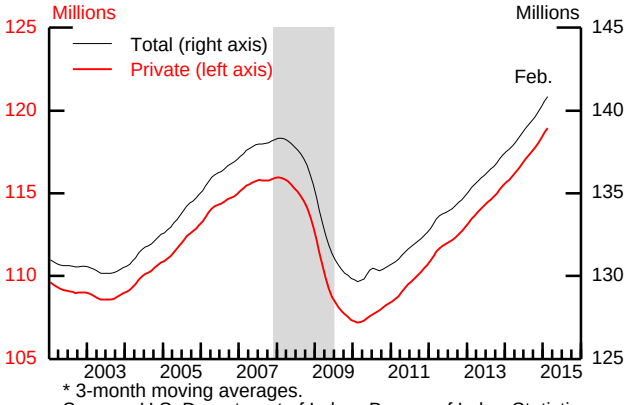
Measures of Labor Underutilization

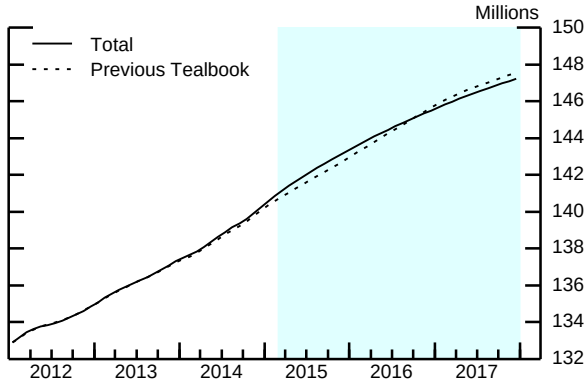




* U-5 measures total unemployed persons plus all marginally attached to the labor force, as a percent of the labor force plus persons marginally attached to the labor force.
** Percent of Current Population Survey employment.
EEB Extended and emergency unemployment benefits.
Source: U.S. Department of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

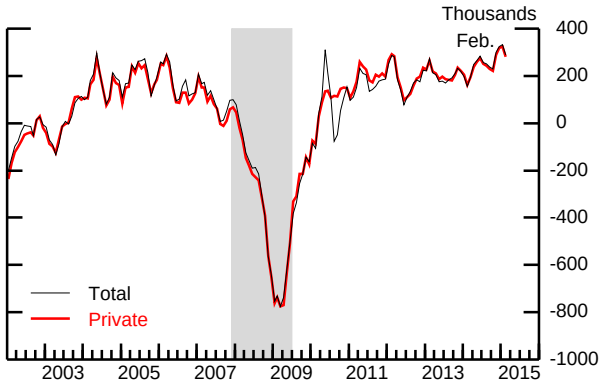
Level of Payroll Employment*

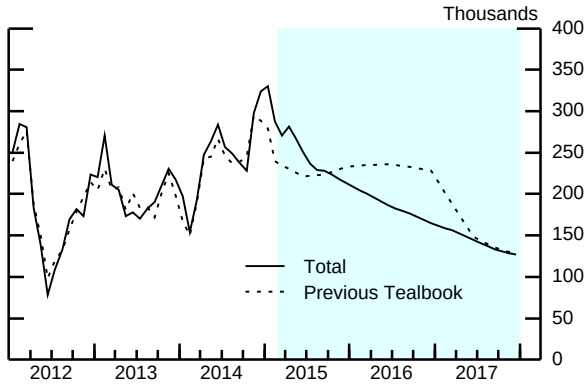




* 3-month moving averages.
Source: U.S. Department of Labor, Bureau of Labor Statistics.

Change in Payroll Employment*



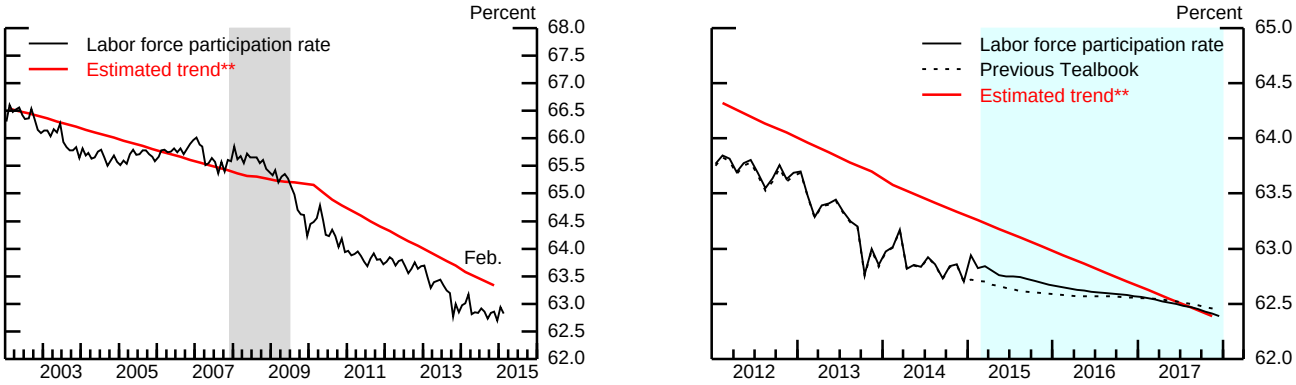


* 3-month moving averages.
Source: U.S. Department of Labor, Bureau of Labor Statistics.

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

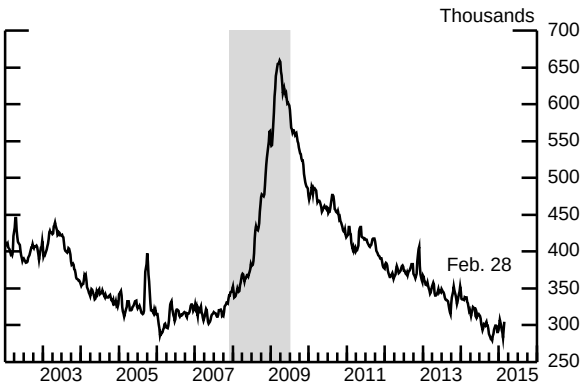
Labor Market Developments and Outlook (2)

Labor Force Participation Rate*



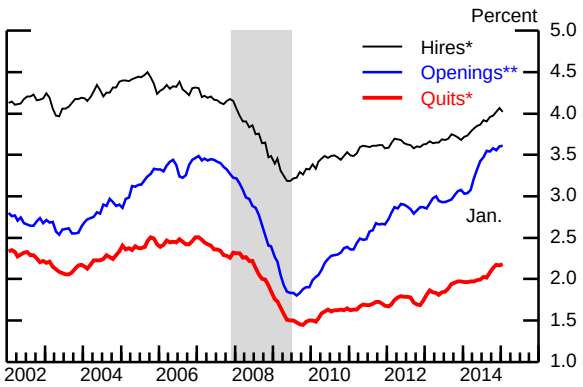
* Published data adjusted by staff to account for changes in population weights.
** Includes staff estimate of the effect of extended and emergency unemployment benefits.
Source: U.S. Department of Labor, Bureau of Labor Statistics; staff assumptions.

Initial Unemployment Insurance Claims*



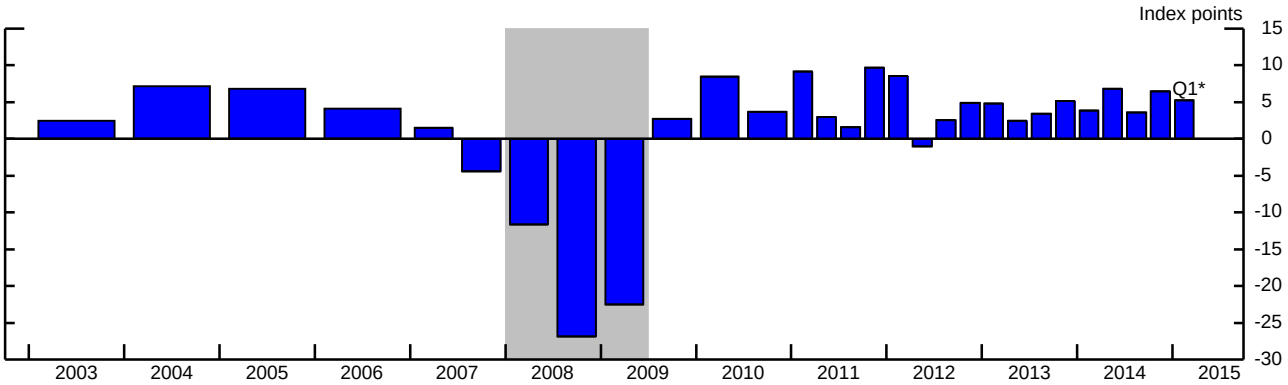
* 4-week moving average.
Source: U.S. Department of Labor, Employment and Training Administration.

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



* Value shown for Q1 is an average of February and January data.
Note: Labor market conditions index estimated by staff.

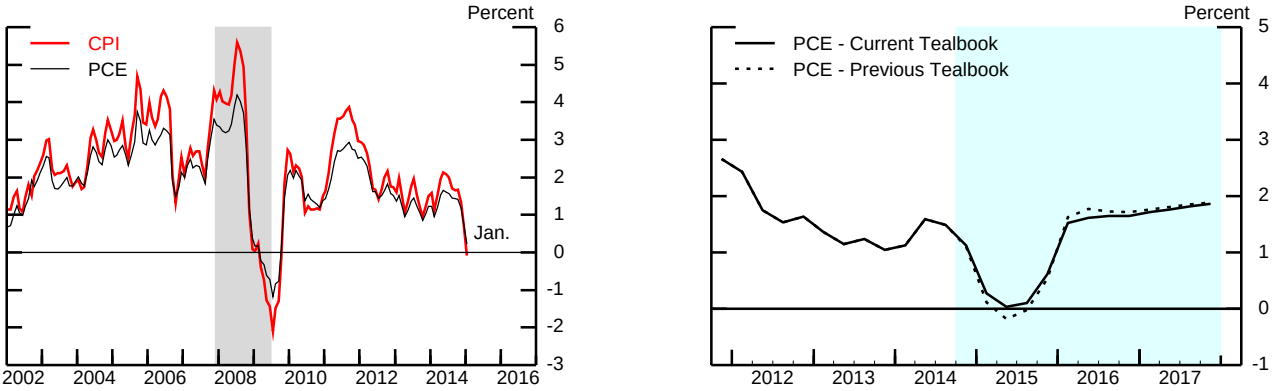
Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

Domestic Econ Devel & Outlook

Inflation Developments and Outlook (1)

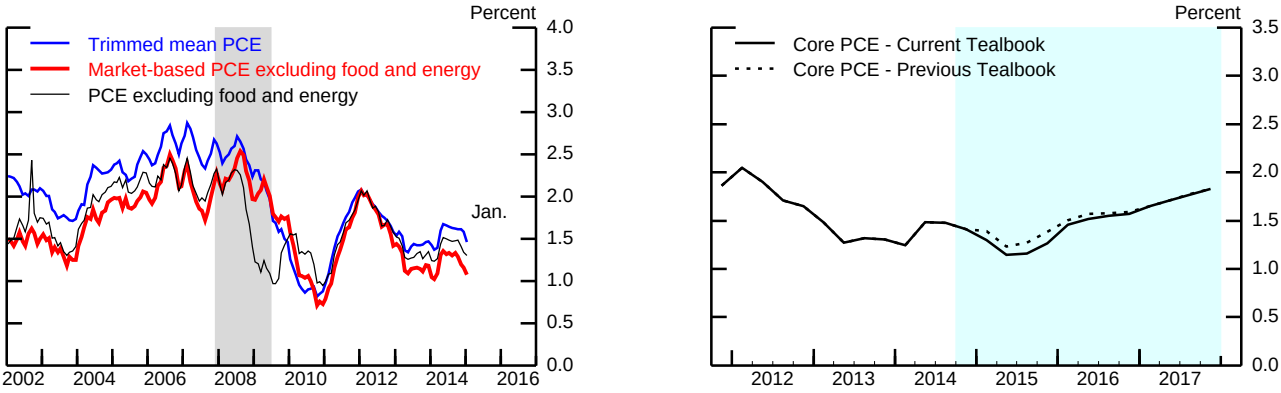
(Percent change from year-earlier period)

Headline Consumer Price Inflation



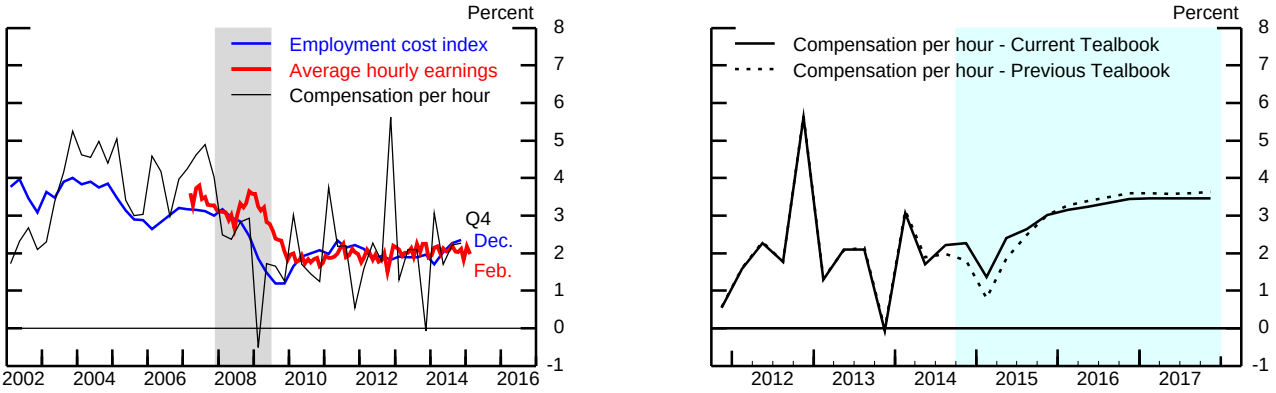
Source: For CPI, U.S. Department of Labor, Bureau of Labor Statistics; for PCE, U.S. Department of Commerce, Bureau of Economic Analysis.

Measures of Underlying PCE Price Inflation



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

Labor Cost Growth



Note: Compensation per hour is for the business sector. Average hourly earnings are for the private nonfarm sector. The employment cost index is for the private sector.

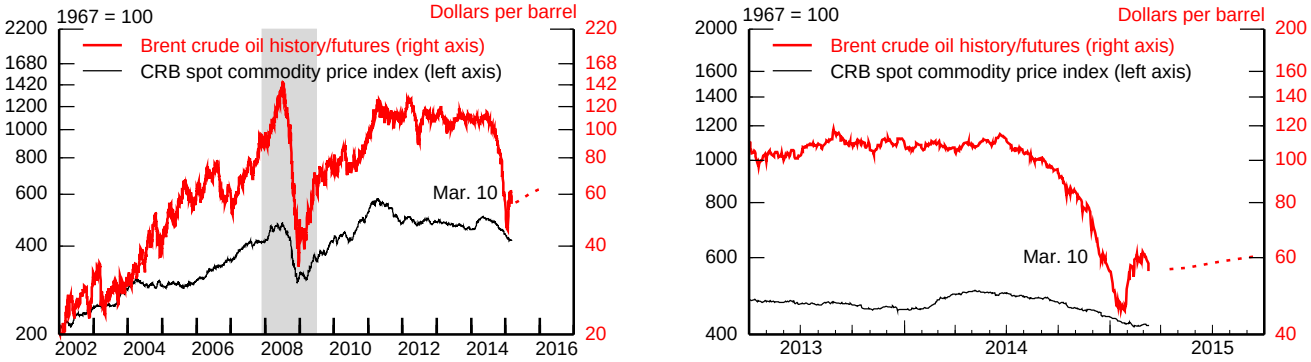
Source: U.S. Department of Labor, Bureau of Labor Statistics.

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

Inflation Developments and Outlook (2)

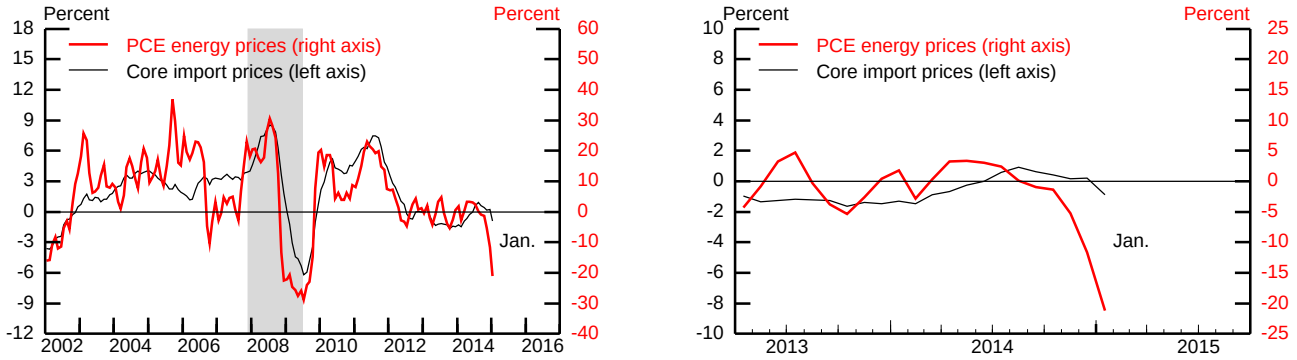
(Percent change from year-earlier period, except as noted)

Commodity and Oil Price Levels



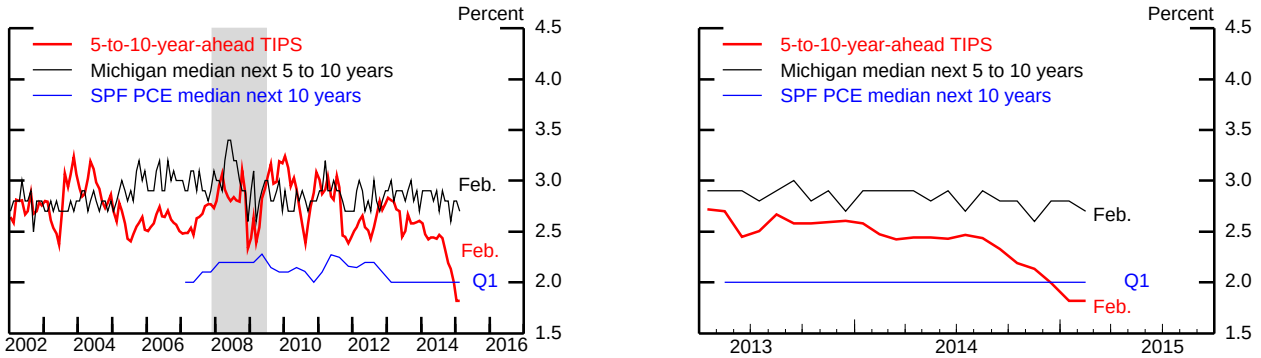
Note: Futures prices (dotted lines) are the latest observations on monthly futures contracts.
Source: For oil prices, U.S. Department of Energy, Energy Information Agency; for commodity prices, Commodity Research Bureau (CRB).

Energy and Import Price Inflation



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

Long-Term Inflation Expectations



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

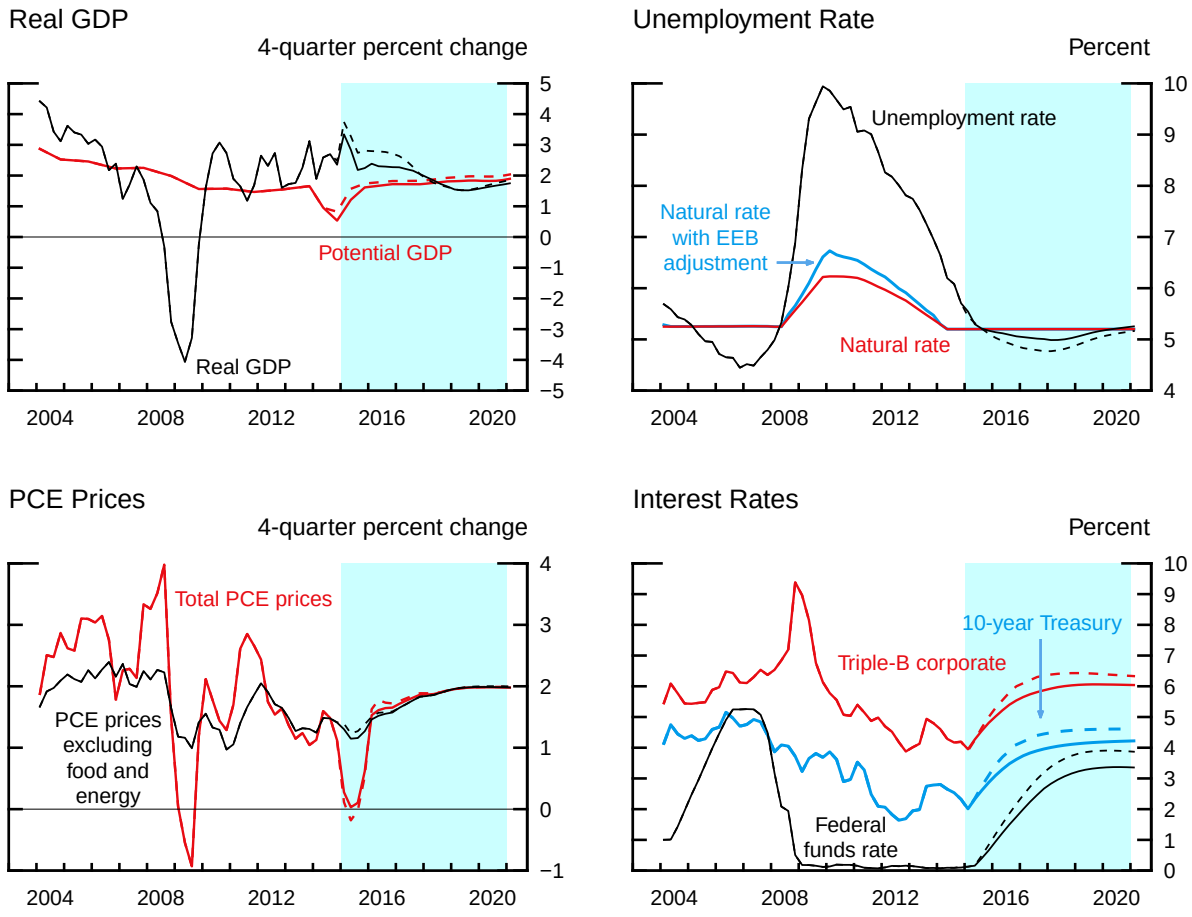
Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

The Long-Term Outlook

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

Measure	2014	2015	2016	2017	2018	2019	Longer run
Real GDP	2.4	2.2	2.3	2.0	1.6	1.5	1.9
Previous Tealbook	2.5	2.8	2.7	2.0	1.6	1.6	2.0
Civilian unemployment rate[1]	5.7	5.2	5.1	5.0	5.0	5.2	5.2
Previous Tealbook	5.7	5.1	4.9	4.8	4.9	5.0	5.2
PCE prices, total	1.1	.6	1.7	1.9	1.9	2.0	2.0
Previous Tealbook	1.1	.5	1.7	1.9	1.9	2.0	2.0
Core PCE prices	1.4	1.3	1.6	1.8	1.9	2.0	2.0
Previous Tealbook	1.4	1.4	1.6	1.8	1.9	2.0	2.0
Federal funds rate[1]	.1	.7	1.8	2.7	3.2	3.3	3.5
Previous Tealbook	.1	.8	2.2	3.2	3.7	3.9	3.8
10-year Treasury yield[1]	2.3	2.9	3.6	4.0	4.1	4.2	4.3
Previous Tealbook	2.3	3.1	4.1	4.4	4.6	4.6	4.6

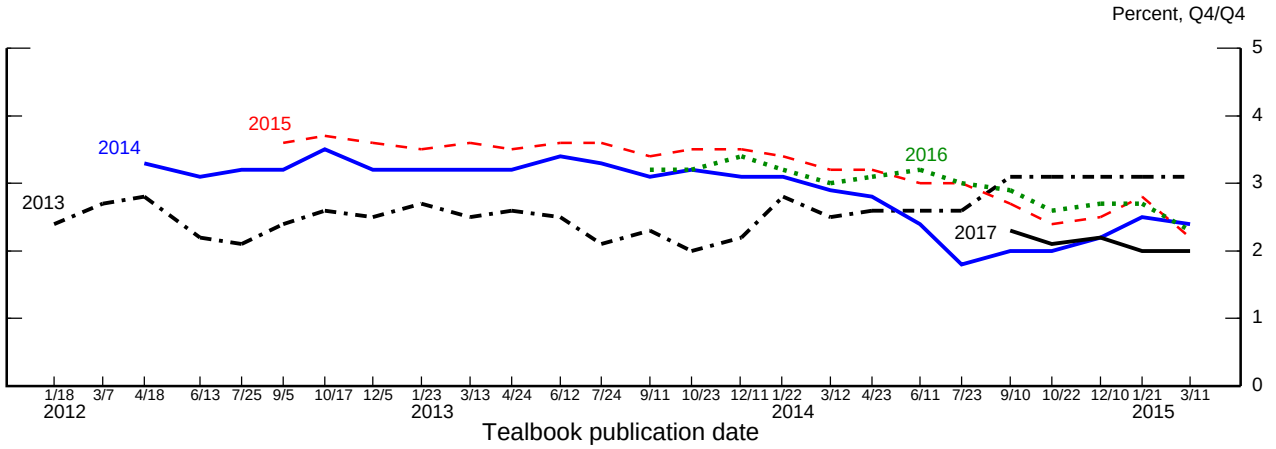
1. Percent, average for the final quarter of the period.



