Prefatory Note

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

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

Content last modified 01/08/2021.

Class II FOMC – Restricted (FR)

Report to the FOMC on Economic Conditions and Monetary Policy

Book A

Economic and Financial Conditions: Current Situation and Outlook

December 9, 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

On balance, the news that we have received since the previous Tealbook has caused us to modestly upgrade our economic outlook. In particular, the recent federal budget deal now points to a somewhat more expansionary stance of fiscal policy than we had been assuming. In addition, the data regarding both labor market conditions and manufacturing activity have been a little better than we anticipated, and the decline in net exports over the second half of the year appears less steep than we had previously expected. However, consumption and investment appear to have been somewhat softer than we had projected. Changes in interest rates, equity prices, and the foreign exchange value of the dollar imply only small adjustments to the outlook for real activity.

All told, we now project that real GDP will increase a little more than 2 percent this year before rising 2½ percent in 2016 and about 2 percent in both 2017 and 2018. At the end of 2018, actual GDP is anticipated to stand 1½ percent above its potential level, ½ percentage point more than in the October Tealbook. Accordingly, we expect the unemployment rate to fall a bit more rapidly, reaching 4½ percent in 2018, ¼ percentage point below our previous forecast.

Turning to inflation, we have revised down our near-term projection a little in response to further declines in crude oil prices and import prices as well as to soft incoming data on core PCE prices. But we project that total PCE inflation will move up gradually, reaching 2 percent in 2018, as energy prices bottom out and start to increase moderately, import prices turn back up, and resource utilization tightens further in an environment of stable long-term inflation expectations.

We address our assessment of the extent and balance of risks to the outlook in the Risks and Uncertainty section.

Domestic Econ Devel & Outlook

Revisions to the Staff Projection since the Previous SEP

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

Our forecast for real GDP growth in the second half of the year is unrevised from September, but our projection for 2016 is somewhat stronger, largely reflecting the anticipated boost to real activity from the recent federal budget deal. Beyond 2016, our forecast for real GDP growth is little revised. Altogether, our projection for the GDP gap over the projection period is stronger than in the September Tealbook. The unemployment rate has declined as we expected in September and is projected to average 5.0 percent in the fourth quarter of this year. The unemployment rate is forecast to gradually decline to 4.5 percent at the end of 2018, further below the staff's estimate of its natural rate than in the September forecast.

The staff's projection for headline PCE inflation has been revised up in the second half of this year, largely reflecting a slower-than-expected pass-through of the summer's crude oil price declines into consumer energy prices; with data through October, core PCE inflation over the second half of the year appears to be running just a shade above the September projection. Given our assumptions that longer-run inflation expectations will remain stable over the medium term, the declines in energy prices will be transitory, and core import prices will start to rise by the middle of next year, our forecasts for headline and core inflation are little changed beyond the near term. We continue to project that inflation will move up toward the Committee's 2 percent objective very gradually.

Staff Economic Projections Compared with the September Tealbook

Variable	2015 H1	2015 H2	2015	2016	2017	2018	Longer run
Real GDP[1]	2.3	1.9	2.1	2.5	2.0	1.9	1.9
September Tealbook	2.2	1.9	2.0	2.1	2.0	1.8	1.9
Unemployment rate[2]	5.4	5.0	5.0	4.7	4.6	4.5	5.1
September Tealbook	5.4	5.0	5.0	4.9	4.8	4.7	5.1
PCE inflation[1]	.1	.7	.4	1.2	1.8	2.0	2.0
September Tealbook	.1	.4	.3	1.5	1.7	1.9	2.0
Core PCE inflation[1]	1.4	1.3	1.3	1.4	1.7	1.9	n.a.
September Tealbook	1.4	1.2	1.3	1.4	1.7	1.9	n.a.
Federal funds rate[2]	.12	.18	.18	1.44	2.53	3.42	3.25
September Tealbook	.12	.45	.45	1.44	2.31	3.00	3.25
Memo:							
Federal funds rate, end of period	.13	.25	.25	1.54	2.62	3.48	3.25
September Tealbook	.13	.55	.55	1.52	2.38	3.05	3.25
GDP gap[2,3]	-.5	-.1	-.1	.8	1.3	1.5	n.a.
September Tealbook	-.5	-.2	-.2	.4	.8	.9	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.