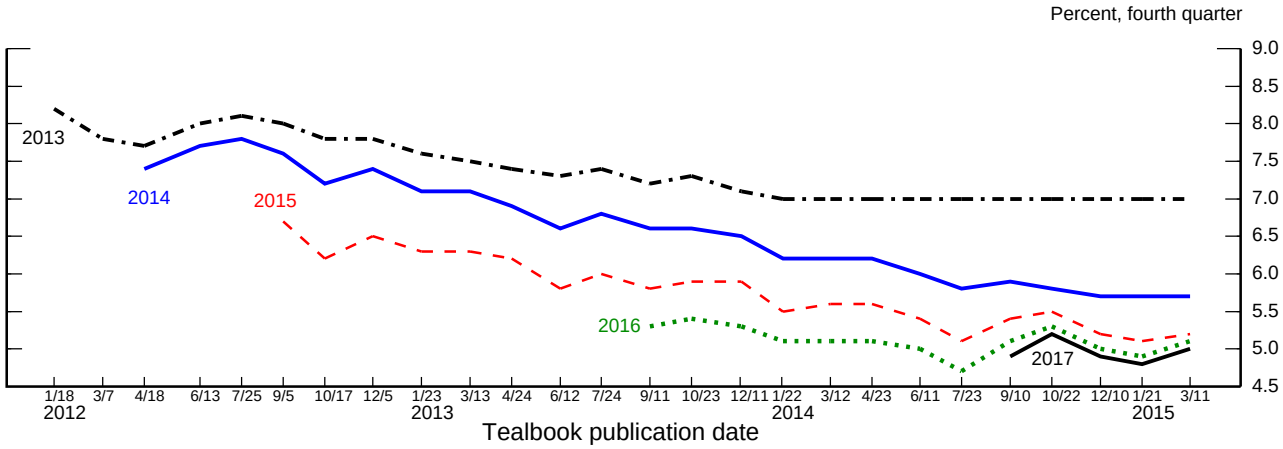
Note: In each panel, shading represents the projection period, and dashed lines are the previous Tealbook.

Evolution of the Staff Forecast

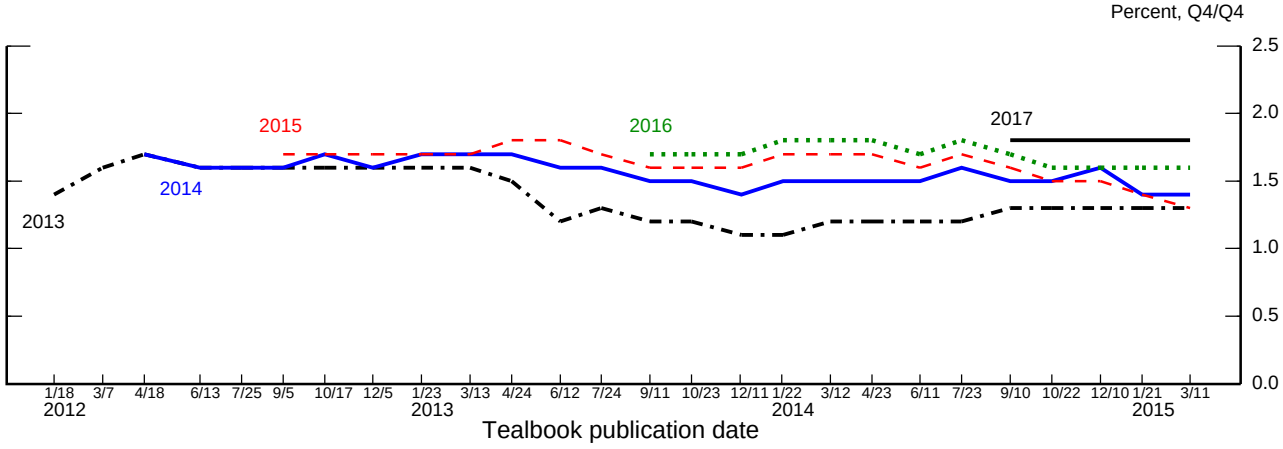
Change in Real GDP



Unemployment Rate



Change in PCE Prices excluding Food and Energy



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International Economic Developments and Outlook

Foreign real GDP growth edged up to 2¾ percent at an annual rate in the fourth quarter, in line with our January Tealbook projection. We expect growth abroad to continue at a similar rate in the first half of this year before moving up to a trend pace of about 3 percent through 2017. The pickup reflects continuing improvement in the euro area and a recovery in South America. Foreign economies, more generally, should benefit from solid U.S. growth, accommodative monetary policies, depreciated currencies, and still-low oil prices. The forecast for growth abroad is somewhat lower this year, partly because we now judge that the low oil prices will exert a greater drag on the Canadian economy than we expected in January.

Nevertheless, we continue to expect foreign growth to firm over the medium term, and our outlook beyond the next several quarters is little changed. Positive data from the euro area are giving us a little more confidence in the strength of its recovery, and more accommodative European Central Bank (ECB) monetary policy should further bolster the region's expansion. Indeed, foreign growth, notably in the euro area, may be faster than in our baseline, a scenario we explore in the Risks and Uncertainty section. We also take some comfort from the recent agreement on a four-month extension of Greece's bailout program and the absence of financial spillovers to other peripheral countries' financial markets during the tense negotiations over that agreement. Our baseline view is that the process of reaching a long-term agreement will be rocky and lead to some limited drag on the euro-area economy in the months ahead, but we expect that Greece will eventually reach a compromise with its official creditors. That said, Greece's economic and political environment is precarious and we cannot rule out the possibility of a disorderly Greek exit from the euro area—a scenario we also explore in the Risks and Uncertainty section.

Lower oil prices have weighed on foreign inflation. In the advanced foreign economies, we estimate that consumer prices fell at an annual rate of ¾ percent in the first quarter following a ½ percent decline in the fourth. As energy prices rise slightly and weaker currencies pass through to consumer prices, inflation moves up to 1 percent next quarter and further to 1¾ percent by 2017, supported by diminishing economic resource slack.

In the emerging market economies (EMEs), consumer price inflation likely dipped to just ½ percent in the current quarter, substantially below our previous projection. Retail energy prices fell sharply in recent months, suggesting a greater pass-through than we had previously assumed. In addition, food prices decelerated in some countries, particularly China. We expect EME inflation to rise back toward 3 percent in coming quarters, boosted primarily by the shift from sharply falling to slightly rising oil as well as other commodity prices.

The widespread decline in inflation and still-subdued economic growth have prompted many foreign central banks to ease monetary policy. The ECB announced a significant quantitative easing program that includes purchases of government securities. The People's Bank of China cut its reserve requirement ratios for banks and further reduced banks' benchmark lending rates. And, other foreign central banks—including those of Australia, Denmark, India, Indonesia, Israel, Poland, Russia, Singapore, Sweden, Thailand, and Turkey—all loosened monetary policy since the close of the January Tealbook. In contrast, only a few countries raised policy rates to combat inflation, notably Brazil, and, in the case of Ukraine, to also support the exchange rate.

ADVANCED FOREIGN ECONOMIES

- ***Euro area.*** Real GDP expanded 1.3 percent in the fourth quarter of 2014, ¼ percentage point more than estimated in the January Tealbook, as consumption remained solid and investment spending improved. Recent data, including consumption indicators and PMIs, suggest growth will firm a bit more in the current quarter. Nevertheless, we continue to expect that the recovery will face some near-term headwinds coming from stresses related to Greece (see the box "Recent Developments in Greece"). All told, we see GDP growth picking up from 1¾ percent in the first half of this year to 2¼ percent in 2017, supported by accommodative monetary policy, a depreciated euro, and low oil prices. We estimate that headline inflation will fall further in the current quarter to negative 1¾ percent at an annual rate, as retail energy prices through February plunged and core inflation inched down. As oil prices rise slightly and the output gap gradually narrows, inflation should move up to 1½ percent by late this year and 1¾ percent in 2017.

  On March 9, the ECB initiated the program announced in January under which the Eurosystem will purchase €60 billion per month of public- and

private-sector securities. The program will continue until at least September 2016, which will bring the cumulative purchases to €1.2 trillion, €400 billion more than anticipated in the January Tealbook. Based on the larger size of the program, we have revised up the projected level of euro-area GDP at the end of 2017 by ½ percent. (The effects of this program on the United States are discussed in the box "Spillovers from Euro-Area Quantitative Easing to the U.S. Economy.")

- ***Japan.*** Following two consecutive quarters of contraction, real GDP rose only 1.5 percent in the last quarter of 2014, 1½ percentage points less than we had projected. Growth was supported by robust exports and solid private consumption, but private investment continued to fall and the decline in inventories accelerated. Recent economic indicators have been mixed: Exports soared in January, but consumption indicators have been weak. All told, we see GDP growth picking up to 2 percent in the first quarter before moderating through 2016. In 2017, growth stalls again because of another consumption tax hike.

  After negative headline inflation in the fourth quarter, data through February suggest that consumer prices will be about flat in the current quarter. However, with core inflation running at nearly 1 percent in recent months, we project that headline inflation will rise to 1½ percent by early 2017, as oil prices rise, the output gap narrows, and the Bank of Japan maintains its rapid pace of asset purchases through the end of 2016.

- ***Canada.*** Real GDP growth slowed to 2.4 percent in the fourth quarter, in line with our January Tealbook estimate, as investment contracted. Recent indicators suggest further slowing in the current quarter as the drag from low oil prices extends beyond the energy sector: Existing home sales declined through January and the manufacturing PMI fell into contractionary territory in February for the first time in two years. Accordingly, we project that GDP growth will slow to 1¾ percent, on average, in the first half of this year. Growth should rebound to 2½ percent in 2016, supported by the slight rise in oil prices, accommodative monetary policy, and strong U.S. growth, before slowing a bit to a near-potential pace of about 2 percent in 2017. Compared with the January Tealbook, this projection is ½ percentage point lower in 2015 and little changed thereafter.

Recent Developments in Greece

In national parliamentary elections in January, the far-left and anti-austerity party, Syriza, soundly defeated centrist parties. The new government reaffirmed its campaign pledges to relax Greece's fiscal targets, increase the minimum wage, and rehire laid off government employees. It publicly rejected Greece's existing EU-IMF financial assistance program, calling for a new arrangement involving less austerity, less intrusive monitoring, and more debt relief.

Other European authorities rejected the new government's demands, calling instead for an extension of Greece's €144 billion EU financial assistance program (funded by the European Financial Stability Facility, or EFSF), which was scheduled to expire at the end of February. Such an extension would preserve the Greek government's eligibility to receive about €4 billion in general funding and €11 billion earmarked for bank recapitalization.

Through mid-February, contentious negotiations between the Greek government and its creditors fueled fears that Greece could become ineligible for EFSF funding, default on its public debt service obligations (shown in figure 1), and exit the euro area. We estimate that deposits in Greek banks plunged nearly 20 percent between late December and late February (figure 2), forcing Greek banks to depend increasingly on the ECB and the Greek central bank for liquidity support. With the ECB growing uncomfortable with its mushrooming exposure to Greek banks, it stopped accepting Greek sovereign debt as collateral in its open market operations, forcing Greek banks to rely heavily on more costly emergency liquidity assistance (ELA) from the Greek central bank. To compensate for deposit flight, the ECB has since raised the limit on ELA to Greek banks four times in as many weeks, albeit by progressively smaller amounts.

Mounting funding pressures on the Greek government and banks forced the government to concede to most of its official creditors' key demands. On February 20, the government agreed to adhere to the framework of the existing EU-IMF financial assistance program, including a commitment to meet its debt obligations and maintain primary fiscal surpluses necessary to promote debt sustainability. In exchange, Greece's official creditors signaled that they would ease Greece's 2015 fiscal target (from a primary surplus of 3 percent of GDP to a yet-to-be-determined figure). On the basis of this agreement, European authorities extended Greece's EFSF program by four months.

While this agreement has reportedly moderated deposit flight for the time being, significant challenges remain. Under the terms of its program, Greece would normally not receive disbursements until the completion of its program review, which typically requires several months. However, the Greek government will likely need funds before then to avoid default. Hence, Greece and its creditors have begun difficult negotiations over early disbursement of some funds. European authorities are demanding that Greece commit to (and begin implementing) a comprehensive and well-defined reform program, including

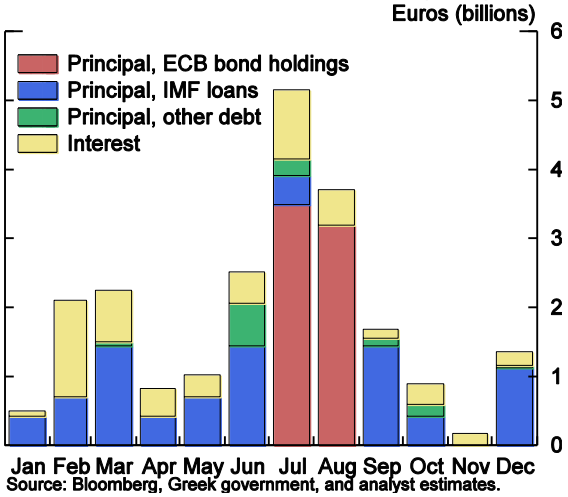
fiscal consolidation measures. So far, they have reportedly deemed the Greek government's proposals incomplete and insufficiently detailed.

Even if European authorities successfully address Greece's immediate funding needs, major hurdles lie ahead. The Greek government will likely require a new, longer-term assistance program to avoid default on about €9 billion in debt service in July and August combined and, beyond that, to promote sustainable growth and public finances. Such an arrangement must identify fiscal, privatization, and structural reform measures acceptable to both the Greek government and its creditors, as well as a highly controversial restructuring of Greece's debt to other European authorities.

Securing a mutually acceptable agreement will be a daunting political challenge. We expect more brinkmanship between the Greek government and its creditors, which will likely intensify deposit flight from Greek banks and push the Greek government to the brink of default. Renewed financial stresses in Greece could spill over to the rest of the euro area to some extent, weighing on the euro-area economic recovery for a time (although probably not significantly affecting other major economies). Ultimately, however, we believe that the mutual interest of both sides in avoiding a catastrophic Greek exit from the euro area will lead them to compromise further and reach a deal.

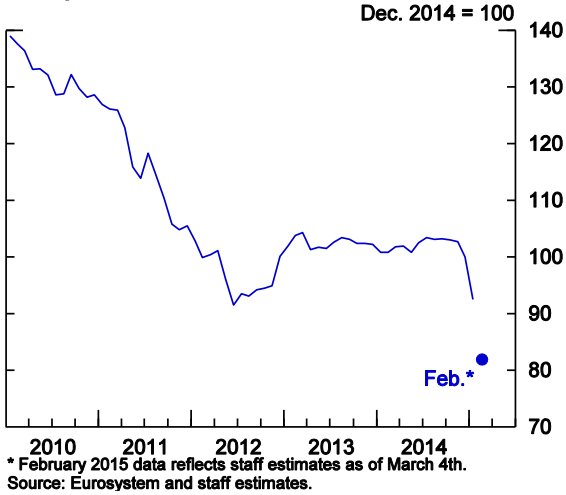
Even if a Greek exit is averted, populist euroskeptic movements in other euro-area countries could gain momentum, undermining confidence in the vulnerable euro-area economies. Moreover, with Greece's relations with its creditors already strained, the risk of a Greek exit from the euro area cannot be ruled out. Several considerations suggest that a Greek exit may be less disruptive than was feared earlier, including the ECB's new asset purchase program, progress toward a European banking union, and the ECB's pledge to do "whatever it takes" to preserve the euro area. But there is still a risk that a Greek exit could have very adverse effects that plunge the euro area back into recession and spill over to the U.S. economy, as described in the Risks and Uncertainty section of this Tealbook.

1. Greek Government Debt Service (2015)



Source: Bloomberg, Greek government, and analyst estimates.

2. Deposits in Greek Banks



* February 2015 data reflects staff estimates as of March 4th.
Source: Eurosystem and staff estimates.

Spillovers from Euro-Area Quantitative Easing to the U.S. Economy

On January 22, the ECB announced a large-scale bond purchase program that aims to boost euro-area inflation toward its 2 percent target more quickly and to minimize downside risks to longer-term inflation expectations. The program is intended to last through September 2016, with purchases of public debt, covered bonds, and asset-backed securities eventually accumulating to €1.2 trillion (about 12 percent of euro-area GDP). But the program is open ended and will continue until the ECB is confident that its goals will be achieved. This box provides an assessment of how the ECB's program is likely to affect the United States, including whether it might have "beggar thy neighbor" effects.

Quantitative easing (QE) is likely to spill over to other economies through several channels. First, domestic demand in the economy implementing QE should rise as the asset purchases reduce interest rates, raise inflation, and boost equity values; this impetus to domestic demand, in turn, should provide a boost to the exports and GDP of its trading partners. Second, the currency of the economy implementing QE should depreciate, which can be expected to reduce the real net exports of its trading partners. Third, QE may affect other economies through financial channels. For example, a reduced supply of euro-area bonds in response to ECB asset purchases may spur rebalancing toward U.S. assets, thus lowering U.S. bond yields, raising equity values, and stimulating U.S. demand.

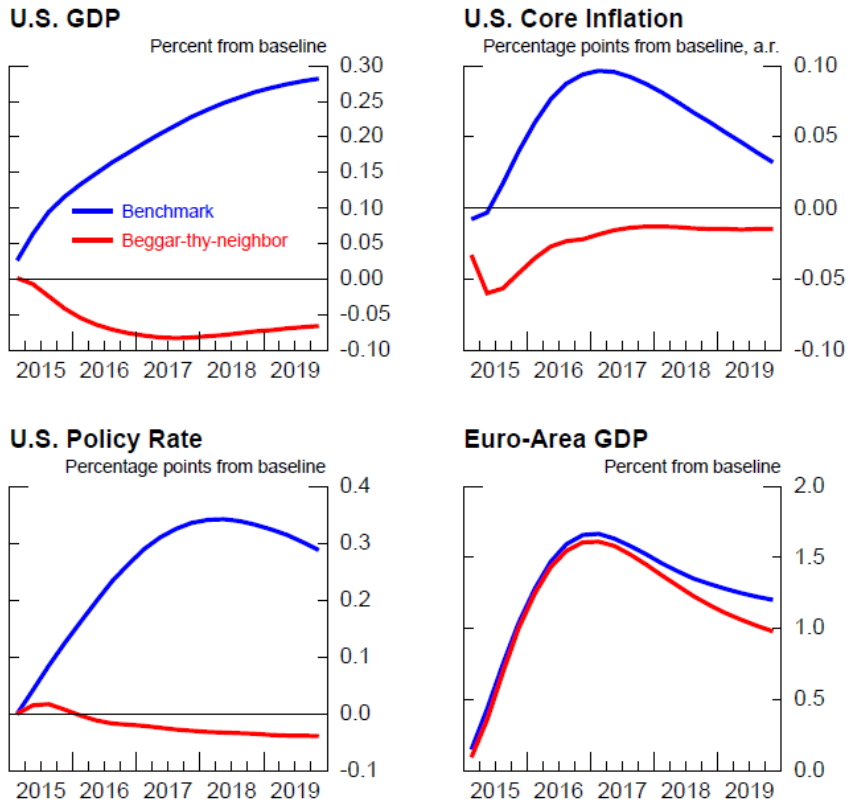
The overall effects of QE on a country's trading partners depend on the relative strength of these channels. We estimate that the Federal Reserve's QE programs boosted U.S. domestic demand significantly, caused the dollar to depreciate only modestly, and exerted substantial downward pressure on foreign bond yields. Thus, we view the Fed's QE as likely to have raised foreign growth on net. However, QE in the euro area may provide less of a boost to domestic demand, given the bank-centric nature of their financial systems and because interest rates are already very low. If the ECB's QE depends more heavily on exchange rate depreciation to boost GDP, it may exert contractionary effects on trading partners.

To evaluate these issues, we estimate the effects of the ECB's QE program on the U.S. economy using the staff's SIGMA model under two different scenarios. In our benchmark scenario, the program—including through anticipation effects prior to the announcement—is estimated to have reduced the term premium on German 10-year bonds about 35 to 40 basis points, depressed the term premium on U.S. 10-year Treasury securities by about half as much as on German bonds, and caused the broad real euro to depreciate about 4 percent. (Note that the euro has also been weighed down by other factors, and its actual decline since June has been about 11 percent.) These benchmark estimates capture the staff's best guess about how the ECB QE likely has affected interest rates and exchange rates: The effects on domestic interest rates are sizable, even if somewhat smaller than typically estimated for a U.S. QE program of similar size. By contrast, our other scenario captures the possibility that most of the stimulus to euro-area GDP from the QE comes from euro depreciation. In this beggar-thy-neighbor scenario, the broad real euro depreciates 8 percent due to the QE program, euro-area domestic demand rises less, and financial spillovers to the United States are assumed to be negligible.

Figure 1 shows the effects of the ECB QE program under each scenario: All results are reported as deviations from the levels that would prevail absent any ECB QE. Under the benchmark scenario, represented by the blue lines, the ECB's asset purchases boost euro-area GDP more than 1½ percent after two years as the expansionary effects of lower interest rates on domestic demand are reinforced by euro depreciation. U.S. GDP and inflation rise, with most of the output expansion reflecting an increase in domestic demand in response to the decline in U.S. Treasury term premiums, although U.S. real net exports also improve a bit. Accordingly, the Taylor rule prescribes a higher path for the U.S. federal funds rate. By contrast, in the beggar-thy-neighbor scenario (the red lines), while euro-area GDP rises as much as in the benchmark scenario, the effects on U.S. GDP are slightly contractionary, as the relatively large depreciation of the euro depresses U.S. real net exports. With U.S. GDP and inflation slightly weaker, the funds rate path is a tad lower.

Overall, these results support our view that ECB QE is likely to provide a slight boost to the U.S. economy, but, in any event, it seems unlikely to cause any material decline in U.S. GDP. Moreover, even if ECB QE were to depress U.S. output through the exchange rate channel, it seems plausible that the U.S. economy could benefit through channels not captured by SIGMA. These channels include favorable effects on global confidence and diminished tail risks that would likely result if QE pushes the euro area onto a higher growth path and raises inflation closer to the ECB's target.

Figure 1: Effects of an ECB QE Program of €1.2 Trillion



We expect inflation to remain near zero in the first quarter, due mainly to lower energy prices. As oil prices increase, we expect inflation to bounce back to 1¾ percent in the second quarter and to reach the Bank of Canada's 2 percent target by 2017. With inflation and growth projected to pick up, we do not expect any further monetary easing following January's surprise rate cut.

- ***United Kingdom.*** Real GDP expanded 2.2 percent in the fourth quarter, down from the 2¾ percent pace seen in the first three quarters of 2014. Strong recent activity in services and construction as well as solid PMIs and business confidence point to growth strengthening to 2½ percent in the current quarter. We expect GDP growth to remain around this robust pace this year and next before moderating to 2¼ percent in 2017. Inflation is estimated to have remained negative in the current quarter due mainly to lower energy prices. We expect inflation to rebound to 1¾ percent next quarter and to rise to the 2 percent target by 2017, as the effects of past energy price declines dissipate and slack in the economy is eliminated. We continue to project that the Bank of England's first rate hike will occur in the fourth quarter of this year and that subsequent rate increases will be gradual.

EMERGING MARKET ECONOMIES

- ***China.*** Recent indicators have been mixed but, on balance, suggest that real GDP growth remained in the neighborhood of 7 percent in the current quarter. Exports were very strong in January and February, though manufacturing activity decelerated and indicators of domestic demand—including investment, retail sales, and imports—remained weak.

  The Chinese economy faces significant headwinds this year from the slowing property market, the stronger trade-weighted value of the renminbi, and overcapacity in some industries. To counter the adverse effects of these headwinds, Chinese authorities have taken a number of steps to ease monetary conditions in recent months, including lowering banks' required reserve ratio and cutting their benchmark lending and deposit rates. We expect the authorities to continue to calibrate policies to keep economic growth at about 7 percent this year, in line with the target announced by the Chinese

authorities in early March. We see growth edging down to 6¾ percent in 2017, reflecting a gradual decline in the rate of potential growth.

We estimate that Chinese inflation fell to negative ½ percent at an annual rate in the current quarter. Most of the recent decline is attributable to lower food prices (mainly pork) and fuel prices, although core inflation has also fallen. Inflation is expected to average about 1½ percent this year and rise to 2½ percent next year, as food prices normalize and energy prices increase slightly. Compared with the January Tealbook, our inflation forecast is down about 1 percentage point this year and ½ percentage point in 2016 and 2017.

- ***Other Emerging Asia.*** Growth in emerging Asia excluding China remained at 4 percent in the fourth quarter, a bit higher than predicted in the January Tealbook. Economic activity in the region was generally supported by robust domestic demand and exports, particularly to the United States. We expect growth to average just under 4½ percent over the forecast period, buoyed by still-low oil prices, accommodative policies, and firmer recovery in the advanced economies.

  Inflation in the region surprised significantly to the downside, reflecting decelerating food prices and greater-than-expected pass-through of oil prices to retail energy costs. As a result, we now estimate that inflation in the region fell to an annual rate of ¼ percent in the first quarter. As the price of oil rises slightly and food prices normalize, inflation should rise to 3 percent later this year. Citing lower inflation, the Reserve Bank of India, Bank Indonesia, and the Bank of Thailand each cut policy rates by 25 basis points.

- ***Mexico.*** Real GDP growth stepped up to 2¾ percent in the fourth quarter, a bit less than we had projected. Exports, notably to the United States, were strong, and fixed investment and construction activity continued to expand. By contrast, household demand has not shown convincing signs of a pickup. We expect growth to edge up to about 3¼ percent this year and remain at that rate over the forecast period. In late January, the Mexican government announced that it will cut fiscal spending this year in response to a fall in oil revenues, which should largely offset a boost from the depreciation of the peso. Mexican inflation is estimated to have plunged to an annual rate of ½ percent in the first quarter, reflecting a decline in energy prices, a

retracement of food prices after earlier spikes, and the one-off effect of telecommunications reform. We expect inflation will move up to 3¼ percent over the forecast period.

- ***South America.*** We expect economic growth in the region to remain subdued this year, reflecting weak growth prospects for Brazil and Venezuela.

  In **Brazil**, we estimate that real GDP stayed flat in the fourth quarter, as confidence remained depressed and exports fell. We now expect real GDP to contract this year. The widening corruption scandal at Petrobras, Brazil's largest state-owned company, appears to be further depressing investment spending throughout the economy. Moreover, the authorities are tightening fiscal and monetary policies to combat inflation and restore fiscal discipline. Next year, we anticipate less drag from monetary policy and expect confidence to move up. Accordingly, the economy should begin to expand, albeit at a subdued 2 percent rate. Due to the rapid depreciation of the *real* and an increase in administered energy prices and bus fares, we now estimate that inflation rose to 10½ percent at annual rate in the current quarter, but we expect it to decline to 5½ percent by the second half of this year. Rising inflation prompted the central bank to hike its policy rate 50 basis points to 12.75 percent in March, bringing the cumulative rate increases since last October to 175 basis points.