We now assume that the federal funds rate will lift off from its effective lower bound in the fourth quarter of this year, one quarter later than in the September forecast. The federal funds rate is still assumed to rise gradually, but the stronger GDP gap in the current forecast, along with an inflation projection that is little changed, leaves the projected path for the federal funds rate a bit steeper than in the September forecast. At the end of 2018, the federal funds rate is assumed to be 3.5 percent, about ½ percentage point higher than in the September Tealbook and about ¼ percentage point above the staff's assumption for its longer-run nominal value.

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 fourth 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 5.0 percent and the trailing four-quarter change in real GDP to be 2.1 percent. We project the trailing four-quarter change in core PCE inflation to be 1.3 percent and the four-quarter change in headline PCE prices to be only 0.4 percent because of decreases in energy prices over the past year.

Staff Economic Projections Compared with the September Tealbook, Quarterly

Variable	2015		2016				2017	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Four-quarter percent change								
Real GDP	2.2	2.1	2.4	2.1	2.3	2.5	2.4	2.3
September Tealbook	2.1	2.0	2.4	1.9	1.9	2.1	2.0	2.0
PCE inflation	.3	.4	.9	.7	.8	1.2	1.6	1.7
September Tealbook	.2	.3	1.1	1.0	1.0	1.5	1.6	1.7
Core PCE inflation	1.3	1.3	1.4	1.3	1.3	1.4	1.5	1.5
September Tealbook	1.3	1.3	1.4	1.3	1.4	1.4	1.5	1.6
Percent								
Unemployment rate	5.1	5.0	4.9	4.8	4.8	4.7	4.7	4.6
September Tealbook	5.2	5.0	5.0	5.0	4.9	4.9	4.9	4.8
Federal funds rate	.14	.18	.52	.82	1.13	1.44	1.72	2.00
September Tealbook	.16	.45	.74	.98	1.21	1.44	1.67	1.89
Memo								
Federal funds rate, end of period	.14	.25	.64	.92	1.23	1.54	1.82	2.09
September Tealbook	.22	.55	.83	1.06	1.29	1.52	1.74	1.96

Comparing the Staff Projection with Other Forecasts

The staff's projection for real GDP growth in 2015 and 2016 is just a little below the Blue Chip consensus forecast and the median projection from the Survey of Professional Forecasters. The staff's forecast for unemployment is similar to the others. Its inflation projections are somewhat lower, particularly in 2016.

Comparison of Tealbook and Outside Forecasts

	2015	2016	2017
GDP (Q4/Q4 percent change)			
December Tealbook	2.1	2.5	2.0
Blue Chip (12/10/15)	2.2	2.6	n.a.
SPF median (11/13/15)	2.3	2.6	n.a.
Unemployment rate (Q4 level)			
December Tealbook	5.0	4.7	4.6
Blue Chip (12/10/15)	5.0	4.6	n.a.
SPF median (11/13/15)	5.0	4.7	n.a.
Consumer price inflation (Q4/Q4 percent change)			
December Tealbook	0.4	1.6	2.3
Blue Chip (12/10/15)	0.5	2.1	n.a.
SPF median (11/13/15)	0.6	2.0	2.3
PCE price inflation (Q4/Q4 percent change)			
December Tealbook	0.4	1.2	1.8
SPF median (11/13/15)	0.6	1.8	1.9
Core PCE price inflation (Q4/Q4 percent change)			
December Tealbook	1.3	1.4	1.7
SPF median (11/13/15)	1.4	1.6	1.8

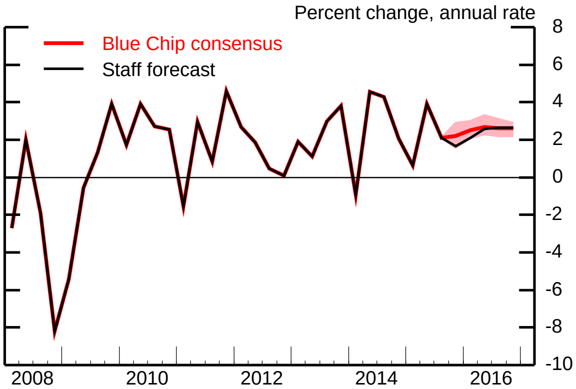
Note: SPF is the Survey of Professional Forecasters. Blue Chip does not provide results for PCE price inflation. The Blue Chip consensus forecast contains about 50 panelists, and the SPF about 40. Roughly 20 panelists contribute to both surveys.