  Political and social tensions have intensified in **Venezuela**, and economic conditions have deteriorated substantially, with headline inflation approaching triple digits and widespread shortages. Accordingly, we marked down the growth path substantially and now expect a sizable contraction of GDP this year and next.

- ***Russia and Ukraine.*** Real GDP contracted last year in both of these economies, and we see further sharp contractions this year. **Russian** financial market tensions appear to have eased a bit as oil prices have come off recent lows, but economic conditions remain dire. **Ukraine** reached an agreement with the International Monetary Fund (IMF) for a new four-year Extended Fund Facility (EFF) of about $17.5 billion. The EFF would replace the two-year Stand-By Arrangement signed last April, which was compromised by a significant deterioration of economic conditions amid continuing conflict in

the country. The EFF is expected to be complemented by other bilateral and multilateral financing as well as private-sector debt restructuring. Ukraine's central bank raised its policy interest rate by a whopping 10.5 percentage points to 30 percent to contain inflationary pressures and stabilize the ailing hryvnia, the local currency.

The Foreign GDP Outlook

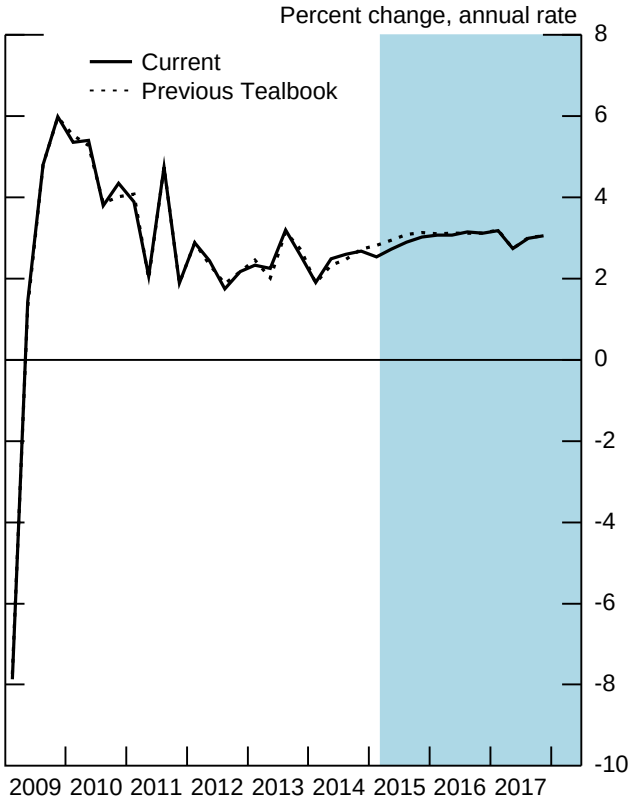
Real GDP*

Percent change, annual rate

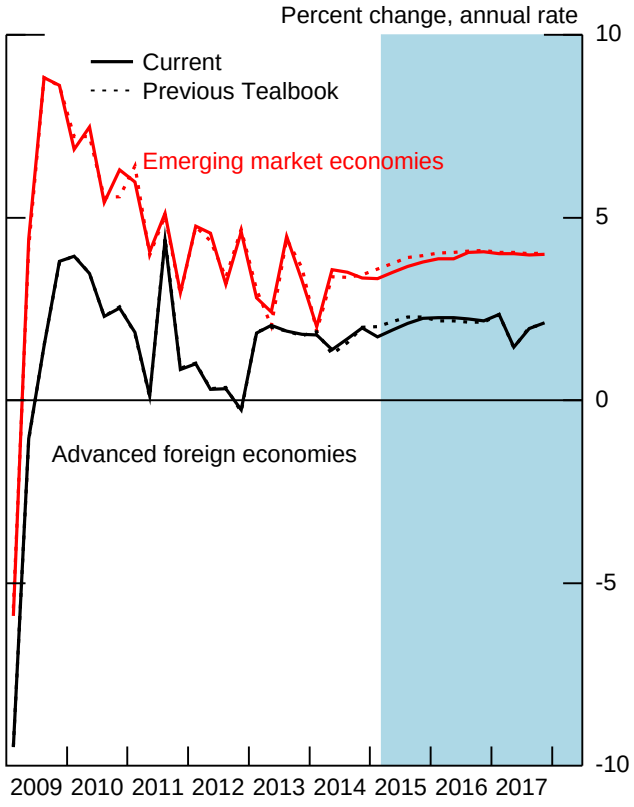
	2014			2015			2016	2017
	H1	Q3	Q4	Q1	Q2	H2		
1. Total Foreign	**2.2**	**2.6**	**2.7**	**2.5**	**2.7**	**3.0**	**3.1**	**3.0**
Previous Tealbook	*2.1*	*2.5*	*2.7*	*2.8*	*3.0*	*3.1*	*3.1*	*3.0*
2. Advanced Foreign Economies	**1.6**	**1.7**	**2.0**	**1.7**	**1.9**	**2.2**	**2.2**	**2.0**
Previous Tealbook	*1.6*	*1.6*	*2.0*	*2.0*	*2.2*	*2.3*	*2.2*	*2.0*
3. Canada	2.4	3.2	2.4	1.5	2.0	2.4	2.5	2.1
4. Euro Area	0.7	0.7	1.3	1.7	1.7	1.9	2.1	2.3
5. Japan	-0.8	-2.6	1.5	2.0	1.6	1.5	1.3	-0.2
6. United Kingdom	2.9	2.6	2.2	2.6	2.6	2.6	2.5	2.3
7. Emerging Market Economies	**2.8**	**3.5**	**3.3**	**3.3**	**3.5**	**3.7**	**4.0**	**4.0**
Previous Tealbook	*2.6*	*3.4*	*3.4*	*3.6*	*3.7*	*3.9*	*4.1*	*4.0*
8. China	7.0	8.1	7.0	7.1	7.1	7.0	6.9	6.7
9. Emerging Asia ex. China	3.0	4.1	4.0	4.2	4.4	4.5	4.5	4.2
10. Mexico	2.8	2.1	2.7	2.9	3.2	3.3	3.1	3.2
11. Brazil	-1.6	0.3	0.2	-0.5	-0.8	0.5	1.9	2.3

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

Total Foreign GDP



Foreign GDP



The Foreign Inflation Outlook

Consumer Prices*

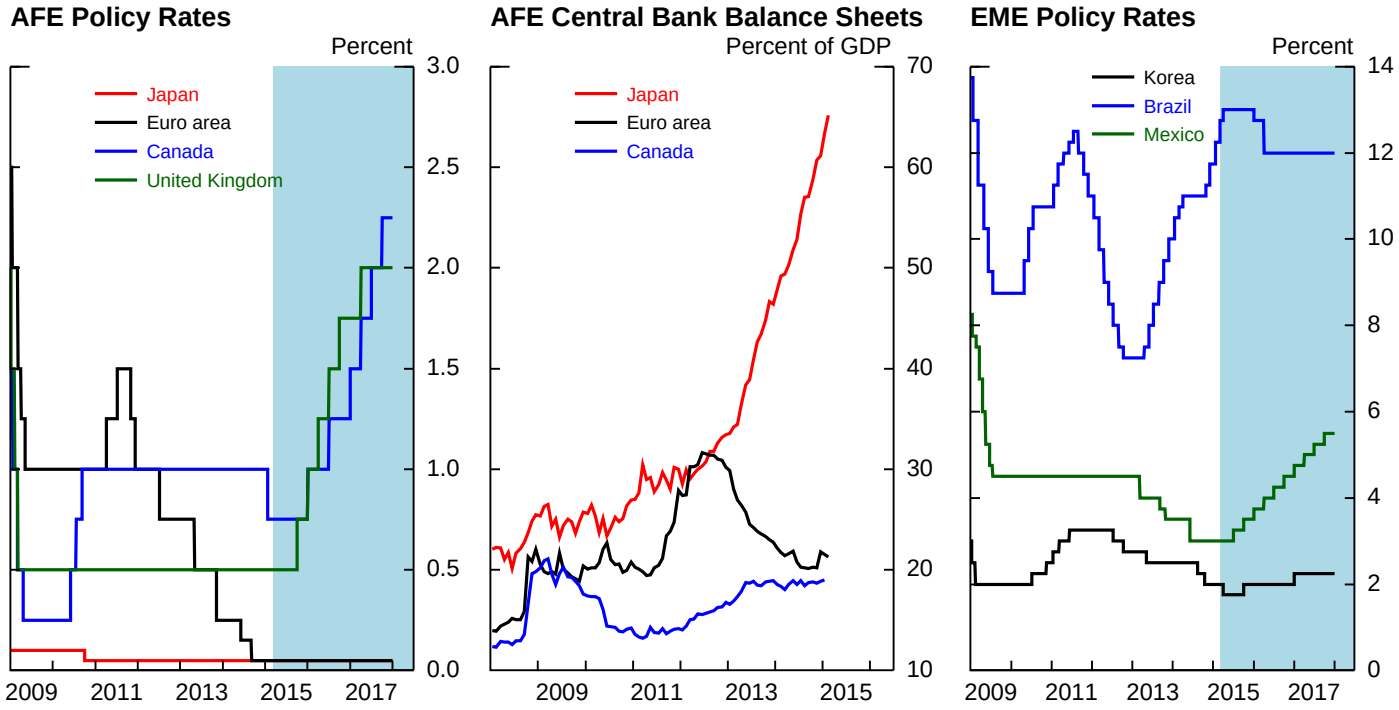
Percent change, annual rate

	2014			2015			2016	2017
	H1	Q3	Q4	Q1	Q2	H2		
1. Total Foreign	**2.5**	**2.0**	**1.1**	**-0.0**	**2.1**	**2.3**	**2.5**	**2.6**
Previous Tealbook	*2.5*	*2.1*	*1.1*	*0.9*	*2.1*	*2.4*	*2.5*	*2.7*
2. Advanced Foreign Economies	**2.2**	**0.9**	**-0.4**	**-0.7**	**1.1**	**1.4**	**1.6**	**2.0**
Previous Tealbook	*2.2*	*1.1*	*-0.6*	*-1.3*	*0.9*	*1.4*	*1.6*	*2.0*
3. Canada	3.2	1.2	-0.0	-0.1	1.7	1.7	1.8	2.0
4. Euro Area	0.4	0.5	-0.6	-1.7	0.9	1.4	1.6	1.7
5. Japan	4.9	1.2	-0.6	0.1	0.7	0.9	1.2	2.8
6. United Kingdom	1.5	1.4	-0.8	-0.6	1.7	1.7	1.8	2.0
7. Emerging Market Economies	**2.8**	**2.9**	**2.3**	**0.5**	**2.8**	**3.1**	**3.1**	**3.1**
Previous Tealbook	*2.8*	*2.9*	*2.4*	*2.6*	*3.0*	*3.2*	*3.3*	*3.3*
8. China	1.4	2.2	1.0	-0.6	1.9	2.4	2.5	2.5
9. Emerging Asia ex. China	3.0	2.1	1.3	0.2	2.8	3.2	3.2	3.4
10. Mexico	4.1	4.4	4.2	0.5	3.1	3.4	3.3	3.3
11. Brazil	7.0	6.2	6.0	10.5	8.6	5.4	5.4	5.4

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

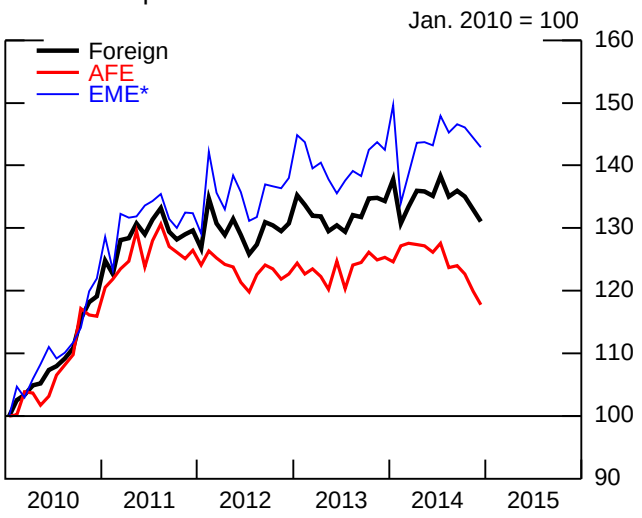
Int'l Econ Devel & Outlook

Foreign Monetary Policy



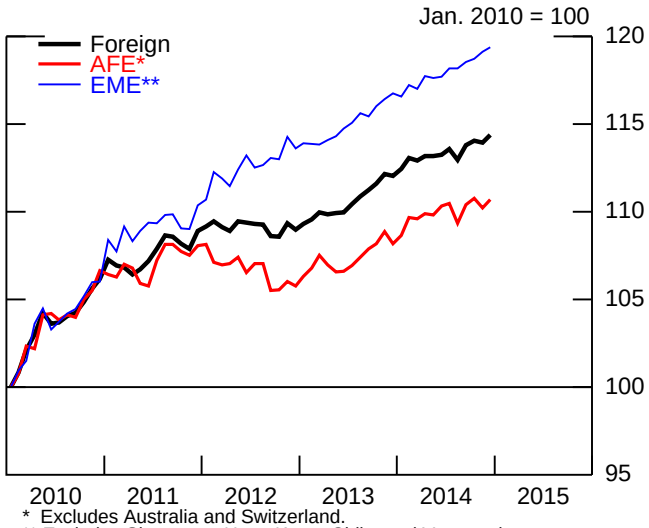
Recent Foreign Indicators

Nominal Exports



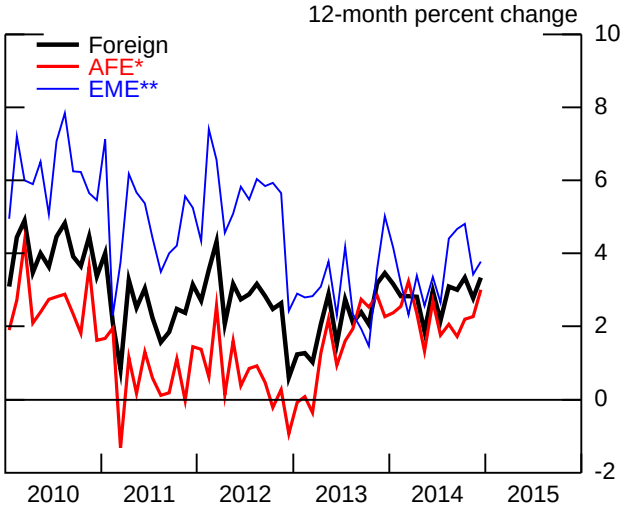
* Excludes Venezuela.

Industrial Production



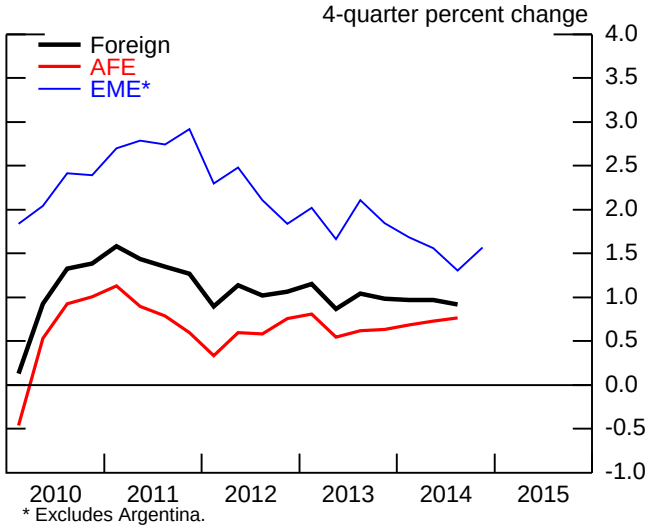
* Excludes Australia and Switzerland.
** Excludes Singapore, Hong Kong, Chile, and Venezuela.

Retail Sales



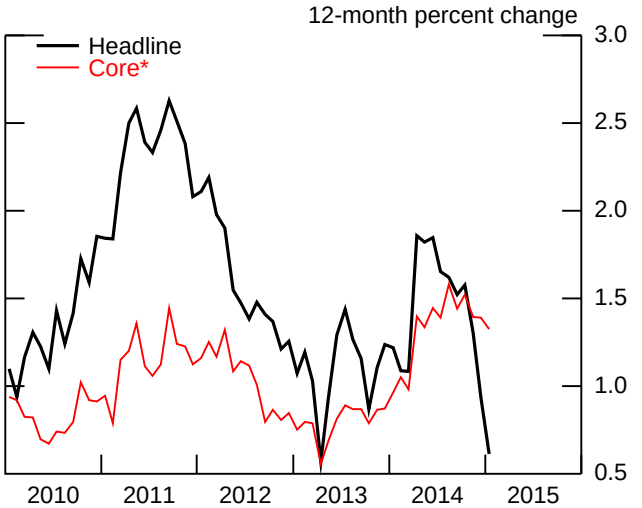
* Excludes Australia and Switzerland.
** Includes Brazil, China, Indonesia, Korea, Mexico, Singapore, and Taiwan.

Employment

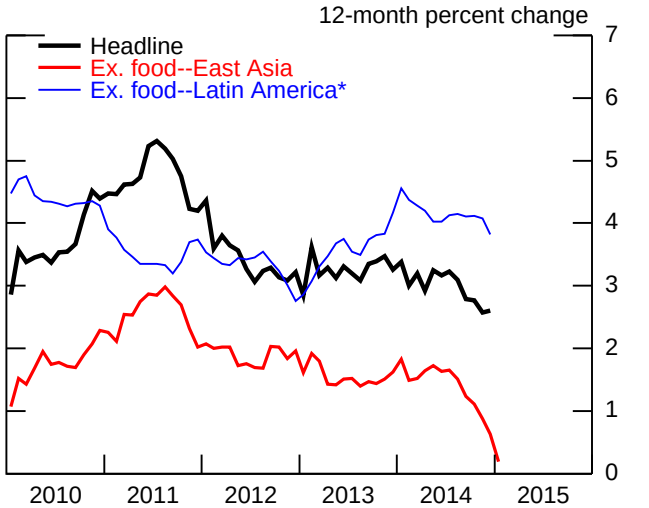


* Excludes Argentina.

Consumer Prices: Advanced Foreign Economies



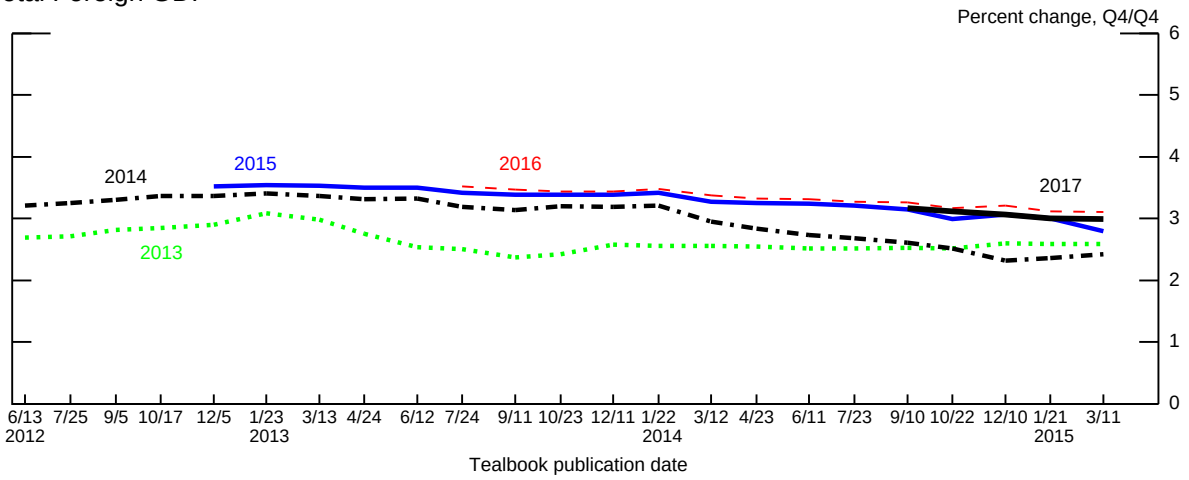
Consumer Prices: Emerging Market Economies



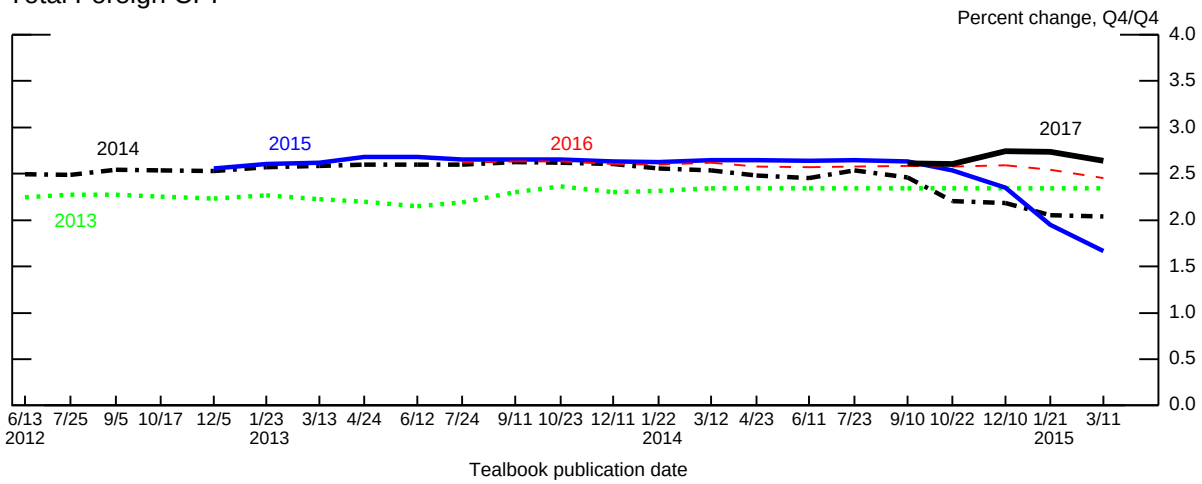
Note: Excludes Australia, Sweden, and Switzerland.
* Excludes all food and energy; staff calculation.

Evolution of Staff's International Forecast

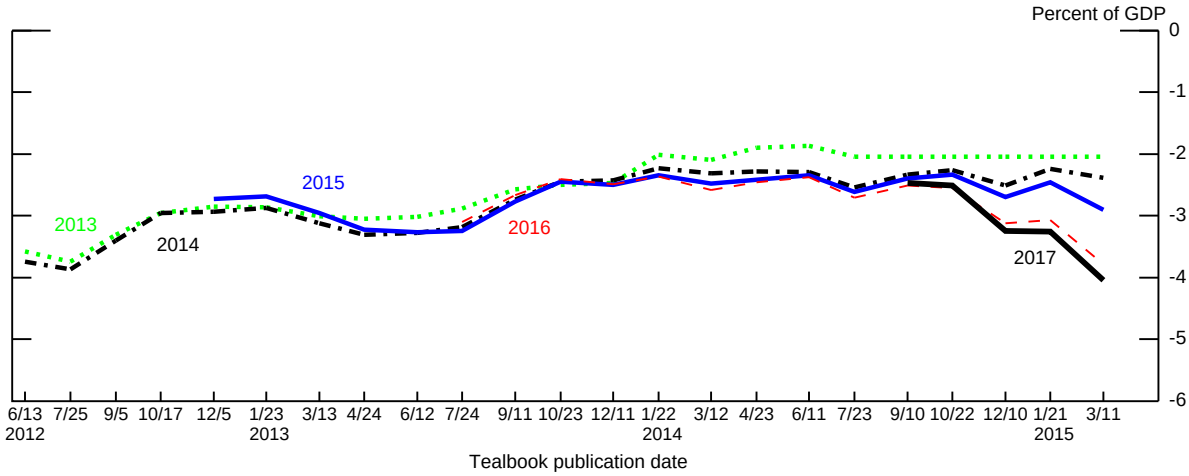
Total Foreign GDP



Total Foreign CPI



U.S. Current Account Balance



Int'l Econ Devel & Outlook

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Financial Developments

Over the intermeeting period, broad movements in asset prices seemed to reflect increased appetite for riskier investments, apparently as investors' concerns about the downside risks to the global economic outlook receded. The strong U.S. employment reports, the market's positive interpretation of the January CPI release, the anticipation of sovereign bond purchases by the ECB, the somewhat more encouraging economic news from Europe, and positive developments in Greek debt negotiations all appeared to contribute to improved sentiment in financial markets.

- The expected path of the federal funds rate steepened, leaving the federal funds futures rate for the end of 2017 about 29 basis points higher, at about 2 percent. Results of the Open Market Desk's surveys of primary dealers and market participants indicated further coalescing of expectations for the timing of liftoff around the June and September meetings but little change, on balance, in the expected pace of normalization after liftoff.

- On net, 5- and 10-year Treasury yields rose 28 basis points and 31 basis points, respectively, while market measures of inflation compensation registered relatively small mixed changes.

- The nominal exchange value of the dollar appreciated notably, in part reflecting divergent trends in monetary policy here and abroad.

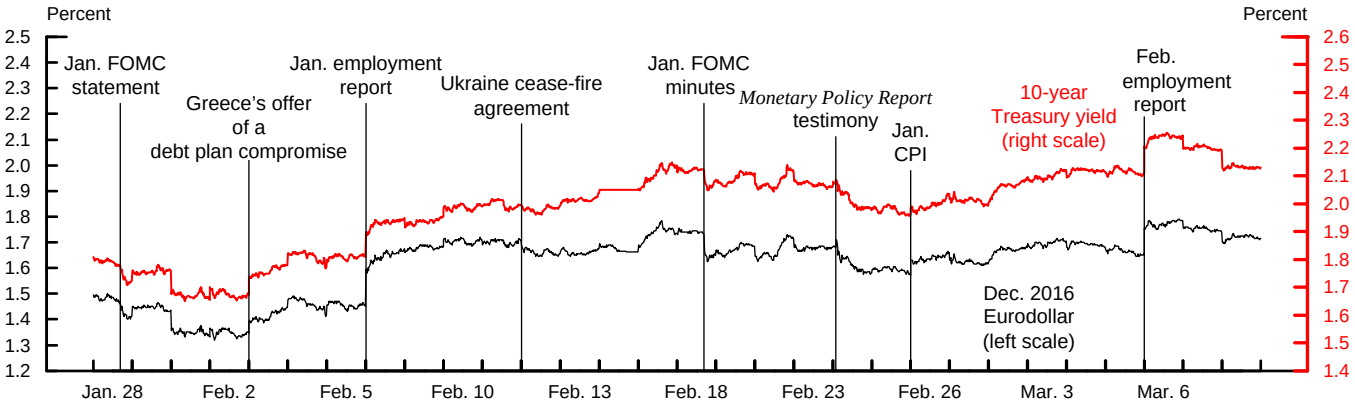
- Business financing picked up noticeably in February after a lull in January, while household financing conditions were little changed, with mortgage credit still tight for borrowers with low credit scores but consumer credit remaining largely available.

Treasury Yields and Policy Expectations

On balance, Federal Reserve communications over the intermeeting period were seen as a bit more accommodative than expected. Investors reportedly focused on discussion in the FOMC minutes suggesting that many meeting participants judged that the balance of risks inclined them toward keeping the federal funds rate at its effective lower bound for a while. Also garnering attention was the Chair's statement at the

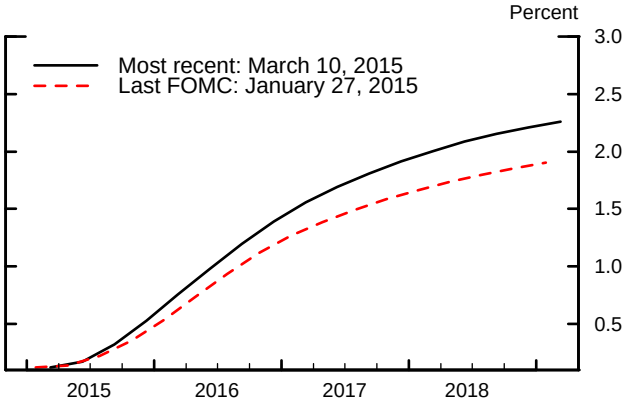
Treasury Yields and Policy Expectations

Selected Interest Rates



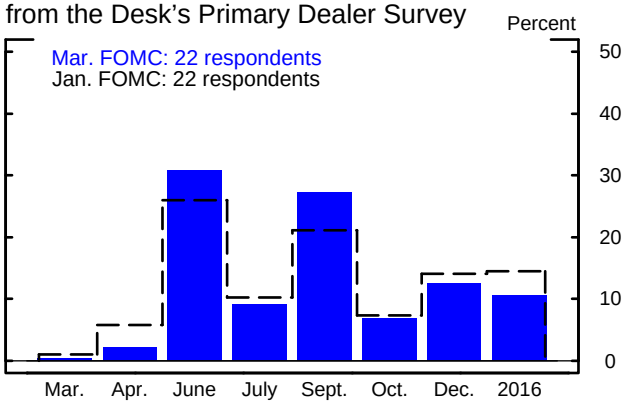
Note: 5-minute intervals. 9:30 a.m. to 4:00 p.m.
Source: Bloomberg.

Implied Federal Funds Rate



Note: Path is estimated using overnight index swap quotes with a spline approach and a term premium of zero basis points.
Source: Bloomberg; staff estimation.

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

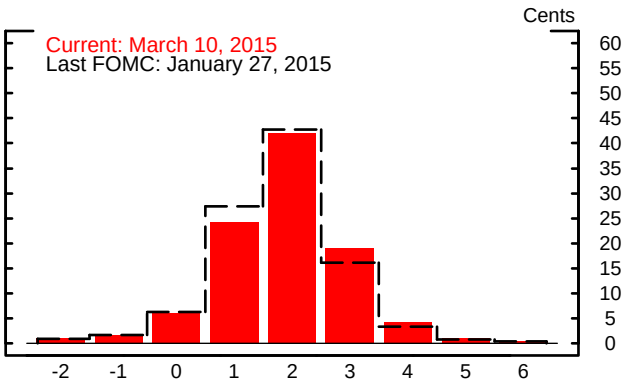


Note: Average across dealers of their individual probabilities attached to the first tightening occurring at a particular meeting. For 2016, expected timing is during or after that year.
Source: Desk's primary dealer survey from March 9, 2015.

Inflation Compensation

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

Cost of Insurance against Inflation Outcomes



Note: Prices of binary options that pay $1 if annualized cumulative headline CPI inflation over the next 10 years falls within the given range of outcomes. Derived under the assumption that average inflation takes discrete values (e.g., the bar for 3 percent covers roughly the area between 2.5 percent and 3.5 percent).
Source: Barclays PLC; staff estimates.

Financial Developments

Monetary Policy Report testimony that the removal of the "patient" language should not be viewed as indicating that the federal funds rate would necessarily be increased within a couple of meetings. Nonetheless, the market-implied path of the federal funds rate steepened over the intermeeting period, reflecting the strengthening labor market, the January CPI release that exceeded market expectations, and perceptions of receding downside risks in the global economic outlook.

On net over the intermeeting period, the federal funds rate for the end of 2016 and end of 2017 implied by OIS quotes increased 20 basis points and 29 basis points, respectively. According to the Desk's surveys of dealers and market participants, expectations for the timing of the liftoff coalesced further around the June and September 2015 meetings. Expectations for the pace of tightening following liftoff were little changed, on balance, since the January surveys. In addition, survey respondents widely expected the "patient" language to be dropped in the upcoming meeting.

Treasury yields rose across the maturity spectrum, with sizable reactions to the January and February employment reports and CPI data release and little response to the somewhat lower-than-expected spending data. On net, the 2-, 5-, and 10-year yields rose 17, 28, and 31 basis points, respectively, reflecting a 37 basis point increase in the 5-to-10-year nominal forward rate.

TIPS-based measures of inflation compensation increased notably early in the intermeeting period amid rising oil prices and investor sentiment but ended the period little changed on net. Similarly, the distribution of expected inflation over the next 10 years, as gauged by inflation derivatives, is little changed since January.

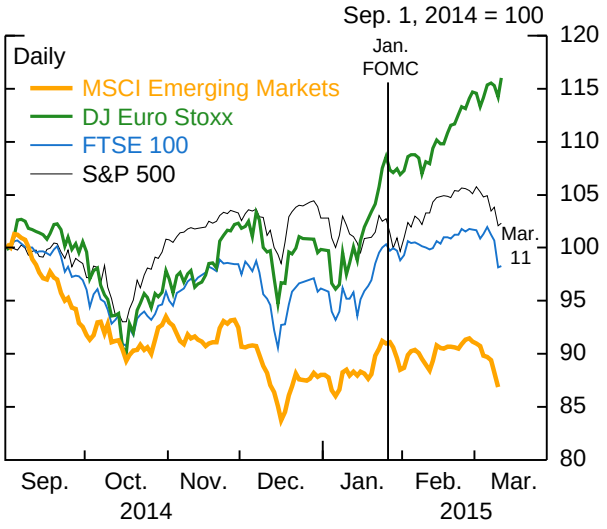
FOREIGN DEVELOPMENTS

The improvement in investor sentiment in foreign financial markets over the intermeeting period was fueled by further monetary easing in many countries, some positive economic data in the United Kingdom and euro area, and the extension of Greece's aid program.

Stock markets in Europe were buoyed by the anticipation and start of sovereign bond purchases by the ECB and by a strong labor market report in the United Kingdom. In addition, the release of better-than-expected data on euro-area real GDP for the fourth quarter—showing, in particular, robust growth in Germany—alleviated concerns of a

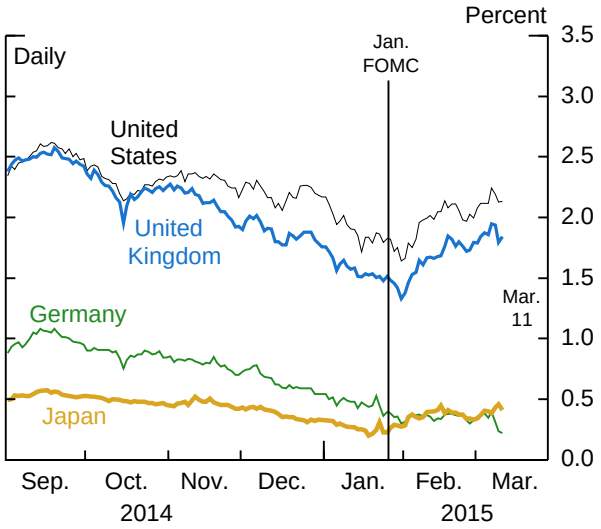
Foreign Developments

Stock Price Indexes



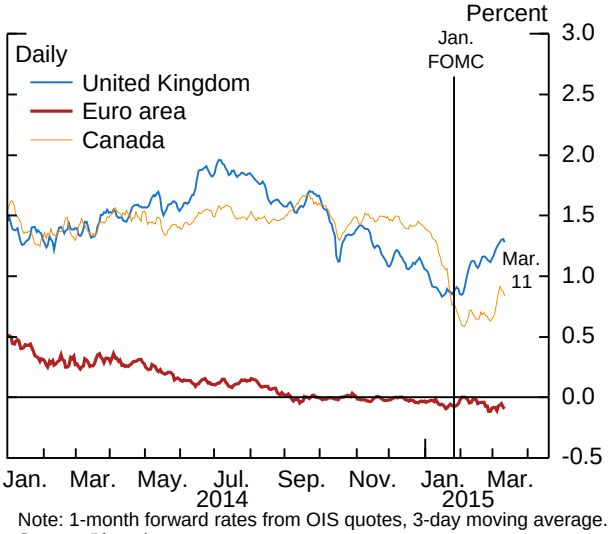
Source: Bloomberg.

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



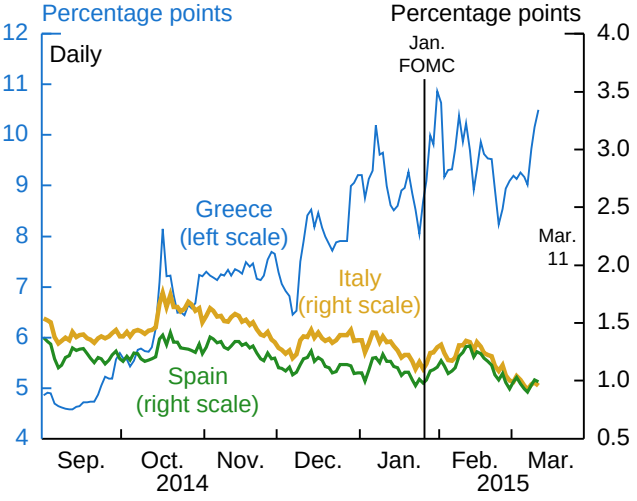
Source: Bloomberg.

24-Month-Ahead Policy Expectations



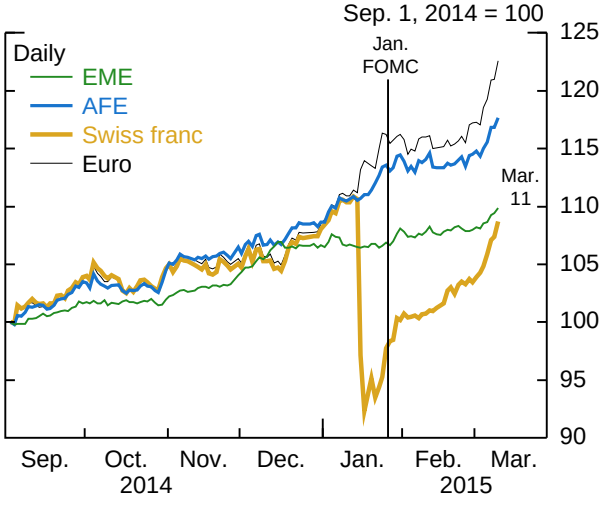
Note: 1-month forward rates from OIS quotes, 3-day moving average.
Source: Bloomberg.

10-Year Peripheral Spreads



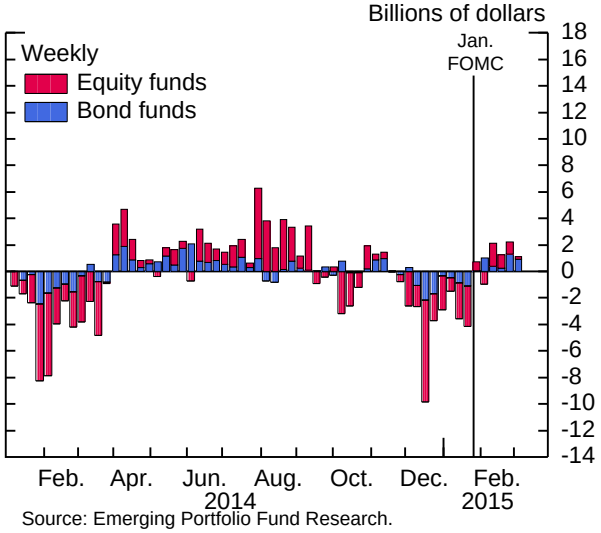
Source: Bloomberg.

Dollar Exchange Rate Indexes



Source: Federal Reserve Board; Bloomberg.

Flows to EME-Dedicated Funds



Source: Emerging Portfolio Fund Research.

near-term recession in the euro area. Sentiment in Europe was also buoyed after contentious negotiations between Greece and its official-sector creditors resulted in a provisional four-month extension of Greece's support package (see the box "Recent Developments in Greece" in the International Economic Developments and Outlook section). Equity markets across the advanced foreign economies are up since the January FOMC meeting, with euro-area equities outperforming, having risen more than 6 percent.

German sovereign yields declined further following the start of the ECB's asset purchase program and are now negative up to seven years' maturity. Sovereign yields in several other European countries also moved further below zero, and the Danish National Bank (DNB) and Sweden's Riksbank pushed policy rates further into negative territory (see the box "Negative Interest Rates: Whither the Zero Lower Bound?"). In contrast, U.K. sovereign bond yields moved higher across the term structure, boosted by a modestly improved outlook as well as increases in expectations for policy rates following the less-accommodative-than-expected *Inflation Report* from the Bank of England in February. The spread on Greek 10-year bonds over equivalent-maturity German bunds was quite volatile over the intermeeting period and, on net, moved higher. Financial markets in Italy and Spain showed little reaction to the ups and downs of negotiations with Greece, with Italian and Spanish bond spreads ending the period down slightly.

Overall, the dollar appreciated a further 3½ percent, as measured by the staff's broad nominal dollar index. The dollar has appreciated against the currencies of most advanced economies, as the divergence between anticipated monetary tightening in the United States and monetary easing abroad widened. The dollar appreciated more than 6 percent against the euro and rose 10 percent against the Swiss franc. The franc fell back after having appreciated sharply following the January decision by the Swiss National Bank (SNB) to end its defense of an exchange rate floor for the euro against the Swiss franc. Early in the period, the SNB and DNB both intervened to counter upward pressures against their currencies. The dollar has also appreciated against most emerging market currencies, and a number of EME central banks eased monetary policy, including the People's Bank of China. The dollar rose 21 percent against the Brazilian *real*, reflecting Brazil's continuing economic struggles and concerns regarding a deepening political scandal involving Brazil's state-owned oil company, Petrobras.

The recent increase in oil prices has somewhat allayed financial market concerns for some struggling emerging market economies, such as Russia and Venezuela. Stock

Negative Interest Rates: Whither the Zero Lower Bound?

Confronting low and declining inflation, shown in figure 1, weak economic growth, and, in some cases, appreciation pressures on their currencies, a number of European central banks have recently pushed their policy rates to below zero (figure 2). At the same time, nominal yields on many sovereign bonds have declined and turned negative for maturities up to several years (figures 3 and 4). Although zero has commonly been thought of as the lower bound, these recent policy moves reinforce the idea that zero is not a hard floor for nominal interest rates. To date, the demand for currency has not soared and investors continue to purchase sovereign bonds with negative yields to maturity. Nonetheless, it is an open question as to how much further rates can fall before currency hoarding becomes more pronounced, the functioning of money markets is impaired, and other strains on financial systems materialize.

The European Central Bank (ECB) first moved its deposit rate into negative territory last June. It has since decreased the rate to negative 20 basis points, and is now implementing a large-scale asset purchase program. The ECB's main refinancing rate remains slightly positive at 0.05 percent. The ECB's policies increased upward pressure on some other European currencies, and a number of central banks responded by lowering policy rates. The Danish National Bank (DNB) cut its deposit rate to negative 0.75 percent, but left all other policy rates, including the target rate, at 0 percent or above. The Swiss National Bank moved both its deposit rate and the center of its target range for the three-month the Swiss franc LIBOR, its main policy rate, to negative 0.75 percent. Sweden's Riksbank moved its deposit rate to negative 0.85 percent; however, its main policy rate, the repo rate, was lowered to a more modest negative 0.10 percent. In each of these jurisdictions, the negative rates apply to both domestic and foreign banks, though the proportion of bank reserves that earn negative interest depends on each central bank's operating procedures and rules determining required and excess reserves.

Partly as a consequence, 10-year sovereign yields in these economies have reached record lows and are far below comparable maturity yields in the United Kingdom and the United States. In addition, significant parts of the yield curves in continental Europe now sit below zero, with Swiss yields, for example, negative out to a maturity of 10 years (figure 4). Rates on some European corporate bonds have also turned negative, and in Denmark, where the rates paid on floating-rate mortgages do not have a floor, some homeowners are now receiving negative interest on their mortgages.

How low can rates go? The argument that nominal interest rates could not go much below zero was based on the belief that households and firms would turn to holding cash if rates became negative. But thus far, there has been no apparent increase in demand for cash, gold, or other noninterest-paying assets in any of the countries with negative interest rates, nor have deposits fled to countries with nonnegative rates. Currently, most retail bank deposits are not paying negative rates, but larger corporate deposits are. At some stage, corporations may attempt to hold cash or simply move their deposits abroad to avoid negative rates. However, holding cash is complicated, and demand for cash would likely depend on access to vault facilities and the willingness of insurance companies to insure those holdings; moving at least some holdings overseas is easy to accomplish, but those holdings would be subject to exchange rate risk. There

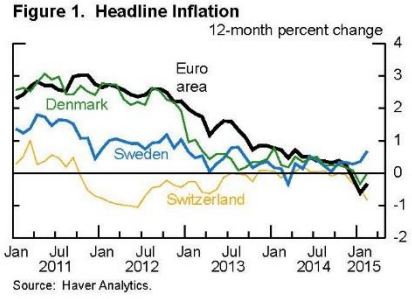
have been some reports that firms are prepaying taxes and other payables early to avoid earning negative rates, but this would only help on the margin.

Staff conversations with these central banks indicate that they believe their policy rates could be cut further, but they are unsure as to how much further rates could fall before cash hoarding would begin. Thus, they are also looking at other policy tools to support their accommodative policy stances. For example, at the urging of the DNB, the Danish government helped discourage further inflows by halting its issuance of bonds for 2015 and by refusing to accept any bids at its most recent scheduled auction of bills (the government is already prefunded through this year). The DNB and SNB have both argued, fairly persuasively, that they have relatively small domestic sovereign and corporate debt markets, which could limit their ability to conduct quantitative easing, but they could purchase other assets or combine action with the fiscal authority.

Even if rates could be pushed down further, very negative rates may pose other risks. If commercial banks resist lowering the rates they offer on deposits, then their profitability will be harmed, but if they do make rates on deposits negative, then businesses and households, who are already unhappy earning low rates of interest, may protest, inducing legislators to interfere with the central bank's policies. And at some point, negative rates could threaten the functioning of financial markets: Investors may be unwilling to fund loans at negative rates, choosing instead to hold cash or invest abroad. For example, bondholders in Denmark who fund the country's mortgages may object to a negative return and may withdraw capital from the mortgage market. Money market institutions may also be unable to function in negative rate environments.

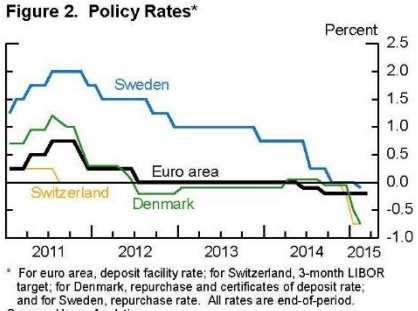
At present, these risks have not materialized and the low rates may help stimulate borrowing and economic activity and alleviate appreciation pressures, but it is probably too early to draw firm conclusions about the costs of negative rates. In particular, we cannot rule out the possibility that adverse outcomes will emerge as negative rates persist and market participants adjust over time to the low returns.

Figure 1. Headline Inflation



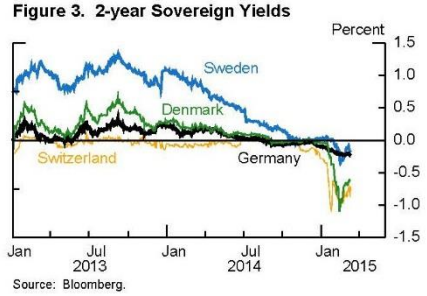
Source: Haver Analytics.

Figure 2. Policy Rates*



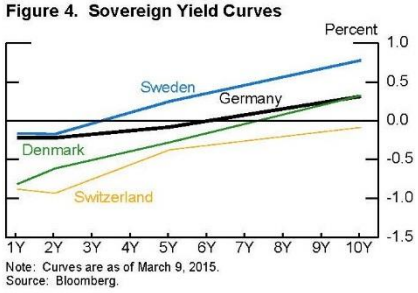
* For euro area, deposit facility rate; for Switzerland, 3-month LIBOR target; for Denmark, repurchase and certificates of deposit rate; and for Sweden, repurchase rate. All rates are end-of-period.
Source: Haver Analytics.

Figure 3. 2-year Sovereign Yields



Source: Bloomberg.

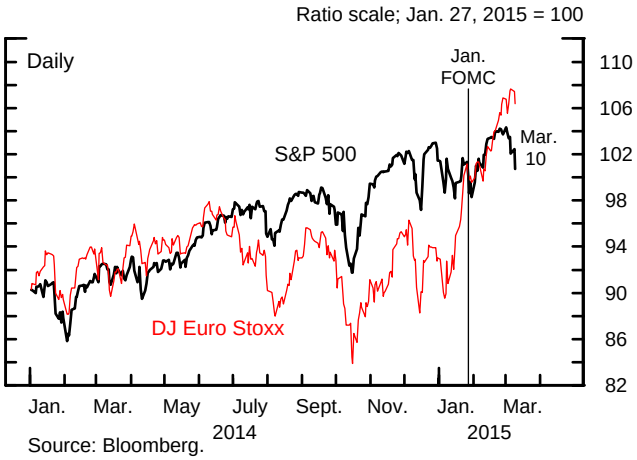
Figure 4. Sovereign Yield Curves



Note: Curves are as of March 9, 2015.
Source: Bloomberg.

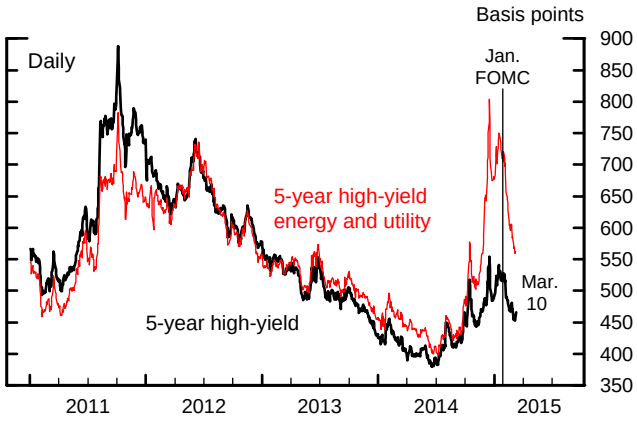
Equity Prices and Business Finance

Equity Price Indexes



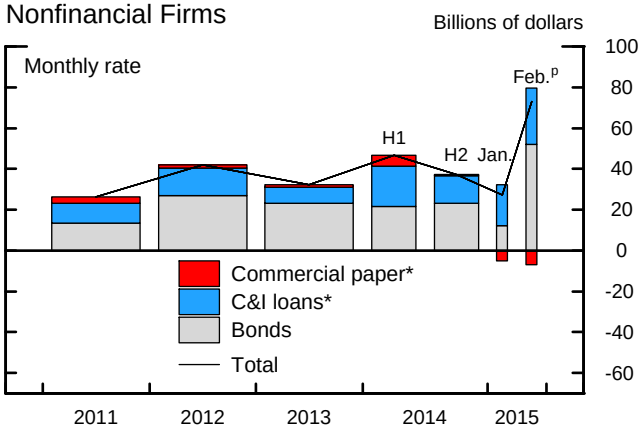
Source: Bloomberg.

High-Yield Corporate Bond Spreads



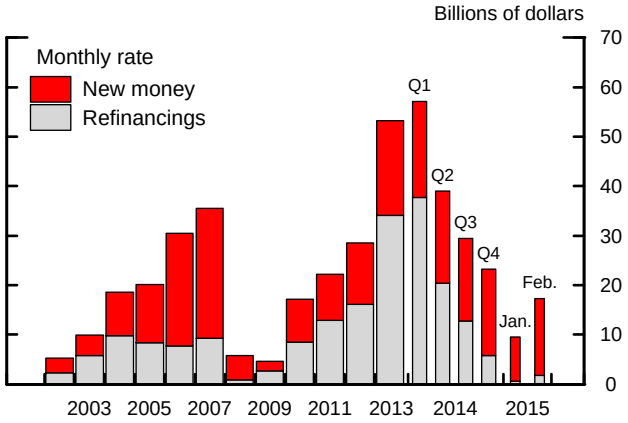
Note: Spreads over 5-year Treasury yield.
Source: Staff estimates of smoothed corporate yield curves based on Merrill Lynch data and smoothed Treasury yield curve.

Selected Components of Net Debt Financing, Nonfinancial Firms



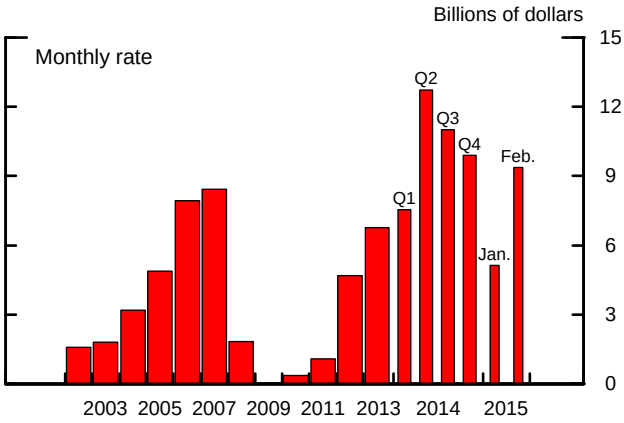
p Preliminary data for change in commercial and industrial (C&I) loans.
* Period-end basis, seasonally adjusted.
Source: Depository Trust & Clearing Corporation; Mergent Fixed Investment Securities Database; Federal Reserve Board.