n.a. Not available

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

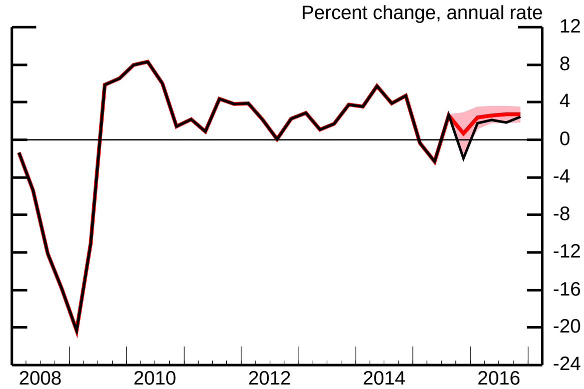
Tealbook Forecast Compared with Blue Chip
(Blue Chip survey released December 10, 2015)

Real GDP

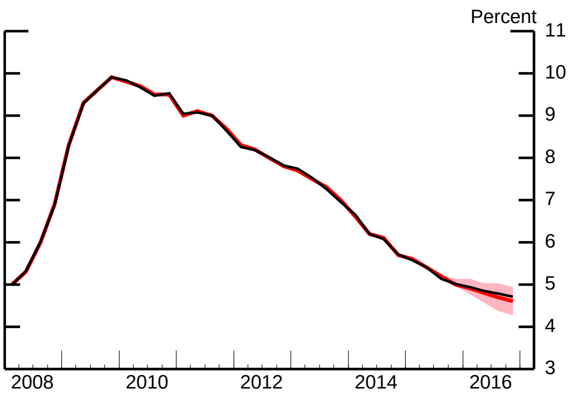


Note: The shaded area represents the area between the Blue Chip top 10 and bottom 10 averages.