Institutional Leveraged Loan Issuance, by Purpose



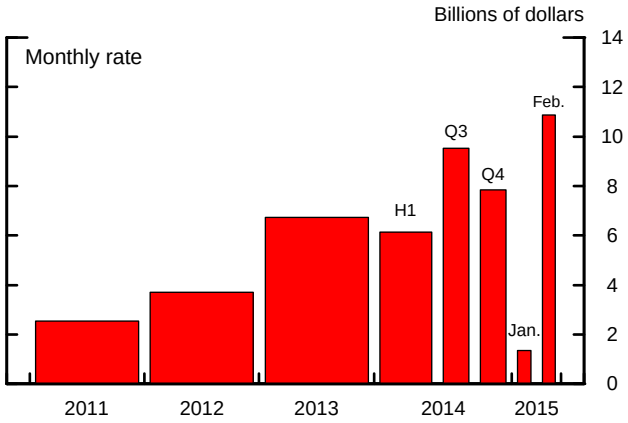
Source: Thomson Reuters LPC LoanConnector.

U.S. CLO Issuance



Source: Thomson Reuters LPC LoanConnector.

CMBS Issuance



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

Financial Developments

indexes in the emerging market economies were mixed, but net flows into dedicated emerging market funds turned positive in recent weeks following a few months of outflows.

U.S. Equity Prices and Corporate Bond Yields

Broad U.S. equity indexes ended the intermeeting period up only about 1 percent despite rising in line with the broader move toward risky assets early in the period. Reaction to domestic economic news was mostly muted, with the notable exception of a selloff following the strong February employment report. Underlying the small gains by the broader indexes were substantial sectoral divergences, as stocks of firms in cyclically oriented industries generally rose while those of more defensive, higher-dividend-paying firms such as utilities were sharply lower. One-month option-implied volatility on the S&P 500 index (VIX) slipped to the lower end of its post-crisis range before backing up late in the intermeeting period.

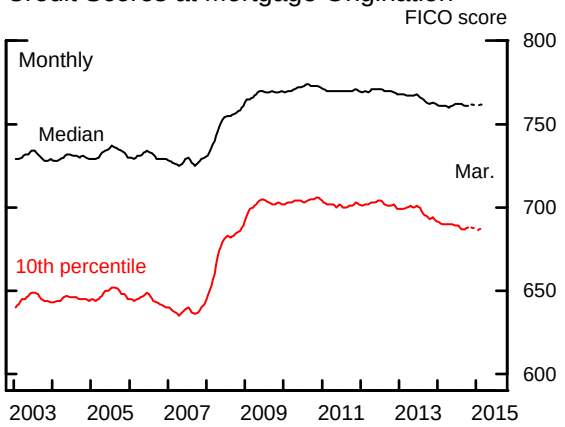
Spreads of 10-year corporate bond yields over those on comparable-maturity Treasury securities for both BBB-rated and speculative-grade issuers narrowed notably. While the tightening of spreads was broad based, the declines in short- and intermediate-term spreads for speculative-grade energy firms were particularly pronounced, retracing quite a bit of their dramatic run-up near the end of 2014; still, these spreads remained well above the average spreads of other speculative-grade bonds.

Business Finance

In February, credit conditions for large nonfinancial businesses stayed generally accommodative. Corporate bond issuance picked up after a lull in January, mostly reflecting activity by investment-grade firms. Meanwhile, commercial and industrial loans at banks continued to expand strongly, reportedly in part to fund an increase in merger and acquisition activity. Gross public equity issuance jumped in February from an already robust pace, as some companies completed large seasoned equity offerings to finance their planned merger deals. In January and February, institutional leveraged loan issuance was slow as refinancing activity effectively came to a stop because of elevated spreads even as new money issuance kept pace. Averaged over January and February, CLO issuance was only modestly below the fourth quarter's strong pace.

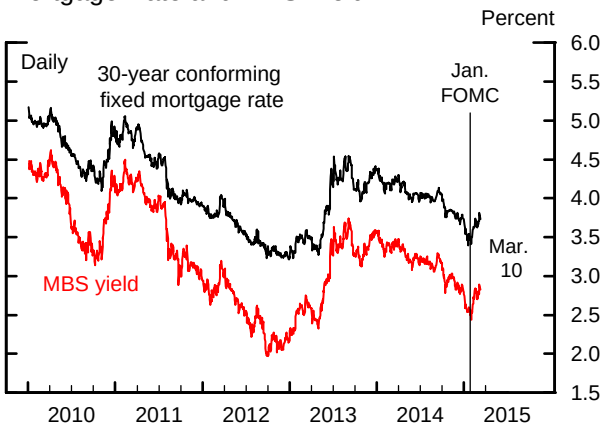
Household Finance

Credit Scores at Mortgage Origination



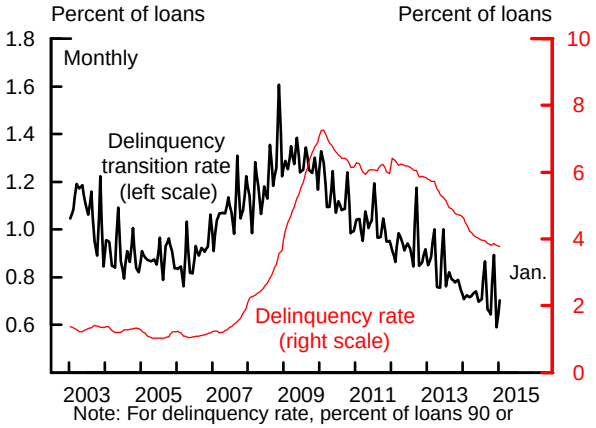
Note: Concerns 30-year GSE-backed purchase mortgages originated in month shown. Dotted lines reflect forecast based on data on mortgage locks.
Source: For data, LPS Applied Analytics/Black Knight; for forecast, Optimal Blue.

Mortgage Rate and MBS Yield



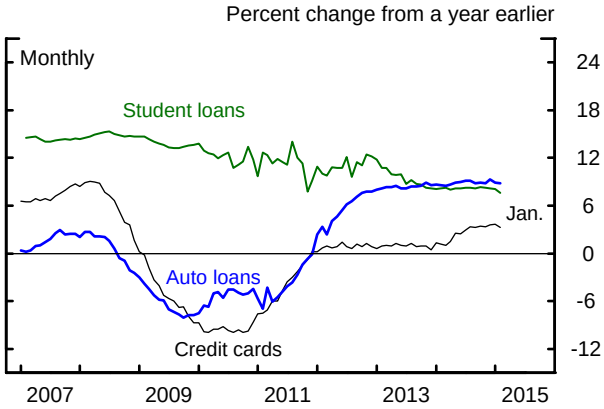
Note: The MBS yield is the Fannie Mae 30-year current-coupon rate.
Source: For MBS yield, Barclays; for mortgage rate, Loansifter.

Delinquencies on Prime Mortgages



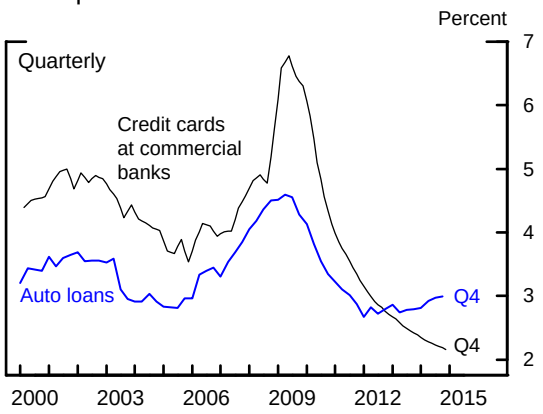
Note: For delinquency rate, percent of loans 90 or more days past due or in foreclosure. For transition rate, percent of previously current mortgages that transition to being at least 30 days delinquent each month.
Source: LPS Applied Analytics/Black Knight.

Consumer Credit



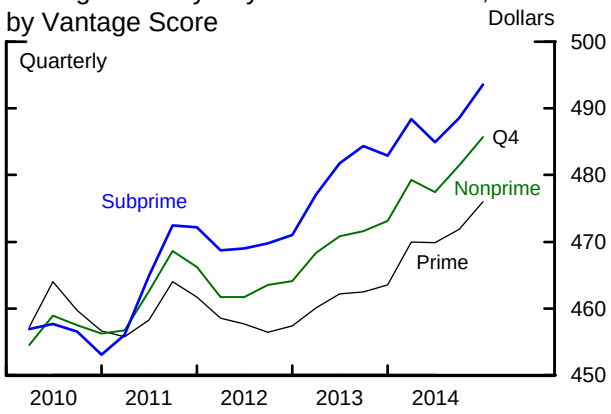
Note: The data are not seasonally adjusted.
Source: Federal Reserve Board.

Delinquencies on Consumer Loans



Note: The data are seasonally adjusted.
Source: Call Reports; Federal Reserve Bank of New York Consumer Credit Panel/Equifax.

Average Monthly Payment for New Cars, by Vantage Score



Note: Prime is between 739 and 680, nonprime is between 679 and 620, and subprime is between 619 and 551.
Source: Experian.

Financial Developments

In January and February, equity analysts sharply revised down their forecasts for year-ahead earnings for firms in the S&P 500 index. Although substantial downgrades to energy-sector firms accounted for a sizable portion of aggregate revisions, earnings forecasts were also marked down outside the energy sector. Those negative revisions were concentrated among firms with a higher share of sales abroad, presumably owing to analysts incorporating the effects of the strong dollar as well as sluggish foreign economic activity. Nonetheless, these revisions left little visible imprint on stock prices, as investors seemed more attuned to receding tail risks.

Financing for commercial real estate (CRE) remained broadly available for large and small loans and the full range of property types. The volume of CMBS issuance stayed robust, on average, in January and February. Counting deals in the pipeline for March, issuance in the first quarter of 2015 is expected to be the strongest since the financial crisis, although still well below the pre-crisis levels. CMBS spreads continued to be low through the end of February. Growth of CRE loans on banks' books remained solid, in part supported by loans to finance construction activity, reportedly mainly in the form of multifamily projects.

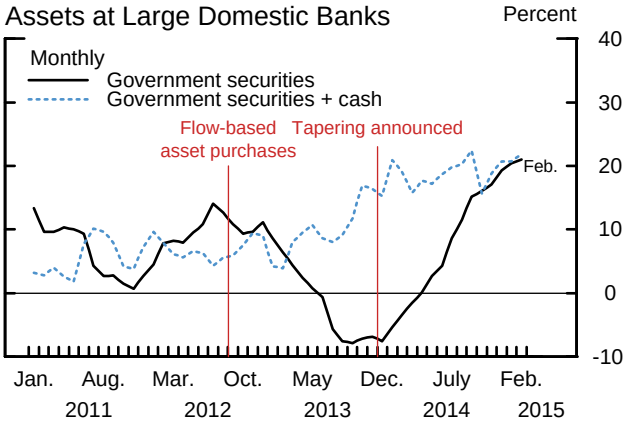
HOUSEHOLD FINANCE

Mortgage credit remains tight for riskier borrowers, with relatively few mortgages originated to borrowers at the low end of the credit score distribution. Combined with a further contraction in the fraction of underwater mortgages and continued improvements in the labor market, tight underwriting standards have likely contributed to a downward trend in delinquency; at the end of last year, the share of mortgages becoming delinquent reached its lowest level since at least 2000. Meanwhile, for borrowers that can qualify for a mortgage, the cost of credit remains low by historical standards, with the 30-year fixed-rate mortgage rate averaging 3.6 percent in February.

Financing conditions in consumer credit markets stayed largely accommodative over the intermeeting period. Outstanding balances of auto and student loans continued to expand significantly through January, as such credit remained widely available, including to subprime borrowers. Borrowing through credit card accounts decelerated a bit in early 2015 after having expanded last year at the fastest pace since the financial crisis. While access to credit cards appears to have continued to expand for borrowers

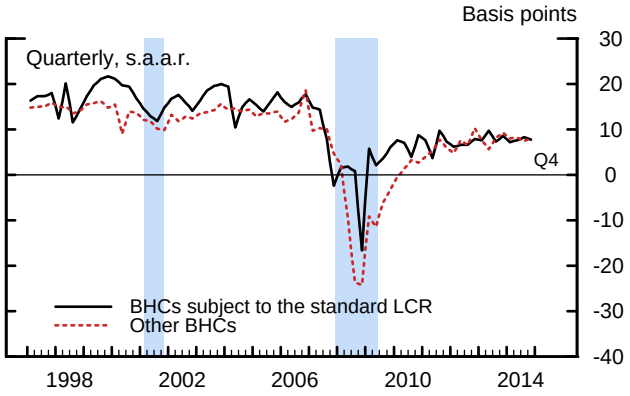
Banking Developments and Money

Treasury and Agency Securities and Cash Assets at Large Domestic Banks



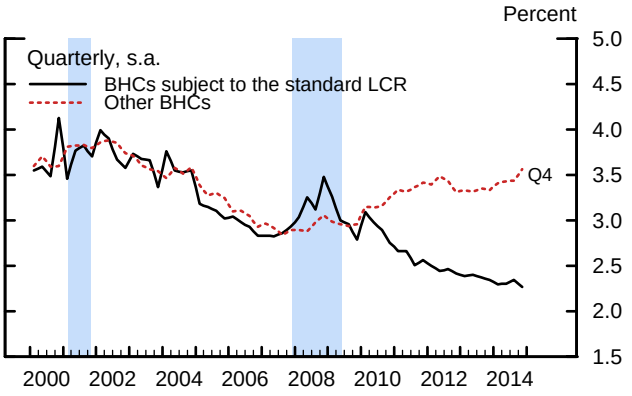
Note: Year-over-year growth rates are shown. Government securities include Treasury and agency debt plus agency mortgage-backed securities.
Source: Federal Reserve Board, FR 2644, Weekly Report of Selected Assets and Liabilities of Domestically Chartered Commercial Banks and U.S. Branches and Agencies of Foreign Banks.

Return on Equity, by BHC Type



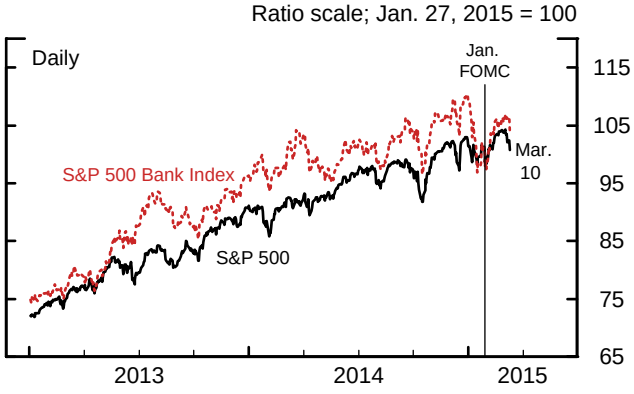
Note: BHC is bank holding company; LCR is liquidity coverage ratio. The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research.
Source: Federal Reserve Board, FR Y-9C, Consolidated Financial Statements for Holding Companies.

Net Interest Margin, by BHC Type



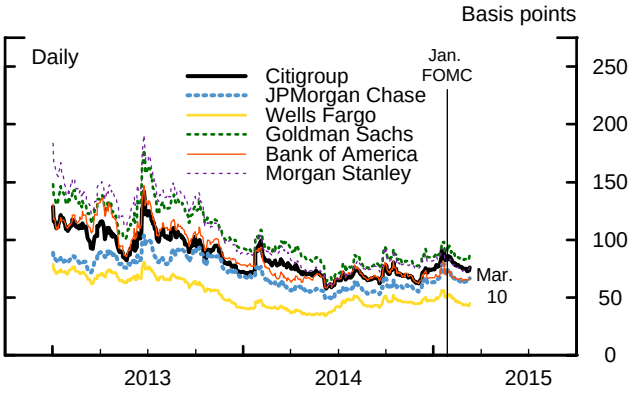
Note: BHC is bank holding company; LCR is liquidity coverage ratio. The shaded bars indicate periods of business recession as defined by the National Bureau of Economic Research.
Source: Federal Reserve Board, FR Y-9C, Consolidated Financial Statements for Holding Companies.

S&P 500 Stock Price Indexes



Source: Bloomberg.

CDS Spreads of Large Bank Holding Companies



Source: Markit.

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	-7.5	-3.2	7.5
2014:Q3	5.8	7.3	-6.3	-4.5	6.0
2014:Q4	4.4	5.5	-9.1	-2.7	6.3
Jan.	7.8	8.4	-4.4	-1.0	13.4
Feb.(p)	12.2	15.9	-8.0	-11.5	5.2

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

Financial Developments

with less-than-pristine credit records, the terms of credit extended to such borrowers stayed tight, with credit limits remaining low and offered interest rates elevated.

Delinquency rates on consumer debt have, on the whole, continued to be stable in recent months, with delinquencies on credit card loans staying near historical lows and those on student loans little changed at elevated levels. The performance of auto loans, however, appears to have softened a bit further, particularly for lenders with significant subprime loan holdings. Issuance of ABS backed by all types of consumer debt continued to be robust during the intermeeting period.

BANKING DEVELOPMENTS AND MONEY

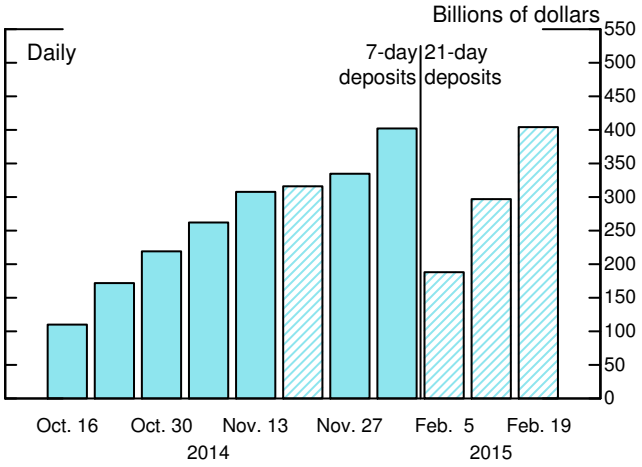
Bank credit grew at a solid pace over the intermeeting period, reflecting strong growth in core and noncore loans. Banks also continued to add securities to their books, mainly Treasury securities and, more recently, agency mortgage-backed securities. Banks generally report having acquired these securities to meet Basel III liquidity requirements. Since year-end, cash holdings at branches and agencies of foreign banks rebounded to a level significantly below the peak registered late last year, following pronounced year-end declines presumably owing to the introduction of Basel III leverage ratios in foreign jurisdictions.

In the fourth quarter, the profitability of bank holding companies (BHCs) remained within its narrow post-crisis range, well below the levels seen in the decade prior to the crisis. Declining net interest margins continued to be a key factor for the relatively low profitability of large banks, with significant increases in their holdings of high-quality liquid assets adding downward pressure to such margins. In addition, noninterest income at banks remained weak in the fourth quarter, as trading revenue declined and mortgage banking activity stayed subdued.

The stock prices of large U.S. BHCs increased about 4 percent over the intermeeting period, outperforming broad market indexes, and the CDS spreads of large BHCs narrowed back toward post-crisis lows. On March 5, the Federal Reserve released

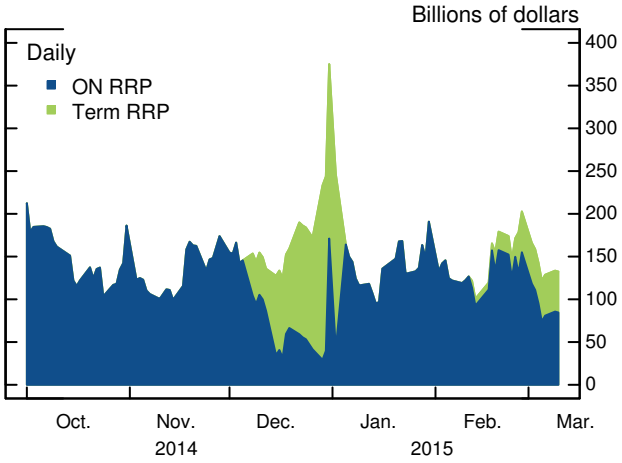
Federal Reserve Operations and Short-Term Funding Markets

Outstanding Term Deposits



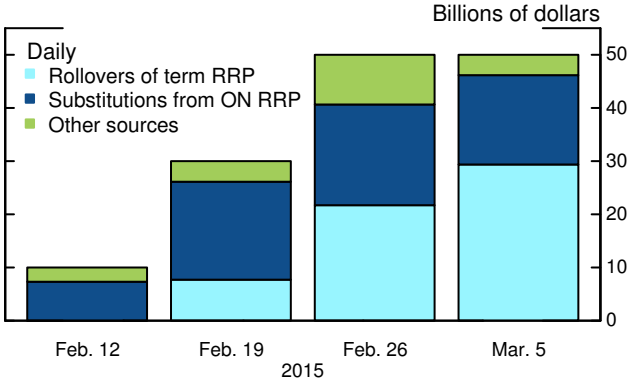
Note: Striped bars denote an offer rate of 28 basis points.
Source: Federal Reserve Board.

ON RRP and Term RRP Take-Up



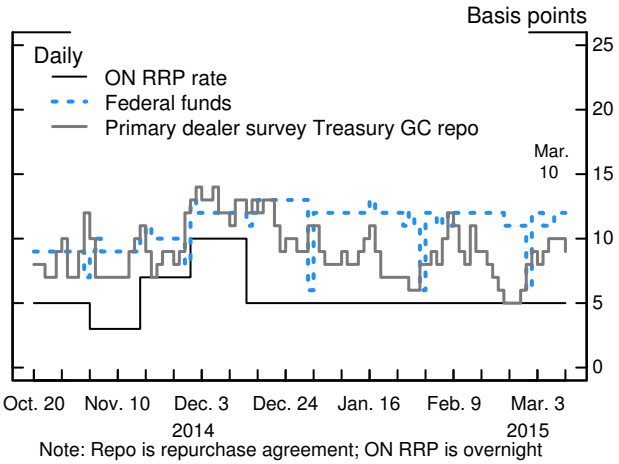
Note: ON RRP is overnight reverse repurchase agreement; term RRP is term reverse repurchase agreement.
Source: Federal Reserve Bank of New York.

Sources of Term RRP Awards



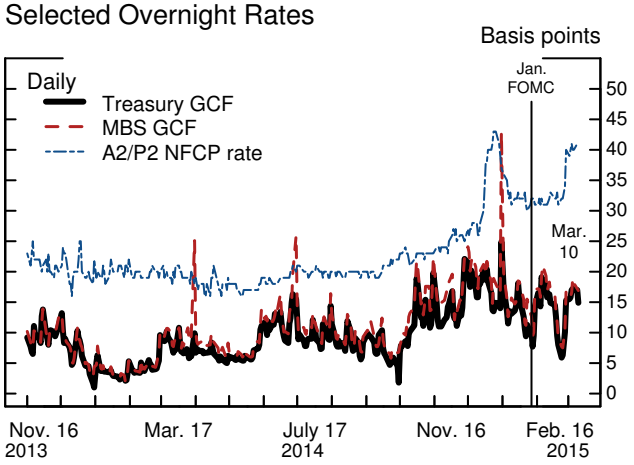
Note: ON RRP is overnight reverse repurchase agreement; term RRP is term reverse repurchase agreement. For each participant, the sources of term RRP are assigned in the following order: (1) Any previous term RRP position is attributed to rollovers of term RRP, (2) Any reductions to the previous day's ON RRP position are attributed to substitution from ON RRP, (3) Any remaining term RRP position is attributed to other sources.
Source: Federal Reserve Bank of New York.

Money Market Rates



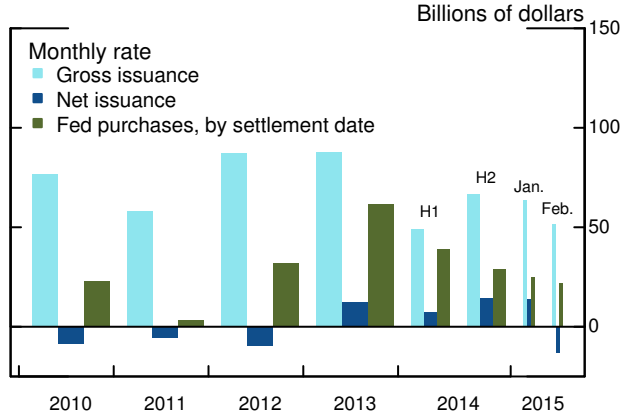
Note: Repo is repurchase agreement; ON RRP is overnight reverse repurchase agreement; GC is general collateral.
Source: Depository Trust & Clearing Corporation; Federal Reserve Bank of New York.

Selected Overnight Rates



Note: GCF is general collateral finance; MBS is mortgage-backed securities; NFCP is nonfinancial commercial paper.
Source: Bloomberg.

Agency MBS Issuance and Fed Purchases



Note: Issuance and purchases of 30-year fixed-rate agency mortgage-backed securities (MBS).
Source: Federal Reserve Bank of New York.

Financial Developments

the results of the Dodd-Frank Act Stress Testing, with all banks passing, and market reaction was modest.[1]

M2 expanded at a robust annual rate of about 10 percent, on average, over January and February, reflecting strong growth in currency and liquid deposits, while less liquid components of M2 continued to run off. The monetary base contracted at an average annual rate of about 14 percent, primarily reflecting a decline in reserve balances that resulted from the nearly $400 billion in term deposits that banks booked in the Term Deposit Facility (TDF) during the series of operational tests that were conducted in February.[2]

FEDERAL RESERVE OPERATIONS AND SHORT-TERM FUNDING MARKETS

In addition to TDF operations, testing of the Federal Reserve's term and overnight reverse repurchase agreement (term RRP and ON RRP) operations continued over the intermeeting period. The Open Market Desk auctioned one-week term RRPs on four consecutive weeks beginning on February 12, 2015. The size of the term operations increased from $10 billion on February 12 to $50 billion on March 5. All four term auctions were oversubscribed, and the competitively determined award rate was 6 basis points at each operation, which was in line with private market rates. Total Federal Reserve RRPs outstanding did not change significantly following the term operations, as participants largely substituted investments from overnight RRPs to term RRPs.

Overall, the ON RRP and term RRP operations continued to provide a soft floor on money market rates during the intermeeting period. The federal funds and Eurodollar rates stayed steady, although both dipped on the January and February month-ends.[3] The overnight GC repo rate for Treasury collateral, as surveyed by the Desk, stayed at or above the ON RRP offer rate of 5 basis points. In contrast, there were some moderate

[1] Results of the Comprehensive Capital Analysis and Review will be released after markets close today (March 11).

[2] The Federal Reserve conducted a series of three weekly TDF operations offering 21-day term deposits; the rate for each operation was set equal to the IOER rate plus a fixed spread of 3 basis points.

[3] The effective federal funds rate averaged 11 basis points over the intermeeting period, with the intraday standard deviation averaging about 4 basis points.

signs of reduced liquidity for lower-rated borrowers. In particular, A2/P2 nonfinancial commercial paper rates rose noticeably across the maturity spectrum.

TREASURY AND AGENCY FINANCE AND MARKET FUNCTIONING

Liquidity conditions in the Treasury and MBS markets remained stable.[4] Over the period, the Desk purchased $33 billion of MBS under the reinvestment program and rolled about 2.5 percent of the expected settlements. In February, the ratio of the Desk's MBS settlements to gross issuance of these securities declined somewhat relative to its January level and was about 32 percent.

On March 6, 2015, Treasury Secretary Lew sent a letter to the Congress noting that on March 13, the Treasury Department will begin to take "extraordinary measures" to remain under the debt limit. With the availability of these measures as well as April's typically sizable tax receipts, the Treasury is not expected to hit the debt limit before the fall of 2015.[5]

[4] Since the January FOMC meeting, the Treasury has auctioned $268 billion of Treasury nominal fixed-coupon securities, $9 billion of Treasury Inflation-Protection Securities, and $28 billion of two-year Floating Rate Notes.

[5] The debt limit suspension period will expire on March 15, 2015. Once the Treasury declares a debt issuance suspension period, it will have the following accounting measures to stay under the debt limit: suspending sales of State and Local Government Series Treasury securities, suspending daily reinvestment of the Treasury securities held by the Government Securities Investment Fund, redeeming existing investment and suspending new investment in the Civil Service Retirement and Disability Fund, and suspending the daily reinvestment of dollar balances held by the Exchange Stabilization Fund into Treasury securities.

Risks and Uncertainty

ASSESSMENT OF RISKS

We continue to view the uncertainty around our projections for real GDP growth and the unemployment rate as roughly in line with the average over the past 20 years (the benchmark used by the FOMC). As always, a number of upside and downside risks attend our forecast; importantly, however, we see neither monetary nor fiscal policy as well positioned to help the economy withstand adverse shocks. Consequently, we continue to view the risks to our forecast for real GDP growth as tilted somewhat to the downside. By contrast, we continue to view the risks around our unemployment projection as roughly balanced, with the risk of a higher unemployment rate from adverse demand-side developments about offset by the possibility that the unemployment rate will continue to surprise us to the downside—even though we have taken another step in this projection to try to counteract that possibility.

With regard to inflation, we see significant uncertainty around our projection but do not view the current level of uncertainty as unusually high. At the same time, we continue to view the risks around our inflation projection as tilted to the downside. Since the January Tealbook, oil prices have risen somewhat and TIPS-based inflation compensation has rebounded from its recent lows. Nonetheless, inflation compensation remains lower than it was a year ago, especially at the five-to-ten-year horizon. Moreover, core PCE price inflation is well below the Committee's target, despite a declining unemployment rate and other signs of labor market tightening. One factor that has likely held down U.S. inflation recently has been the rise in the exchange value of the dollar. With other major central banks increasingly adopting aggressive policies to fight their own inflation shortfalls, there is a risk that the dollar may continue to appreciate, leading to further downward pressure on U.S. inflation.

Our view of the risks to the economic outlook is informed by the staff's quarterly quantitative surveillance assessment, which views the vulnerability of the U.S. financial system to adverse shocks as moderate overall. This assessment reflects low levels of leverage and maturity transformation in the banking sector, moderate use of leverage in the nonbank financial sector, and a subdued pace of borrowing by the private

Alternative Scenarios

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

Measure and scenario	2015		2016	2017	2018-19
	H1	H2			
Real GDP					
Extended Tealbook baseline	2.2	2.3	2.3	2.0	1.6
Lower long-run equilibrium funds rate	2.2	2.3	2.1	1.8	1.5
Lower long-term inflation expectations	2.1	2.4	2.3	2.1	1.7
Room to grow	2.3	2.7	2.9	3.2	2.9
Faster growth with higher inflation	2.6	3.6	3.4	2.0	1.3
Greek exit with severe spillovers	1.6	.3	1.0	2.1	2.1
Faster foreign growth	2.2	2.5	2.7	2.3	1.4
Unemployment rate[1]					
Extended Tealbook baseline	5.3	5.2	5.1	5.0	5.2
Lower long-run equilibrium funds rate	5.3	5.2	5.2	5.2	5.4
Lower long-term inflation expectations	5.3	5.2	5.1	5.0	5.0
Room to grow	5.3	5.1	4.9	4.6	4.0
Faster growth with higher inflation	5.2	4.8	4.4	4.4	4.9
Greek exit with severe spillovers	5.4	5.5	6.1	6.1	5.9
Faster foreign growth	5.3	5.1	4.8	4.6	4.9
Total PCE prices					
Extended Tealbook baseline	-.3	1.6	1.7	1.9	2.0
Lower long-run equilibrium funds rate	-.3	1.6	1.6	1.8	1.9
Lower long-term inflation expectations	-.4	1.3	1.2	1.3	1.5
Room to grow	-.4	1.4	1.4	1.6	1.7
Faster growth with higher inflation	-.3	1.7	2.0	2.3	2.3
Greek exit with severe spillovers	-.5	.7	.7	1.3	1.7
Faster foreign growth	-.2	1.9	2.2	2.2	2.0
Core PCE prices					
Extended Tealbook baseline	1.1	1.5	1.6	1.8	2.0
Lower long-run equilibrium funds rate	1.1	1.5	1.6	1.8	1.9
Lower long-term inflation expectations	1.0	1.2	1.1	1.3	1.5
Room to grow	1.0	1.3	1.3	1.6	1.7
Faster growth with higher inflation	1.1	1.7	2.0	2.3	2.3
Greek exit with severe spillovers	1.0	.9	.8	1.3	1.7
Faster foreign growth	1.1	1.7	1.9	2.1	2.1
Federal funds rate[1]					
Extended Tealbook baseline	.2	.7	1.8	2.7	3.3
Lower long-run equilibrium funds rate	.2	.6	1.6	2.1	2.1
Lower long-term inflation expectations	.2	.6	1.5	2.2	2.9
Room to grow	.1	.1	.5	1.3	2.7
Faster growth with higher inflation	.2	.9	2.8	4.3	4.9
Greek exit with severe spillovers	.2	.5	.6	.9	2.2
Faster foreign growth	.2	.7	2.0	3.3	3.9

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

nonfinancial sector.[1] That said, there are some concerns about valuation pressures. Corporate bond yields remain near historical lows, reflecting low term premiums. Debt issuance to speculative-grade business borrowers stayed strong throughout 2014, although there has been some slowing in recent months in the issuance of leveraged loans. And, in commercial real estate, valuation pressures, while still moderate, continued to build last year. Structural vulnerabilities in the mutual fund sector persist, particularly for U.S. money market funds and funds that invest in illiquid assets.

ALTERNATIVE SCENARIOS

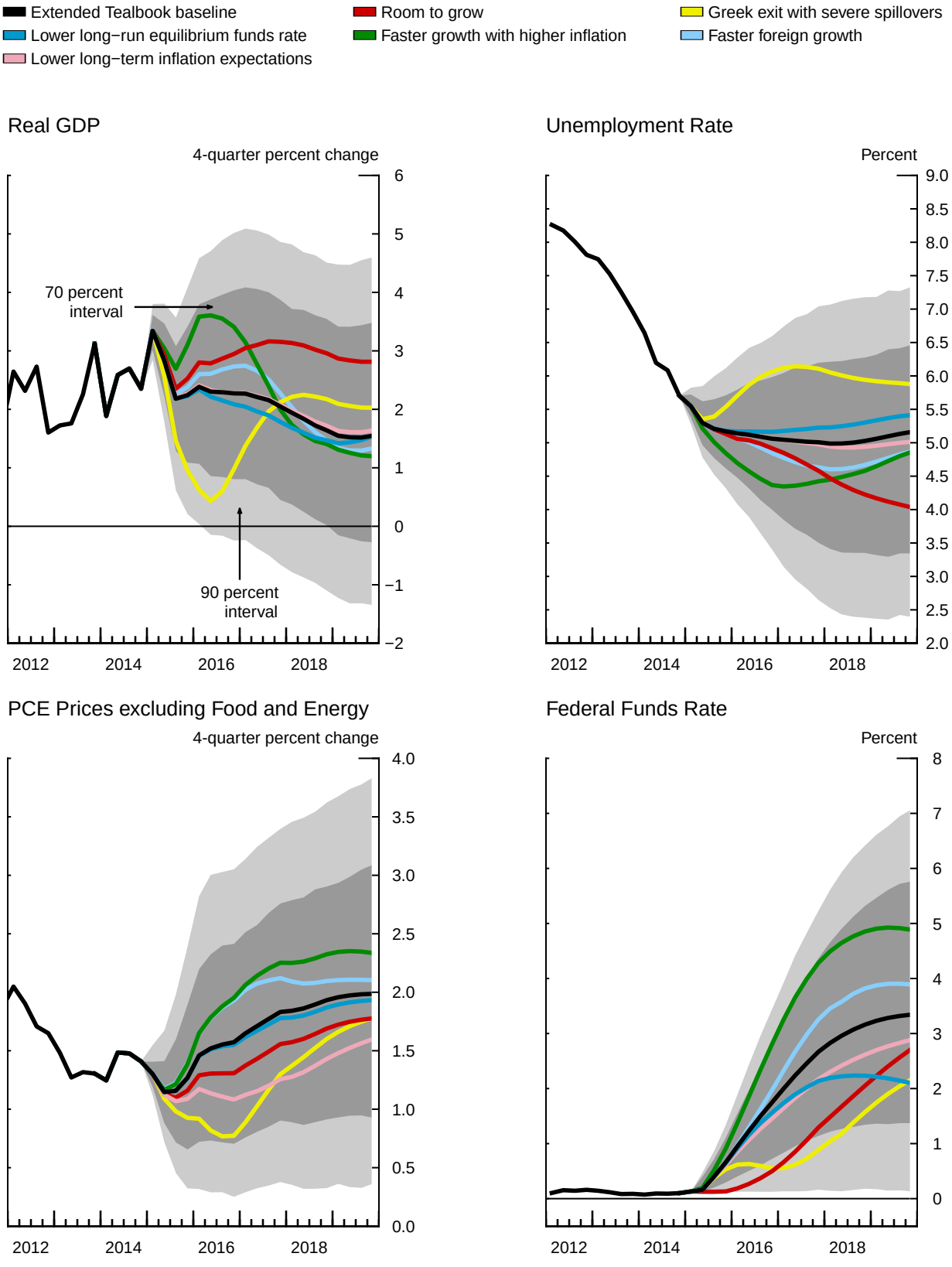
To illustrate some of the risks to the outlook, we construct a number of alternatives to the baseline projection using simulations of staff models. In the first scenario, the long-run equilibrium real rate is substantially lower than in our baseline, but policymakers only gradually reduce their estimate, leaving the federal funds rate initially higher than is desirable. In the second scenario, the trajectory of longer-term inflation expectations is lower than in the baseline, leading to a shallower path of actual inflation in the coming years. The third scenario considers the possibility that the natural rate of unemployment is lower, and potential output grows faster, than in the baseline. In the fourth, better-than-expected improvements in the labor market and robust readings on consumer sentiment in recent months portend a stronger pace for the economic expansion and higher inflation over the projection period. In the fifth scenario, a disorderly exit of Greece from the euro-area monetary union causes Europe to plunge into a deep recession with severe adverse effects on global financial conditions and confidence. The final scenario considers the possibility that the ECB's expansionary monetary policies and the large decline in oil prices over the past year yield a much stronger and more broad-based pickup in foreign growth than we envision in our baseline outlook.

We generate the first three scenarios using the FRB/US model, the fourth scenario using the EDO model, and the final two using the multicountry SIGMA model. Once the federal funds rate has lifted off from its current target range, its movements are

[1] Results from the 2015 Dodd-Frank Act stress test and the Comprehensive Capital Analysis and Review (CCAR) were released to the public on March 5 and March 11, respectively. The Dodd-Frank Act stress tests and the CCAR results showed that all 31 participating bank holding companies exceeded minimum capital requirements under the "severely adverse" scenario. However, the Federal Reserve objected to two firms' capital plans on qualitative grounds and one firm received a conditional non-objection on qualitative grounds.

Forecast Confidence Intervals and Alternative Scenarios

Confidence Intervals Based on FRB/US Stochastic Simulations



Risks & Uncertainty

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.[2] In all cases, we assume that the size and composition of the SOMA portfolio follow their baseline paths.

Lower Long-Run Equilibrium Funds Rate

In the baseline, the staff has lowered the long-run equilibrium real federal funds rate—the rate consistent with full employment and stable inflation in the long run—from 1¾ percent to 1½ percent. However, there is considerable uncertainty around this rate, with some analysts and statistical models suggesting that it might be considerably lower than the revised staff estimate. In this scenario, the equilibrium real rate is 1 percentage point lower than in the revised baseline, and policymakers only gradually recognize that fact. As a result, the path of the federal funds rate is initially higher than policymakers would have chosen if fully informed.

Consequently, output expands more slowly, and the unemployment rate falls more slowly, than in the baseline. Real GDP growth in 2016 through 2018 is about ¼ percentage point lower than in the baseline projection; the unemployment rate is about ¼ percentage point higher in 2017 through 2019. With lower resource utilization, inflation rises a little more slowly than in the baseline. Because policymakers learn about the shift in the long-run equilibrium real rate gradually, the path of the federal funds rate is initially similar to that in the baseline. However, as policymakers eventually learn about the shift in the long-run equilibrium real rate, the federal funds rate later in the projection period is much lower than in the baseline, reaching 2¼ percent in 2018 and staying at that level thereafter.

Lower Long-Term Inflation Expectations

In the baseline projection, consumer price inflation is projected to increase gradually to the Committee's longer-run target of 2 percent. A key assumption behind this projection is that the level of long-term inflation expectations relevant for wage and

[2] As in the baseline, the inertial Taylor (1999) rule takes over in June 2015. For the scenarios run in SIGMA, we assume a broadly similar policy rule 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.

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

Measure	2015	2016	2017	2018	2019
Real GDP					
(percent change, Q4 to Q4)					
Projection	2.2	2.3	2.0	1.6	1.5
Confidence interval					
Tealbook forecast errors	.7–3.7	.5–4.0	. . .	. . .	. . .
FRB/US stochastic simulations	1.1–3.4	.8–4.0	.5–3.9	.0–3.5	-.3–3.5
Civilian unemployment rate					
(percent, Q4)					
Projection	5.2	5.1	5.0	5.0	5.2
Confidence interval					
Tealbook forecast errors	4.6–5.8	4.1–6.1	. . .	. . .	. . .
FRB/US stochastic simulations	4.6–5.7	4.0–6.0	3.5–6.2	3.4–6.3	3.3–6.5
PCE prices, total					
(percent change, Q4 to Q4)					
Projection	.6	1.7	1.9	1.9	2.0
Confidence interval					
Tealbook forecast errors	-.3–1.6	.6–2.7	. . .	. . .	. . .
FRB/US stochastic simulations	-.1–1.4	.7–2.7	.8–3.0	.8–3.0	.8–3.2
PCE prices excluding					
food and energy					
(percent change, Q4 to Q4)					
Projection	1.3	1.6	1.8	1.9	2.0
Confidence interval					
Tealbook forecast errors	.7–1.8	.8–2.3	. . .	. . .	. . .
FRB/US stochastic simulations	.7–1.9	.7–2.4	.9–2.8	.9–2.9	.9–3.1
Federal funds rate					
(percent, Q4)					
Projection	.7	1.8	2.7	3.2	3.3
Confidence interval					
FRB/US stochastic simulations	.3–1.1	.7–2.8	1.1–4.4	1.3–5.3	1.4–5.8

Note: Shocks underlying FRB/US stochastic simulations are randomly drawn from the 1969–2013 set of model equation residuals.

Intervals derived from Tealbook forecast errors are based on projections made from 1979 to 2013, except for PCE prices excluding food and energy, where the sample is 1981–2013.

. . . Not applicable. The Tealbook forecast horizon has typically extended about 2 years.

price setting is currently 1.8 percent and eventually rises to 2 percent. However, a wide range of uncertainty surrounds this estimate, and some models the staff consults point to lower long-term inflation expectations.

In this scenario, we assume that long-term inflation expectations currently stand at 1.5 percent and that, going forward, households and businesses form their long-term expectations adaptively based on past inflation. The subdued inflation expectations and low actual inflation in the coming years are mutually reinforcing. As a result, inflation in this scenario runs persistently below the baseline and rises only slightly above 1½ percent in 2019. The federal funds rate increases more slowly after liftoff because of the lower trajectory of inflation, but given the inertial specification of the policy rule, the path of real interest rates is roughly unchanged from its baseline trajectory. As a result, the paths of real GDP growth and the unemployment rate are roughly unchanged as well.

Room to Grow

While the unemployment rate has come down substantially over the past few years, inflation has not picked up, with core PCE inflation averaging less than 1½ percent since 2012. One reason wage and price gains have remained modest despite falling unemployment may be that the staff's estimate for the natural rate of unemployment is too high. In this scenario, we assume that the natural rate of unemployment has been lower in the past five years than assumed by the staff and that it continues to fall, eventually reaching 4.2 percent in early 2016, 1 percentage point less than in the baseline. This lower natural rate of unemployment is also consistent with the rapid decrease in unemployment seen in recent years given the modest rates of GDP growth. In addition, we assume that structural productivity gains in recent years have been about ¼ percentage point higher than in the baseline. With these assumptions, potential output rises, on average, about ½ percentage point more than in the baseline over the 2015–19 period. The output gap closes only in the final quarter of 2018.

Inflation rises more slowly than in the baseline, reflecting both greater resource slack and faster productivity growth.[3] Core PCE inflation reaches only 1¾ percent at the end of 2019. The federal funds rate remains at its current target range for an additional year, lifting off in the second quarter of 2016. The unemployment rate continues falling

[3] A higher path of productivity holds down marginal costs of production, which are a key determinant of inflation in FRB/US and many other macroeconomic models.

after 2016, reaching its natural rate at the end of 2018 and moving below it thereafter. As a result of a combination of higher structural productivity and more-accommodative monetary policy, real GDP growth picks up, averaging about 3 percent over the 2016–19 period.[4]

Faster Growth with Higher Inflation

While recent data on aggregate spending have been somewhat softer than expected, improvements in labor market conditions have been solid and readings on consumer sentiment in recent months are at their highest levels since the recovery began. In this scenario, households and businesses are more confident about the underlying strength of the economy and are willing to spend and hire more. The resulting strong spending and investment growth support a much faster economic expansion than in the baseline. We also assume that inflation will be 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.[5]

Real GDP growth averages 3¼ percent in 2015 and 2016, compared with 2¼ percent in the baseline projection. The unemployment rate falls below 5 percent by the end of 2015, reaches its lowest point of 4¼ percent in the beginning of 2017, and increases slowly for the remainder of the forecast horizon. With resource utilization running tighter, inflation rises faster than in the baseline, reaching 2¼ percent in 2018.[6] The federal funds rate lifts off in the second quarter of 2015, as in the baseline, but rises more steeply thereafter, passing 4 percent in the second half of 2017 and reaching almost 5 percent in 2019. Given enough time, this path for the federal funds rate would

[4] In this scenario, policymakers are aware of the increase in structural productivity growth. If policymakers instead learned about the increase in structural productivity growth only gradually, and thus the stance of the federal funds rate were tighter than they would have implemented if fully informed, real GDP growth would be ¼ percentage point lower and inflation would be 10 basis points lower, on average, through 2019 than in the original scenario. In this case, the unemployment rate would decline to only 4¾ percent at the end of 2019.

[5] 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.

[6] The larger rise in inflation depends importantly on the substantially smaller adjustment costs for wages and prices in this scenario. Had we used our standard coefficients in these equations, inflation would have peaked at only a little over 2 percent.

eventually drive the unemployment rate to its assumed natural rate and bring inflation back down to 2 percent.

Greek Exit with Severe Spillovers

As discussed in the International Economic Developments and Outlook box "Recent Developments in Greece," our baseline assumption is that the Greek government—after a protracted period of contentious negotiations and political brinkmanship—eventually works out a compromise with its international creditors that keeps Greece in the euro area. However, this outcome is far from certain, and in this scenario we consider the extreme possibility that debt negotiations completely break down, leading to a cutoff in official funding and the rapid collapse of Greece's banking system, ultimately triggering a disorderly exit of Greece from the euro area. Although the firewalls erected during the past few years and aggressive actions by the European authorities could, even in this event, keep spillovers to other countries reasonably contained, our scenario considers a more dire outcome in which Greek exit causes the euro area to plunge into a deep recession and has severe adverse effects on global financial conditions and confidence.

Specifically, our scenario assumes that financial conditions in the euro area tighten sharply and that confidence plummets amid rising unemployment and heightened disinflationary pressures. Periphery sovereign spreads rise 400 basis points above baseline while euro-area corporate borrowing spreads rise more than 200 basis points. As a result, euro-area real GDP falls more than 6 percent relative to the baseline by the end of 2016.[7] The euro-area crisis has substantial adverse spillovers to the United States. U.S. corporate bond spreads are assumed to rise about 100 basis points, while flight-to-safety flows cause the trade-weighted dollar to increase nearly 8 percent and depress 10-year Treasury yields about 25 basis points. Financial conditions tighten even more in the EMEs, and their currencies depreciate substantially.

Weaker foreign activity and the stronger dollar cause U.S. real net exports to fall relative to the baseline. Given that U.S. domestic demand also declines relative to baseline as a result of lower confidence and weaker financial conditions, U.S. real GDP expands only 1 percent, on average, in 2015 and 2016, about 1¼ percentage points per

[7] The effects on euro-area GDP in this scenario are roughly two-thirds the size of those considered in the July 2012 Tealbook scenario titled "European Crisis with Severe Spillovers."

year less than in the baseline. Lower domestic demand and lower import price inflation cause U.S. core inflation to fall about ¾ percentage point below baseline in 2016. The inertial Taylor rule prescribes a substantially shallower path for the federal funds rate than in the baseline.

Faster Foreign Growth

This scenario considers the possibility that the ECB's expansionary monetary policy and the large decline in oil prices over the past year yield a much stronger and more broad-based pickup in foreign growth than we envision in our baseline. In this scenario, higher consumer and business confidence boosts the levels of GDP in the euro area and the rest of the world 2 percent and 1 percent, respectively, above the baseline over the next two years. Amid the more favorable foreign outlook, the run-up in demand for dollar-denominated assets seen since last summer partially reverses, leading the broad real dollar to fall about 6 percent relative to the baseline by the end of 2016.

The weaker dollar and stronger foreign growth boost U.S. real activity by increasing U.S. real net exports relative to the baseline. Core PCE inflation rises as the weaker dollar puts upward pressure on import prices and resource slack narrows more quickly. All told, U.S. real GDP expands by about 2¾ percent in 2016, roughly ½ percentage point more than in the baseline. Core PCE inflation rises to nearly 2 percent by late 2016, while the unemployment rate falls well below 5 percent. The inertial Taylor rule prescribes that the federal funds rate rises more quickly than in the baseline.

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

Measure and projection	2015		2016		2017	
	December Tealbook	Current Tealbook	December Tealbook	Current Tealbook	December Tealbook	Current Tealbook
Real GDP						
Staff	2.5	2.2	2.7	2.3	2.2	2.0
FRB/US	3.1	2.8	2.5	2.5	1.9	2.2
EDO	3.2	2.7	2.7	2.5	2.6	2.5
Unemployment rate[1]						
Staff	5.2	5.2	5.0	5.1	4.9	5.0
FRB/US	5.3	5.3	5.2	5.2	5.3	5.3
EDO	5.9	5.7	5.9	5.8	5.9	5.9
Total PCE prices						
Staff	1.0	.6	1.7	1.7	1.8	1.9
FRB/US	1.2	.7	1.6	1.7	1.5	1.5
EDO	1.6	.7	1.8	1.8	1.9	2.0
Core PCE prices						
Staff	1.5	1.3	1.6	1.6	1.8	1.8
FRB/US	1.7	1.3	1.6	1.6	1.5	1.5
EDO	1.6	1.4	1.8	1.8	1.9	2.0
Federal funds rate[1]						
Staff	1.0	.7	2.1	1.8	3.0	2.7
FRB/US	1.0	.9	2.1	1.6	3.0	1.8
EDO	1.5	1.4	2.4	2.4	2.9	2.9

1. Percent, average for Q4.

Risks & Uncertainty

Assessment of Key Macroeconomic Risks (1)

Probability of Inflation Events

(4 quarters ahead—2016:Q1)

Probability that the 4-quarter change in total PCE prices will be ...	Staff	FRB/US	EDO	BVAR
Greater than 3 percent				
Current Tealbook	.05	.05	.11	.00
Previous Tealbook	.01	.01	.09	.03
Less than 1 percent				
Current Tealbook	.26	.22	.28	.65
Previous Tealbook	.74	.67	.32	.27

Probability of Unemployment Events

(4 quarters ahead—2016:Q1)

Probability that the unemployment rate will ...	Staff	FRB/US	EDO	BVAR
Increase by 1 percentage point				
Current Tealbook	.02	.02	.23	.00
Previous Tealbook	.02	.01	.20	.01
Decrease by 1 percentage point				
Current Tealbook	.18	.17	.04	.53
Previous Tealbook	.26	.27	.05	.38

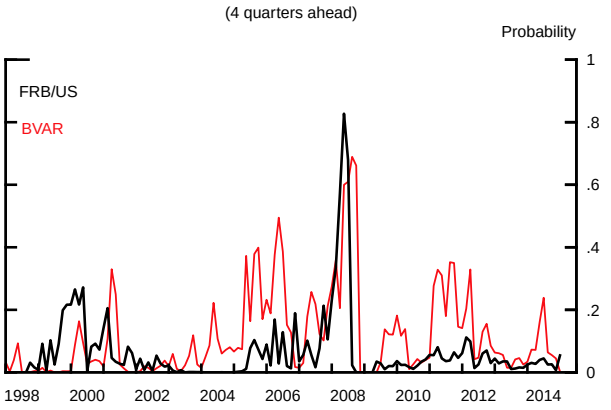
Probability of Near-Term Recession

Probability that real GDP declines in each of 2015:Q2 and 2015:Q3	Staff	FRB/US	EDO	BVAR	Factor Model
Current Tealbook	.04	.02	.02	.01	.13
Previous Tealbook	.03	.02	.01	.02	.08

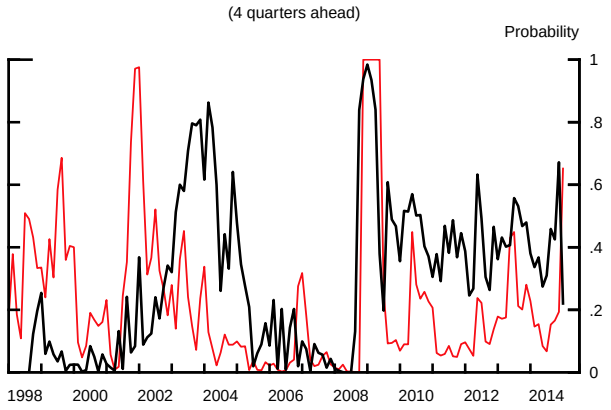
Note: "Staff" represents Tealbook forecast errors applied to the Tealbook baseline; baselines for FRB/US, BVAR, EDO, and the factor model are generated by those models themselves, up to the current-quarter estimate. Data for the current quarter are taken from the staff estimate for the second Tealbook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

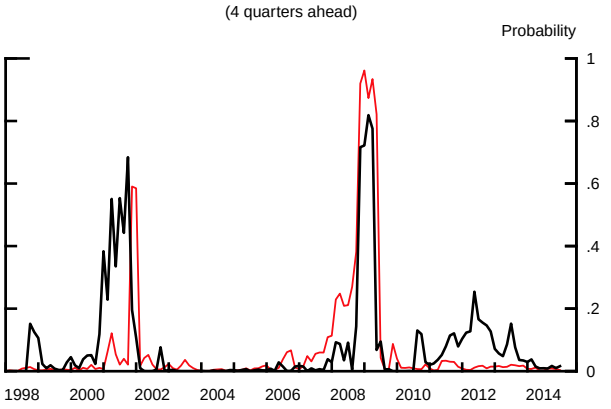
Probability that Total PCE Inflation Is above 3 Percent



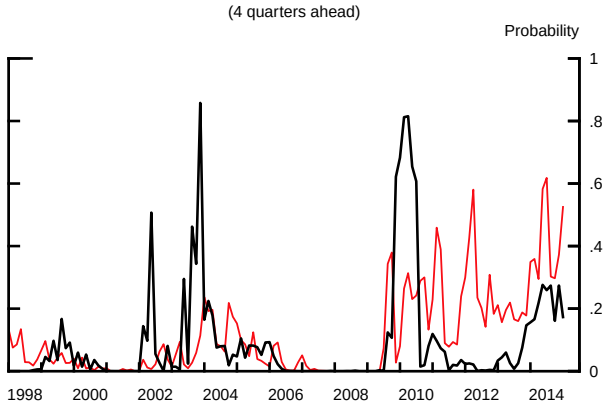
Probability that Total PCE Inflation Is below 1 Percent



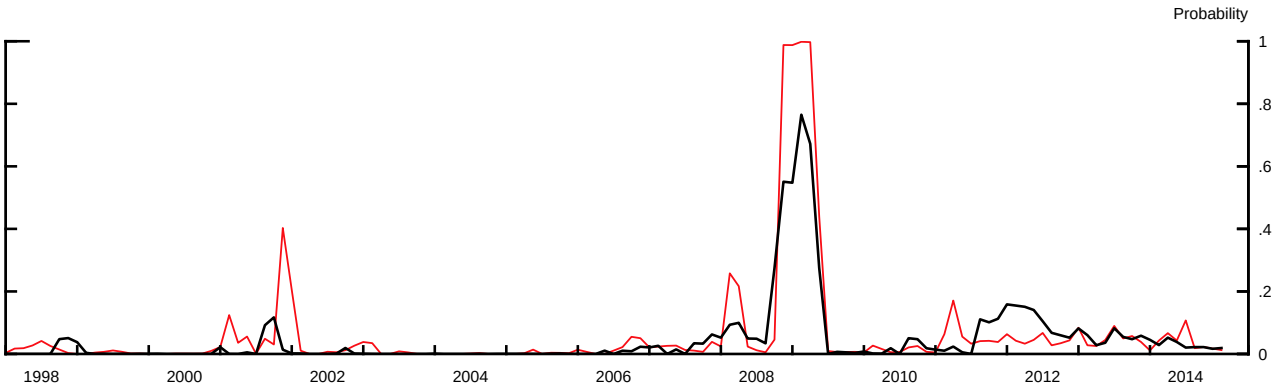
Probability that the Unemployment Rate Increases 1 ppt



Probability that the Unemployment Rate Decreases 1 ppt



Probability that Real GDP Declines in Each of the Next Two Quarters



Note: See notes on facing page. Recession and inflation probabilities for FRB/US and the BVAR are real-time estimates. See Robert J. Tetlow and Brian Ironside (2007), "Real−Time Model Uncertainty in the United States: The Fed, 1996−2003," *Journal of Money, Credit and Banking*, vol. 39 (October), pp. 1533−61.

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

	Nominal GDP		Real GDP		PCE price index		Core PCE price index		Unemployment rate[1]	
Interval	01/21/15	03/11/15	01/21/15	03/11/15	01/21/15	03/11/15	01/21/15	03/11/15	01/21/15	03/11/15
Quarterly										
2014:Q1	-.8	-.8	-2.1	-2.1	1.4	1.4	1.2	1.2	6.6	6.6
Q2	6.8	6.8	4.6	4.6	2.3	2.3	2.0	2.0	6.2	6.2
Q3	6.4	6.4	5.0	5.0	1.2	1.2	1.4	1.4	6.1	6.1
Q4	3.2	2.1	2.6	2.1	-.5	-.4	1.1	1.1	5.7	5.7
2015:Q1	3.4	1.7	2.8	1.7	-2.5	-2.0	1.1	.8	5.4	5.5
Q2	4.2	4.8	2.7	2.6	1.1	1.3	1.3	1.4	5.3	5.3
Q3	4.6	3.9	2.8	2.3	1.9	1.5	1.5	1.4	5.2	5.2
Q4	4.7	4.1	2.9	2.4	1.7	1.6	1.5	1.5	5.1	5.2
2016:Q1	4.7	4.2	2.8	2.3	1.8	1.6	1.6	1.5	5.0	5.1
Q2	4.5	4.0	2.7	2.2	1.7	1.7	1.6	1.6	5.0	5.1
Q3	4.5	4.0	2.7	2.3	1.7	1.7	1.6	1.6	4.9	5.1
Q4	4.5	4.0	2.7	2.3	1.7	1.7	1.6	1.6	4.9	5.1
Two-quarter[2]										
2014:Q2	2.9	2.9	1.2	1.2	1.9	1.9	1.6	1.6	-.8	-.8
Q4	4.8	4.3	3.8	3.5	.4	.4	1.2	1.2	-.5	-.5
2015:Q2	3.8	3.3	2.8	2.2	-.7	-.3	1.2	1.1	-.4	-.4
Q4	4.6	4.0	2.8	2.3	1.8	1.6	1.5	1.5	-.2	-.1
2016:Q2	4.6	4.1	2.7	2.3	1.7	1.7	1.6	1.6	-.1	-.1
Q4	4.5	4.0	2.7	2.3	1.7	1.7	1.6	1.6	-.1	.0
Four-quarter[3]										
2013:Q4	4.6	4.6	3.1	3.1	1.0	1.0	1.3	1.3	-.8	-.8
2014:Q4	3.9	3.6	2.5	2.4	1.1	1.1	1.4	1.4	-1.3	-1.3
2015:Q4	4.2	3.6	2.8	2.2	.5	.6	1.4	1.3	-.6	-.5
2016:Q4	4.6	4.1	2.7	2.3	1.7	1.7	1.6	1.6	-.2	-.1
2017:Q4	4.0	3.9	2.0	2.0	1.9	1.9	1.8	1.8	-.1	-.1
Annual										
2013	3.7	3.7	2.2	2.2	1.2	1.2	1.3	1.3	7.4	7.4
2014	3.9	3.9	2.4	2.4	1.3	1.3	1.4	1.4	6.2	6.2
2015	4.3	3.7	3.1	2.6	.1	.3	1.3	1.2	5.3	5.3
2016	4.6	4.1	2.8	2.3	1.7	1.6	1.6	1.5	4.9	5.1
2017	4.3	4.0	2.4	2.2	1.8	1.8	1.7	1.7	4.8	5.0

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.

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

Item	2014			2015				2016							
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2014[1]	2015[1]	2016[1]	2017[1]
Real GDP	4.6	5.0	2.1	1.7	2.6	2.3	2.4	2.3	2.2	2.3	2.3	2.4	2.2	2.3	2.0
Previous Tealbook	4.6	5.0	2.6	2.8	2.7	2.8	2.9	2.8	2.7	2.7	2.7	2.5	2.8	2.7	2.0
Final sales	3.2	5.0	2.2	1.6	2.5	2.3	2.7	2.4	2.4	2.2	2.1	2.3	2.3	2.3	2.2
Previous Tealbook	3.2	5.0	1.8	3.1	2.7	2.7	2.9	2.9	2.9	2.7	2.6	2.2	2.8	2.8	2.4
Priv. dom. final purch.	3.8	4.1	4.3	3.0	4.1	3.8	4.3	4.0	3.9	3.4	2.9	3.3	3.8	3.5	2.6
Previous Tealbook	3.8	4.1	3.7	3.9	4.1	4.0	4.5	4.2	3.9	3.7	3.0	3.2	4.1	3.7	2.7
Personal cons. expend.	2.5	3.2	4.2	3.5	4.4	3.9	3.8	3.6	3.6	3.1	2.7	2.8	3.9	3.2	2.6
Previous Tealbook	2.5	3.2	3.8	4.1	4.4	4.0	3.9	3.8	3.5	3.4	2.8	2.7	4.1	3.4	2.7
Durables	14.1	9.2	6.0	1.7	7.9	7.7	8.0	6.9	6.9	6.2	5.5	8.0	6.3	6.4	4.2
Nondurables	2.2	2.5	3.8	2.4	5.0	3.3	3.3	2.7	3.0	2.5	2.4	2.1	3.5	2.6	2.4
Services	.9	2.5	4.1	4.1	3.6	3.6	3.4	3.4	3.3	2.7	2.4	2.2	3.7	2.9	2.4
Residential investment	8.8	3.2	4.5	1.4	8.5	12.2	15.2	12.6	10.6	8.8	6.9	2.7	9.2	9.7	5.1
Previous Tealbook	8.8	3.2	3.7	7.2	11.1	12.7	13.3	12.4	10.2	8.2	6.1	2.5	11.0	9.2	4.1
Nonres. priv. fixed invest.	9.7	8.9	4.4	.7	1.5	1.1	3.8	3.7	3.5	3.7	3.0	6.1	1.8	3.5	2.1
Previous Tealbook	9.7	8.9	3.5	1.9	.8	2.0	5.1	4.0	4.2	3.9	3.2	5.9	2.4	3.8	2.3
Equipment & intangibles	8.9	10.1	4.0	3.7	4.6	3.6	4.7	4.5	3.8	4.2	3.4	6.0	4.1	4.0	2.5
Previous Tealbook	8.9	10.1	3.4	3.7	4.8	4.6	6.1	4.6	4.4	4.3	3.5	5.9	4.8	4.2	2.7
Nonres. structures	12.6	4.8	5.9	-8.8	-8.8	-7.5	.4	.5	2.3	1.8	1.3	6.5	-6.2	1.5	.7
Previous Tealbook	12.6	4.8	3.9	-4.0	-12.1	-7.3	1.5	1.7	3.2	2.7	2.0	6.0	-5.6	2.4	1.2
Net exports[2]	-460	-431	-470	-499	-541	-585	-630	-677	-721	-764	-787	-452	-564	-737	-827
Previous Tealbook[2]	-460	-431	-456	-468	-501	-535	-574	-607	-631	-662	-667	-449	-520	-642	-699
Exports	11.1	4.5	4.5	-.8	.2	.1	.0	.2	.4	.9	1.4	2.4	-.1	.7	2.9
Imports	11.3	-.9	10.1	4.0	6.7	6.9	6.8	7.1	6.8	6.9	4.2	5.5	6.1	6.2	3.8
Gov't. cons. & invest.	1.7	4.4	-2.0	-.8	.1	.3	.5	.4	.5	1.6	.7	.8	.0	.8	1.1
Previous Tealbook	1.7	4.4	-3.9	.5	.1	.4	.1	.4	.9	1.0	.9	.3	.3	.8	1.0
Federal	-.9	9.9	-7.5	-3.6	-2.0	-1.9	-1.6	-2.1	-1.8	.8	-1.9	.2	-2.3	-1.3	-.9
Defense	.9	16.0	-12.4	-3.4	-2.0	-2.1	-1.5	-3.3	-2.9	1.2	-3.0	-.4	-2.2	-2.1	-1.5
Nondefense	-3.8	.4	1.4	-4.1	-1.9	-1.6	-1.9	.0	.1	.1	.1	1.1	-2.4	.1	.1
State & local	3.4	1.1	1.6	1.0	1.4	1.7	1.7	1.8	2.0	2.1	2.2	1.2	1.5	2.0	2.2
Change in priv. inventories[2]	85	82	78	82	87	89	78	76	71	73	79	70	84	75	69
Previous Tealbook[2]	85	82	112	104	107	111	111	108	100	102	104	79	108	103	87

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	2.2	2.3	2.0
Previous Tealbook	-2.8	-.2	2.7	1.7	1.6	3.1	2.5	2.8	2.7	2.0
Final sales	-2.1	-.4	2.0	1.5	2.1	2.6	2.3	2.3	2.3	2.2
Previous Tealbook	-2.1	-.4	2.0	1.5	2.1	2.6	2.2	2.8	2.8	2.4
Priv. dom. final purch.	-4.1	-2.4	3.5	2.6	2.6	3.2	3.3	3.8	3.5	2.6
Previous Tealbook	-4.1	-2.4	3.5	2.6	2.6	3.2	3.2	4.1	3.7	2.7
Personal cons. expend.	-2.0	-.2	3.1	1.5	2.0	2.8	2.8	3.9	3.2	2.6
Previous Tealbook	-2.0	-.2	3.1	1.5	2.0	2.8	2.7	4.1	3.4	2.7
Durables	-12.9	2.5	9.3	4.8	7.5	5.9	8.0	6.3	6.4	4.2
Nondurables	-2.7	.2	3.3	.4	1.0	2.5	2.1	3.5	2.6	2.4
Services	.3	-.8	2.0	1.4	1.5	2.4	2.2	3.7	2.9	2.4
Residential investment	-24.3	-10.8	-5.2	6.0	15.8	6.9	2.7	9.2	9.7	5.1
Previous Tealbook	-24.3	-10.8	-5.2	6.0	15.8	6.9	2.5	11.0	9.2	4.1
Nonres. priv. fixed invest.	-8.9	-12.2	8.1	9.0	3.7	4.7	6.1	1.8	3.5	2.1
Previous Tealbook	-8.9	-12.2	8.1	9.0	3.7	4.7	5.9	2.4	3.8	2.3
Equipment & intangibles	-11.8	-6.0	12.0	9.2	3.3	4.8	6.0	4.1	4.0	2.5
Previous Tealbook	-11.8	-6.0	12.0	9.2	3.3	4.8	5.9	4.8	4.2	2.7
Nonres. structures	-1.2	-27.1	-4.0	8.0	4.8	4.4	6.5	-6.2	1.5	.7
Previous Tealbook	-1.2	-27.1	-4.0	8.0	4.8	4.4	6.0	-5.6	2.4	1.2
Net exports[1]	-558	-395	-459	-459	-452	-420	-452	-564	-737	-827
Previous Tealbook[1]	-558	-395	-459	-459	-452	-420	-449	-520	-642	-699
Exports	-2.8	.8	10.1	4.2	2.4	5.1	2.4	-.1	.7	2.9
Imports	-6.0	-6.2	12.0	3.5	.4	2.5	5.5	6.1	6.2	3.8
Gov't. cons. & invest.	3.3	2.3	-1.1	-3.0	-1.7	-1.9	.8	.0	.8	1.1
Previous Tealbook	3.3	2.3	-1.1	-3.0	-1.7	-1.9	.3	.3	.8	1.0
Federal	8.4	3.9	3.2	-4.0	-2.6	-6.3	.2	-2.3	-1.3	-.9
Defense	9.4	3.6	2.0	-4.1	-4.9	-6.1	-.4	-2.2	-2.1	-1.5
Nondefense	6.5	4.6	5.5	-3.9	1.4	-6.6	1.1	-2.4	.1	.1
State & local	.2	1.3	-4.0	-2.3	-1.0	1.2	1.2	1.5	2.0	2.2
Change in priv. inventories[1]	-34	-148	58	38	57	64	70	84	75	69
Previous Tealbook[1]	-34	-148	58	38	57	64	79	108	103	87

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							
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2014[1]	2015[1]	2016[1]	2017[1]
Real GDP	4.6	5.0	2.1	1.7	2.6	2.3	2.4	2.3	2.2	2.3	2.3	2.4	2.2	2.3	2.0
Previous Tealbook	4.6	5.0	2.6	2.8	2.7	2.8	2.9	2.8	2.7	2.7	2.7	2.5	2.8	2.7	2.0
Final sales	3.2	5.0	2.2	1.6	2.5	2.2	2.6	2.4	2.4	2.2	2.1	2.3	2.2	2.3	2.2
Previous Tealbook	3.2	5.0	1.8	3.0	2.7	2.7	2.9	2.8	2.9	2.7	2.6	2.2	2.8	2.8	2.3
Priv. dom. final purch.	3.2	3.5	3.5	2.5	3.4	3.2	3.6	3.4	3.3	2.9	2.5	2.7	3.2	3.0	2.3
Previous Tealbook	3.2	3.5	3.1	3.3	3.4	3.4	3.7	3.5	3.3	3.1	2.6	2.6	3.5	3.1	2.3
Personal cons. expend.	1.8	2.2	2.8	2.4	3.0	2.7	2.6	2.5	2.5	2.1	1.9	1.9	2.7	2.2	1.8
Previous Tealbook	1.8	2.2	2.6	2.8	3.0	2.7	2.7	2.6	2.4	2.4	2.0	1.8	2.8	2.3	1.9
Durables	1.0	.7	.4	.1	.6	.6	.6	.5	.5	.5	.4	.6	.5	.5	.3
Nondurables	.3	.4	.6	.4	.7	.5	.5	.4	.4	.4	.4	.3	.5	.4	.4
Services	.4	1.2	1.8	1.9	1.7	1.6	1.6	1.6	1.5	1.3	1.1	1.0	1.7	1.4	1.2
Residential investment	.3	.1	.1	.0	.3	.4	.5	.4	.4	.3	.3	.1	.3	.3	.2
Previous Tealbook	.3	.1	.1	.2	.4	.4	.4	.4	.4	.3	.2	.1	.4	.3	.2
Nonres. priv. fixed invest.	1.2	1.1	.6	.1	.2	.1	.5	.5	.4	.5	.4	.8	.2	.4	.3
Previous Tealbook	1.2	1.1	.4	.2	.1	.2	.6	.5	.5	.5	.4	.7	.3	.5	.3
Equipment & intangibles	.8	1.0	.4	.4	.5	.3	.5	.4	.4	.4	.3	.6	.4	.4	.2
Previous Tealbook	.8	1.0	.3	.4	.5	.5	.6	.4	.4	.4	.4	.6	.5	.4	.3
Nonres. structures	.4	.1	.2	-.3	-.3	-.2	.0	.0	.1	.0	.0	.2	-.2	.0	.0
Previous Tealbook	.4	.1	.1	-.1	-.4	-.2	.0	.0	.1	.1	.1	.2	-.2	.1	.0
Net exports	-.3	.8	-1.0	-.7	-1.0	-1.0	-1.0	-1.1	-1.0	-1.0	-.5	-.6	-1.0	-.9	-.3
Previous Tealbook	-.3	.8	-.6	-.3	-.8	-.8	-.9	-.7	-.5	-.7	-.1	-.5	-.7	-.5	-.2
Exports	1.4	.6	.6	-.1	.0	.0	.0	.0	.1	.1	.2	.3	.0	.1	.4
Imports	-1.8	.2	-1.6	-.6	-1.0	-1.0	-1.0	-1.1	-1.1	-1.1	-.7	-.9	-1.0	-1.0	-.6
Gov't. cons. & invest.	.3	.8	-.4	-.1	.0	.1	.1	.1	.1	.3	.1	.1	.0	.1	.2
Previous Tealbook	.3	.8	-.7	.1	.0	.1	.0	.1	.2	.2	.2	.1	.0	.1	.2
Federal	-.1	.7	-.5	-.3	-.1	-.1	-.1	-.1	-.1	.0	-.1	.0	-.2	-.1	-.1
Defense	.0	.7	-.6	-.1	-.1	-.1	-.1	-.1	-.1	.0	-.1	.0	-.1	-.1	-.1
Nondefense	-.1	.0	.0	-.1	.0	.0	.0	.0	.0	.0	.0	.0	-.1	.0	.0
State & local	.4	.1	.2	.1	.2	.2	.2	.2	.2	.2	.2	.1	.2	.2	.2
Change in priv. inventories	1.4	.0	-.1	.1	.1	.1	-.3	-.1	-.1	.0	.2	.0	.0	.0	-.2
Previous Tealbook	1.4	.0	.8	-.2	.1	.1	.0	-.1	-.2	.0	.1	.3	.0	.0	-.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	2.1	1.4	.1	-.1	2.2	1.6	1.7	1.9	1.7	1.7	1.7	1.2	1.4	1.7	1.9
Previous Tealbook	2.1	1.4	.6	.6	1.4	1.8	1.7	1.9	1.8	1.7	1.8	1.4	1.4	1.8	2.0
PCE chain-wt. price index	2.3	1.2	-.4	-2.0	1.3	1.5	1.6	1.6	1.7	1.7	1.7	1.1	.6	1.7	1.9
Previous Tealbook	2.3	1.2	-.5	-2.5	1.1	1.9	1.7	1.8	1.7	1.7	1.7	1.1	.5	1.7	1.9
Energy	5.2	-4.0	-26.0	-44.7	2.0	3.8	4.7	3.9	3.3	3.2	3.0	-6.1	-11.5	3.3	2.4
Previous Tealbook	5.2	-4.0	-27.0	-56.1	-2.5	11.1	7.2	5.7	4.7	4.5	3.9	-6.4	-15.5	4.7	3.0
Food	4.5	3.1	2.1	.2	.7	1.1	1.3	1.4	1.5	1.7	1.7	2.8	.8	1.6	1.9
Previous Tealbook	4.5	3.1	2.1	1.6	.6	1.0	1.3	1.5	1.6	1.7	1.7	2.8	1.1	1.6	1.9
Ex. food & energy	2.0	1.4	1.1	.8	1.4	1.4	1.5	1.5	1.6	1.6	1.6	1.4	1.3	1.6	1.8
Previous Tealbook	2.0	1.4	1.1	1.1	1.3	1.5	1.5	1.6	1.6	1.6	1.6	1.4	1.4	1.6	1.8
Ex. food & energy, market based	1.8	1.4	.6	.5	1.3	1.4	1.5	1.5	1.6	1.6	1.6	1.2	1.2	1.6	1.8
Previous Tealbook	1.8	1.4	.6	1.0	1.3	1.5	1.5	1.6	1.6	1.6	1.6	1.2	1.4	1.6	1.8
CPI	2.4	1.2	-.9	-3.1	1.7	2.0	2.1	2.1	2.1	2.1	2.1	1.2	.6	2.1	2.2
Previous Tealbook	3.0	1.1	-1.2	-4.2	1.6	2.4	2.2	2.2	2.2	2.2	2.2	1.2	.5	2.2	2.2
Ex. food & energy	2.2	1.4	1.5	1.5	1.8	1.9	2.0	2.0	2.0	2.0	2.1	1.7	1.8	2.0	2.2
Previous Tealbook	2.5	1.3	1.4	1.4	2.0	2.0	2.0	2.0	2.0	2.1	2.1	1.7	1.8	2.0	2.2
ECI, hourly compensation[2]	3.4	2.7	2.3	2.6	2.6	2.6	2.6	2.9	2.9	2.9	2.9	2.3	2.6	2.9	3.0
Previous Tealbook[2]	3.4	2.7	2.4	2.6	2.6	2.5	2.5	3.0	3.0	3.0	3.0	2.4	2.6	3.0	3.1
Business sector															
Output per hour	2.9	3.3	-2.4	.2	2.4	1.8	1.9	1.8	1.7	1.7	1.7	-.4	1.6	1.7	1.7
Previous Tealbook	2.9	3.2	-2.3	2.3	2.1	2.0	2.3	1.7	1.6	1.7	1.8	-.4	2.2	1.7	1.7
Compensation per hour	-1.1	2.1	1.6	2.9	3.1	3.1	3.1	3.4	3.4	3.4	3.4	2.3	3.0	3.4	3.5
Previous Tealbook	-1.1	.6	1.0	2.8	3.1	3.1	3.1	3.8	3.6	3.6	3.5	1.8	3.0	3.6	3.6
Unit labor costs	-3.9	-1.2	4.1	2.7	.6	1.3	1.1	1.6	1.7	1.7	1.7	2.7	1.4	1.7	1.7
Previous Tealbook	-3.9	-2.5	3.4	.4	1.0	1.1	.8	2.0	1.9	1.8	1.7	2.2	.8	1.8	1.9
Core goods imports chain-wt. price index[3]	.2	.5	-.8	-4.0	-4.3	-1.5	.1	.7	1.1	1.3	1.3	.6	-2.4	1.1	1.7
Previous Tealbook[3]	.2	.5	-1.2	-3.3	-2.5	.4	.8	1.1	1.2	1.2	1.2	.5	-1.2	1.2	1.3

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.

Changes in Prices and Costs

(Change from fourth quarter of previous year to fourth quarter of year indicated, unless otherwise noted)

Item	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
GDP chain-wt. price index	1.9	.4	1.8	1.9	1.8	1.4	1.2	1.4	1.7	1.9
Previous Tealbook	1.9	.4	1.8	1.9	1.8	1.4	1.4	1.4	1.8	2.0
PCE chain-wt. price index	1.5	1.2	1.3	2.7	1.6	1.0	1.1	.6	1.7	1.9
Previous Tealbook	1.5	1.2	1.3	2.7	1.6	1.0	1.1	.5	1.7	1.9
Energy	-8.2	2.3	6.4	12.0	2.1	-2.6	-6.1	-11.5	3.3	2.4
Previous Tealbook	-8.2	2.3	6.4	12.0	2.1	-2.6	-6.4	-15.5	4.7	3.0
Food	6.9	-1.8	1.3	5.1	1.2	.7	2.8	.8	1.6	1.9
Previous Tealbook	6.9	-1.8	1.3	5.1	1.2	.7	2.8	1.1	1.6	1.9
Ex. food & energy	1.6	1.4	1.0	1.9	1.6	1.3	1.4	1.3	1.6	1.8
Previous Tealbook	1.6	1.4	1.0	1.9	1.6	1.3	1.4	1.4	1.6	1.8
Ex. food & energy, market based	2.2	1.8	.7	1.9	1.5	1.2	1.2	1.2	1.6	1.8
Previous Tealbook	2.2	1.8	.7	1.9	1.5	1.2	1.2	1.4	1.6	1.8
CPI	1.6	1.5	1.2	3.3	1.9	1.2	1.2	.6	2.1	2.2
Previous Tealbook	1.6	1.5	1.2	3.3	1.9	1.2	1.2	.5	2.2	2.2
Ex. food & energy	2.0	1.8	.6	2.2	1.9	1.7	1.7	1.8	2.0	2.2
Previous Tealbook	2.0	1.8	.6	2.2	1.9	1.7	1.7	1.8	2.0	2.2
ECI, hourly compensation[1]	2.4	1.2	2.1	2.2	1.8	2.0	2.3	2.6	2.9	3.0
Previous Tealbook[1]	2.4	1.2	2.1	2.2	1.8	2.0	2.4	2.6	3.0	3.1
Business sector										
Output per hour	-.2	5.6	1.7	.0	.2	2.3	-.4	1.6	1.7	1.7
Previous Tealbook	-.2	5.6	1.7	.0	.3	2.4	-.4	2.2	1.7	1.7
Compensation per hour	2.9	1.3	1.2	.6	5.6	-.1	2.3	3.0	3.4	3.5
Previous Tealbook	2.9	1.3	1.2	.6	5.7	.0	1.8	3.0	3.6	3.6
Unit labor costs	3.2	-4.2	-.4	.6	5.4	-2.3	2.7	1.4	1.7	1.7
Previous Tealbook	3.2	-4.2	-.4	.6	5.4	-2.3	2.2	.8	1.8	1.9
Core goods imports chain-wt. price index[2]	3.9	-1.9	2.3	4.3	.2	-1.0	.6	-2.4	1.1	1.7
Previous Tealbook[2]	3.9	-1.9	2.3	4.3	.2	-1.0	.5	-1.2	1.2	1.3

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

Other Macroeconomic Indicators

Item	2014 Q2	2014 Q3	2014 Q4	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2014[1]	2015[1]	2016[1]	2017[1]
Employment and production															
Nonfarm payroll employment[2]	.8	.7	.9	.9	.8	.7	.7	.6	.6	.5	.5	2.9	3.0	2.2	1.7
Unemployment rate[3]	6.2	6.1	5.7	5.5	5.3	5.2	5.2	5.1	5.1	5.1	5.1	5.7	5.2	5.1	5.0
Previous Tealbook[3]	6.2	6.1	5.7	5.4	5.3	5.2	5.1	5.0	5.0	4.9	4.9	5.7	5.1	4.9	4.8
Natural rate of unemployment[3]	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Previous Tealbook[3]	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
GDP gap[4]	-2.3	-1.3	-1.0	-1.0	-.7	-.6	-.4	-.2	-.1	.0	.2	-1.0	-.4	.2	.5
Previous Tealbook[4]	-2.3	-1.5	-1.2	-.9	-.7	-.4	-.1	.1	.3	.5	.8	-1.2	-.1	.8	1.0
Industrial production[5]	5.7	4.1	4.3	1.8	1.7	.4	.6	2.4	2.8	1.8	1.1	4.5	1.1	2.0	1.4
Previous Tealbook[5]	5.7	4.1	5.6	4.5	.9	1.1	1.1	3.0	3.2	2.5	1.4	4.8	1.9	2.5	1.5
Manufacturing industr. prod.[5]	7.0	4.4	3.8	2.1	3.3	1.9	1.9	2.1	2.3	1.8	1.6	4.1	2.3	1.9	1.4
Previous Tealbook[5]	7.0	4.3	5.2	4.5	3.0	2.6	2.8	2.7	2.6	2.1	1.8	4.5	3.2	2.3	1.5
Capacity utilization rate - mfg.[3]	77.1	77.5	77.8	77.9	78.2	78.3	78.3	78.4	78.5	78.4	78.4	77.8	78.3	78.4	78.0
Previous Tealbook[3]	77.1	77.5	78.1	78.5	78.7	78.8	78.9	79.0	79.0	79.0	78.9	78.1	78.9	78.9	78.4
Housing starts[6]	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.3	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	16.5	16.9	16.8	16.7	16.7	16.6	16.6	16.5	16.4	16.7	16.6	16.5
Income and saving															
Nominal GDP[5]	6.8	6.4	2.1	1.7	4.8	3.9	4.1	4.2	4.0	4.0	4.0	3.6	3.6	4.1	3.9
Real disposable pers. income[5]	3.1	2.4	3.7	6.1	3.4	1.9	2.5	3.6	2.4	2.2	2.6	3.1	3.5	2.7	2.4
Previous Tealbook[5]	3.1	2.0	4.4	6.0	3.8	2.5	2.7	3.6	2.8	2.7	3.0	3.2	3.7	3.0	2.5
Personal saving rate[3]	5.1	4.8	4.7	5.3	5.1	4.6	4.3	4.3	4.0	3.8	3.8	4.7	4.3	3.8	3.6
Previous Tealbook[3]	5.1	4.7	4.9	5.3	5.1	4.8	4.5	4.5	4.3	4.2	4.2	4.9	4.5	4.2	4.0
Corporate profits[7]	38.3	12.8	-5.3	-26.6	17.0	1.4	-.2	-3.2	-2.4	2.4	2.8	-.1	-3.4	-.2	-.4
Profit share of GNP[3]	12.0	12.2	11.9	11.0	11.4	11.3	11.2	11.0	10.8	10.8	10.7	11.9	11.2	10.7	10.3
Net federal saving[8]	-599	-611	-567	-559	-585	-589	-572	-615	-590	-610	-629	-584	-576	-611	-681
Net state & local saving[8]	-227	-217	-218	-198	-191	-196	-194	-187	-187	-186	-187	-226	-195	-187	-188
Gross national saving rate[3]	17.9	18.1	18.0	18.0	17.9	17.5	17.4	17.1	17.0	16.9	16.8	18.0	17.4	16.8	16.5
Net national saving rate[3]	2.9	3.1	3.2	3.1	3.0	2.5	2.3	2.0	1.8	1.6	1.5	3.2	2.3	1.5	.9

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

Other Macroeconomic Indicators

(Change from fourth quarter of previous year to fourth quarter of year indicated, unless otherwise noted)

Item	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Employment and production										
Nonfarm payroll employment[1]	-2.8	-5.6	.8	2.0	2.2	2.5	2.9	3.0	2.2	1.7
Unemployment rate[2]	6.9	9.9	9.5	8.7	7.8	7.0	5.7	5.2	5.1	5.0
Previous Tealbook[2]	6.9	9.9	9.5	8.7	7.8	7.0	5.7	5.1	4.9	4.8
Natural rate of unemployment[2]	5.6	6.2	6.2	6.0	5.8	5.4	5.2	5.2	5.2	5.2
Previous Tealbook[2]	5.6	6.2	6.2	6.0	5.8	5.4	5.2	5.2	5.2	5.2
GDP gap[3]	-3.8	-5.5	-4.4	-4.2	-4.1	-2.8	-1.0	-.4	.2	.5
Previous Tealbook[3]	-3.8	-5.5	-4.4	-4.2	-4.1	-2.8	-1.2	-.1	.8	1.0
Industrial production[4]	-8.9	-5.5	6.2	3.2	3.2	3.3	4.5	1.1	2.0	1.4
Previous Tealbook[4]	-8.9	-5.5	6.2	3.2	3.2	3.3	4.8	1.9	2.5	1.5
Manufacturing industr. prod.[4]	-11.6	-6.1	6.4	3.1	3.5	2.9	4.1	2.3	1.9	1.4
Previous Tealbook[4]	-11.6	-6.1	6.4	3.1	3.5	2.9	4.5	3.2	2.3	1.5
Capacity utilization rate - mfg.[2]	70.0	67.1	72.7	74.6	75.5	76.4	77.8	78.3	78.4	78.0
Previous Tealbook[2]	70.0	67.1	72.7	74.6	75.5	76.4	78.1	78.9	78.9	78.4
Housing starts[5]	.9	.6	.6	.6	.8	.9	1.0	1.1	1.3	1.5
Light motor vehicle sales[5]	13.1	10.4	11.5	12.7	14.4	15.5	16.4	16.7	16.6	16.5
Income and saving										
Nominal GDP[4]	-.9	.1	4.6	3.6	3.5	4.6	3.6	3.6	4.1	3.9
Real disposable pers. income[4]	1.1	-.7	2.6	1.7	5.0	-1.9	3.1	3.5	2.7	2.4
Previous Tealbook[4]	1.1	-.7	2.6	1.7	5.0	-1.9	3.2	3.7	3.0	2.5
Personal saving rate[2]	6.1	5.6	5.5	5.8	8.6	4.4	4.7	4.3	3.8	3.6
Previous Tealbook[2]	6.1	5.6	5.5	5.8	8.6	4.4	4.9	4.5	4.2	4.0
Corporate profits[6]	-30.8	53.7	18.0	6.8	3.8	4.7	-.1	-3.4	-.2	-.4
Profit share of GNP[2]	6.9	10.6	12.0	12.3	12.4	12.4	11.9	11.2	10.7	10.3
Net federal saving[7]	-634	-1,249	-1,329	-1,244	-1,079	-649	-584	-576	-611	-681
Net state & local saving[7]	-165	-272	-237	-216	-233	-225	-226	-195	-187	-188
Gross national saving rate[2]	14.9	14.6	15.2	16.1	17.8	17.9	18.0	17.4	16.8	16.5
Net national saving rate[2]	-1.6	-1.7	-.4	.8	2.8	3.0	3.2	2.3	1.5	.9

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

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	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Unified budget					Not seasonally adjusted											
Receipts	3,021	3,209	3,397	3,539	656	938	760	739	664	999	807	748	714	1,075	860	794
Outlays	3,506	3,699	3,889	4,060	897	890	877	916	946	942	895	998	954	958	979	978
Surplus/deficit	-485	-491	-492	-521	-241	47	-117	-177	-282	56	-88	-250	-241	117	-119	-184
Previous Tealbook	*-483*	*-437*	*-454*	*-514*	*-241*	*47*	*-117*	*-177*	*-258*	*75*	*-77*	*-236*	*-216*	*100*	*-102*	*-194*
Means of financing:																
Borrowing	798	447	612	641	262	-46	211	240	172	-11	46	280	271	-87	149	214
Cash decrease	-70	88	0	0	20	3	-19	-65	122	-41	72	0	0	0	0	0
Other[1]	-243	-45	-120	-120	-42	-4	-75	1	-16	-4	-30	-30	-30	-30	-30	-30
Cash operating balance, end of period	158	70	70	70	142	139	158	223	101	142	70	70	70	70	70	70
NIPA federal sector					Seasonally adjusted annual rates											
Receipts	3,267	3,390	3,562	3,715	3,243	3,277	3,342	3,333	3,340	3,423	3,465	3,503	3,543	3,579	3,622	3,663
Expenditures	3,844	3,965	4,157	4,379	3,803	3,875	3,953	3,900	3,898	4,007	4,054	4,074	4,157	4,167	4,231	4,291
Consumption expenditures	963	957	960	975	957	956	988	960	959	956	954	953	960	960	965	965
Defense	617	612	613	619	610	610	641	613	613	612	611	611	614	612	615	613
Nondefense	346	345	347	356	347	345	347	347	346	345	343	342	347	348	350	351
Other spending	2,882	3,007	3,197	3,404	2,846	2,920	2,965	2,940	2,940	3,051	3,099	3,121	3,196	3,207	3,266	3,327
Current account surplus	-577	-574	-596	-664	-560	-599	-611	-567	-558	-584	-589	-571	-614	-589	-608	-628
Gross investment	256	253	248	247	251	255	254	256	253	252	251	250	248	247	248	247
Gross saving less gross investment[2]	-561	-548	-558	-618	-539	-580	-589	-546	-533	-556	-558	-538	-577	-549	-568	-584
Fiscal indicators																
High-employment (HEB) surplus/deficit[3]	-404.2	-501.5	-556.5	-645.4	-342.8	-427.0	-488.7	-471.3	-477.5	-522.2	-535.2	-527.3	-569.4	-550.2	-579.2	-604.6
Change in HEB, percent of potential GDP	-1.0	.5	.2	.4	-.1	.5	.3	-.1	.0	.2	.0	-.1	.2	-.1	.1	.1
Fiscal impetus (FI), percent of GDP[4]	-.1	.2	.3	.3	-.6	.0	.7	-.4	-.2	.2	.3	.3	.1	.2	.4	.2
Previous Tealbook	*-.2*	*.2*	*.2*	*.2*	*-.6*	*.0*	*.7*	*-.8*	*.0*	*.2*	*.3*	*.2*	*.1*	*.2*	*.3*	*.3*
Federal purchases	.0	-.2	-.1	-.1	.0	-.1	.7	-.5	-.3	-.1	-.1	-.1	-.1	-.1	.0	-.1
State and local purchases	.1	.2	.2	.2	-.1	.4	.1	.2	.1	.2	.2	.2	.2	.2	.2	.2
Taxes and transfers	-.2	.2	.1	.1	-.4	-.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)

					Projected							
	2014				2015				2016			
Measure and country	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Real GDP[1]												
Total foreign	1.9	2.5	2.6	2.7	2.5	2.7	2.9	3.0	3.1	3.1	3.1	3.1
Previous Tealbook	*1.9*	*2.3*	*2.5*	*2.7*	*2.8*	*3.0*	*3.1*	*3.1*	*3.1*	*3.1*	*3.1*	*3.1*
Advanced foreign economies	1.8	1.4	1.7	2.0	1.7	1.9	2.1	2.3	2.3	2.3	2.2	2.2
Canada	1.0	3.8	3.2	2.4	1.5	2.0	2.3	2.6	2.6	2.6	2.5	2.3
Japan	5.1	-6.4	-2.6	1.5	2.0	1.6	1.5	1.5	1.4	1.3	1.3	1.4
United Kingdom	2.7	3.0	2.6	2.2	2.6	2.6	2.6	2.5	2.5	2.5	2.4	2.4
Euro area	1.1	.3	.7	1.3	1.7	1.7	1.9	2.0	2.1	2.1	2.1	2.1
Germany	3.1	-.3	.3	2.8	1.8	1.8	2.0	2.0	2.2	2.2	2.3	2.3
Emerging market economies	2.0	3.6	3.5	3.3	3.3	3.5	3.7	3.8	3.9	3.9	4.1	4.1
Asia	4.0	4.9	5.6	5.1	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Korea	3.8	2.0	3.7	1.5	3.8	4.0	4.3	4.3	4.2	4.2	4.2	4.2
China	6.4	7.6	8.1	7.0	7.1	7.1	7.0	7.0	7.0	7.0	6.9	6.9
Latin America	.1	2.8	1.9	1.8	1.9	2.1	2.4	2.5	2.6	2.6	2.9	2.9
Mexico	1.4	4.2	2.1	2.7	2.9	3.2	3.3	3.3	3.1	3.1	3.2	3.2
Brazil	-.7	-2.4	.3	.2	-.5	-.8	.1	1.0	1.8	1.8	2.0	2.0
Consumer prices[2]												
Total foreign	2.1	3.0	2.0	1.1	.0	2.1	2.2	2.4	2.4	2.4	2.5	2.5
Previous Tealbook	*2.0*	*3.1*	*2.1*	*1.1*	*.9*	*2.1*	*2.4*	*2.5*	*2.5*	*2.5*	*2.6*	*2.6*
Advanced foreign economies	1.3	3.1	.9	-.4	-.7	1.1	1.3	1.5	1.5	1.6	1.6	1.7
Canada	3.2	3.3	1.2	.0	-.1	1.7	1.7	1.8	1.8	1.8	1.9	1.9
Japan	.7	9.3	1.2	-.6	.1	.7	.9	1.0	1.1	1.2	1.3	1.4
United Kingdom	1.4	1.7	1.4	-.8	-.6	1.7	1.7	1.8	1.8	1.8	1.8	1.9
Euro area	.4	.4	.5	-.6	-1.7	.9	1.2	1.5	1.6	1.6	1.6	1.6
Germany	.4	.3	1.7	-.6	-1.6	1.3	1.5	1.6	1.7	1.7	1.7	1.8
Emerging market economies	2.6	2.9	2.9	2.3	.5	2.8	3.0	3.1	3.1	3.1	3.1	3.1
Asia	1.5	2.4	2.1	1.1	-.3	2.2	2.5	2.8	2.8	2.8	2.8	2.8
Korea	1.4	2.2	.6	-.2	.1	1.8	2.4	2.9	3.1	3.2	3.2	3.2
China	.8	2.0	2.2	1.0	-.6	1.9	2.2	2.5	2.5	2.5	2.5	2.5
Latin America	5.3	4.3	4.9	4.8	1.8	4.0	3.9	4.0	3.8	3.8	3.8	3.8
Mexico	4.8	3.3	4.4	4.2	.5	3.1	3.3	3.4	3.3	3.3	3.3	3.3
Brazil	6.5	7.4	6.2	6.0	10.5	8.6	5.5	5.2	5.3	5.4	5.4	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.

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

Measure and country	2009	2010	2011	2012	2013	2014	2015	2016	2017
						Projected			
Real GDP[1]									
Total foreign	.9	4.7	3.1	2.3	2.6	2.4	2.8	3.1	3.0
Previous Tealbook	*.9*	*4.7*	*3.2*	*2.3*	*2.6*	*2.4*	*3.0*	*3.1*	*3.0*
Advanced foreign economies	-1.4	3.1	1.8	.3	1.9	1.7	2.0	2.2	2.0
Canada	-1.4	3.6	3.0	1.0	2.7	2.6	2.1	2.5	2.1
Japan	-.6	3.5	.3	.0	2.3	-.7	1.7	1.3	-.2
United Kingdom	-1.5	2.2	1.5	.4	2.4	2.7	2.6	2.5	2.3
Euro area	-2.3	2.3	.6	-1.0	.4	.9	1.8	2.1	2.3
Germany	-3.0	4.4	2.4	.1	1.1	1.5	1.9	2.2	2.3
Emerging market economies	3.8	6.5	4.5	4.3	3.3	3.1	3.6	4.0	4.0
Asia	7.8	8.0	5.0	5.7	5.1	4.9	5.4	5.4	5.2
Korea	4.9	6.1	3.0	2.1	3.6	2.8	4.1	4.2	3.9
China	11.4	9.7	8.7	7.8	7.5	7.3	7.0	6.9	6.7
Latin America	.0	4.7	4.0	3.3	1.5	1.6	2.2	2.8	3.0
Mexico	-1.2	4.5	4.2	3.4	1.0	2.6	3.2	3.1	3.2
Brazil	5.3	5.3	1.3	1.8	2.2	-.7	-.1	1.9	2.3
Consumer prices[2]									
Total foreign	1.2	3.2	3.4	2.3	2.3	2.0	1.7	2.5	2.6
Previous Tealbook	*1.2*	*3.2*	*3.4*	*2.3*	*2.3*	*2.1*	*1.9*	*2.5*	*2.7*
Advanced foreign economies	.2	1.7	2.2	1.3	1.0	1.2	.8	1.6	2.0
Canada	.8	2.2	2.7	1.0	1.0	1.9	1.3	1.8	2.0
Japan	-2.0	-.3	-.3	-.2	1.4	2.5	.7	1.2	2.8
United Kingdom	2.2	3.4	4.6	2.6	2.1	.9	1.1	1.8	2.0
Euro area	.4	2.0	2.9	2.3	.8	.2	.5	1.6	1.7
Germany	.3	1.6	2.6	2.0	1.3	.4	.7	1.7	1.8
Emerging market economies	2.0	4.3	4.3	3.1	3.4	2.7	2.4	3.1	3.1
Asia	1.2	4.3	4.5	2.6	3.1	1.8	1.8	2.8	2.9
Korea	2.4	3.2	3.9	1.7	1.1	1.0	1.8	3.2	3.2
China	.6	4.6	4.6	2.1	2.9	1.5	1.5	2.5	2.5
Latin America	3.9	4.4	4.0	4.3	4.0	4.8	3.4	3.8	3.7
Mexico	4.0	4.3	3.5	4.1	3.7	4.2	2.6	3.3	3.3
Brazil	4.3	5.6	6.7	5.6	5.9	6.5	7.4	5.4	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				2016			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
						Billions of dollars, s.a.a.r.						
U.S. current account balance	**-404.4**	**-389.7**	**-399.5**	**-422.1**	**-433.6**	**-434.0**	**-484.9**	**-533.7**	**-606.7**	**-630.9**	**-690.3**	**-723.6**
Previous Tealbook	*-408.5*	*-393.7*	*-401.0*	*-398.1*	*-363.4*	*-362.3*	*-410.2*	*-455.4*	*-518.1*	*-525.8*	*-576.0*	*-593.1*
Current account as percent of GDP	-2.4	-2.2	-2.3	-2.4	-2.4	-2.4	-2.7	-2.9	-3.3	-3.4	-3.7	-3.8
Previous Tealbook	*-2.4*	*-2.3*	*-2.3*	*-2.2*	*-2.0*	*-2.0*	*-2.2*	*-2.5*	*-2.8*	*-2.8*	*-3.0*	*-3.1*
Net goods & services	-494.1	-520.9	-495.8	-508.1	-487.3	-485.4	-528.2	-577.0	-629.7	-669.8	-720.3	-750.9
Investment income, net	218.2	228.4	245.1	241.1	207.7	186.7	181.2	178.7	177.0	174.2	167.8	162.7
Direct, net	292.8	292.7	311.6	306.1	278.0	260.2	264.9	274.7	288.0	302.2	314.9	329.6
Portfolio, net	-74.6	-64.3	-66.4	-65.0	-70.4	-73.5	-83.7	-96.0	-111.0	-127.9	-147.0	-166.9
Other income and transfers, net	-128.5	-97.2	-148.8	-155.1	-154.0	-135.3	-137.9	-135.5	-154.0	-135.3	-137.9	-135.5

Annual Data

	2009	2010	2011	2012	2013	2014	2015	2016	2017
						Billions of dollars			
U.S. current account balance	**-380.8**	**-443.9**	**-459.3**	**-460.8**	**-400.3**	**-403.9**	**-471.5**	**-662.9**	**-788.2**
Previous Tealbook	*-380.8*	*-443.9*	*-459.3*	*-460.8*	*-400.3*	*-400.3*	*-397.8*	*-553.3*	*-650.6*
Current account as percent of GDP	-2.6	-3.0	-3.0	-2.9	-2.4	-2.3	-2.6	-3.5	-4.0
Previous Tealbook	*-2.6*	*-3.0*	*-3.0*	*-2.9*	*-2.4*	*-2.3*	*-2.2*	*-2.9*	*-3.3*
Net goods & services	-383.8	-494.7	-548.6	-537.6	-476.4	-504.7	-519.5	-692.7	-805.3
Investment income, net	132.3	185.7	229.0	211.4	208.5	233.2	188.6	170.5	157.7
Direct, net	257.7	288.0	298.6	281.6	290.9	300.8	269.5	308.7	378.6
Portfolio, net	-125.4	-102.3	-69.5	-70.2	-82.3	-67.6	-80.9	-138.2	-220.8
Other income and transfers, net	-129.3	-135.0	-139.8	-134.6	-132.4	-132.4	-140.7	-140.7	-140.7

Abbreviations

ABS	asset-backed securities
AFE	advanced foreign economy
BHC	bank holding company
BOC	Bank of Canada
CDS	credit default swaps
CLO	collateralized loan obligation
CMBS	commercial mortgage-backed securities
CPI	consumer price index
CRE	commercial real estate
Desk	Open Market Desk
DNB	Danish National Bank
DSGE	dynamic stochastic general equilibrium
ECB	European Central Bank
EFF	Extended Fund Facility
EME	emerging market economy
FOMC	Federal Open Market Committee; also, the Committee
FRB	Federal Reserve Board
GC	general collateral
GDP	gross domestic product
IMF	International Monetary Fund
JOLTS	Job Openings and Labor Turnover Survey
MBS	mortgage-backed securities
OIS	overnight index swap
ON RRP	overnight reverse repurchase agreement
PCE	personal consumption expenditures
PMI	purchasing managers index
PRISM	Philadelphia Research Intertemporal Stochastic Model
QE	quantitative easing

repo	repurchase agreement
RRP	reverse repurchase agreement
SNB	Swiss National Bank
SOMA	System Open Market Account
S&P	Standard & Poor's
SPF	Survey of Professional Forecasters
TDF	Term Deposit Facility
TIPS	Treasury Inflation-Protected Securities