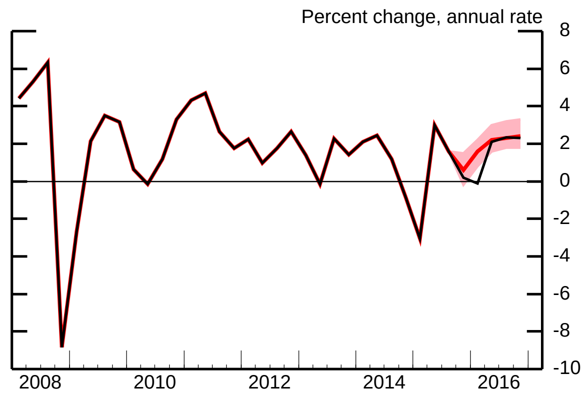
Industrial Production



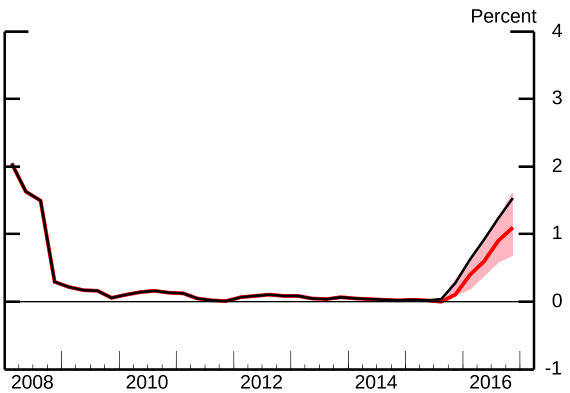
Unemployment Rate



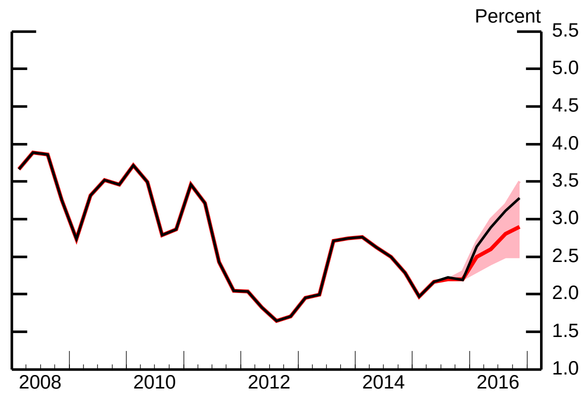
Consumer Price Index



Treasury Bill Rate



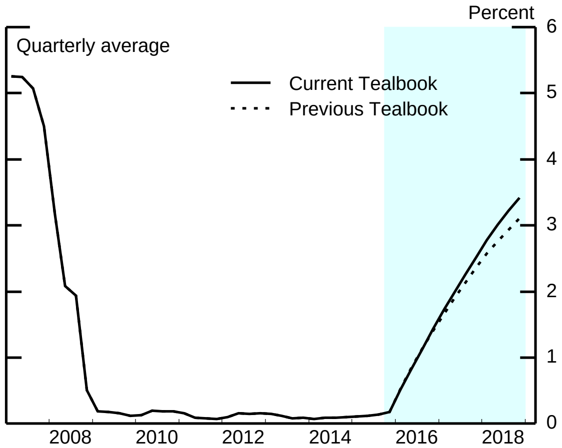
10-Year Treasury Yield



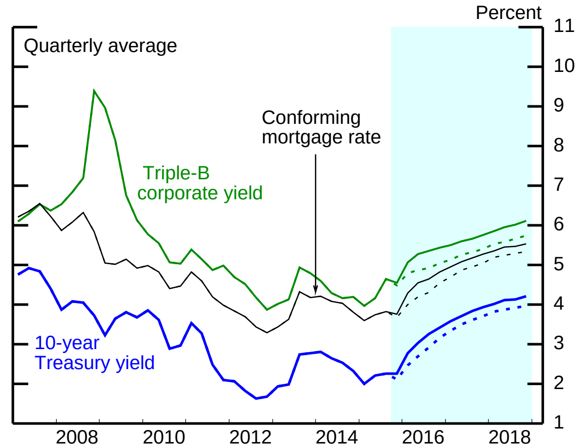
Note: The yield is for on-the-run Treasury securities. Over the forecast period, the staff's projected yield is assumed to be 15 basis points below the off-the-run yield.

Key Background Factors underlying the Baseline Staff Projection

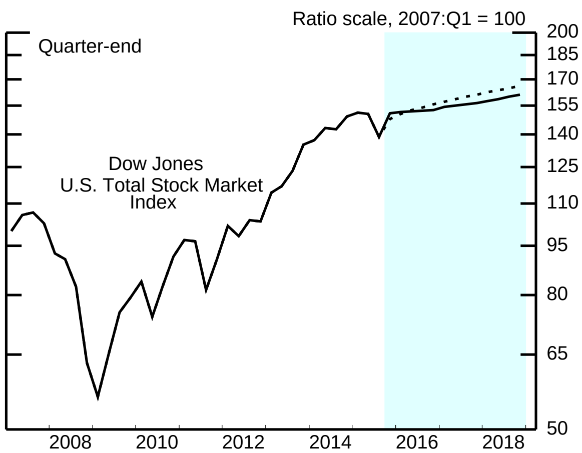
Federal Funds Rate



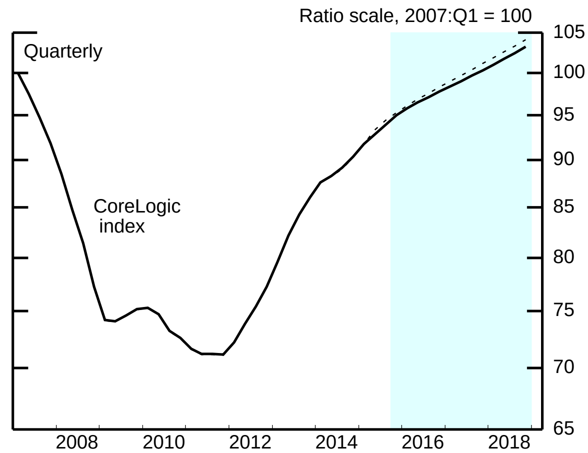
Long-Term Interest Rates



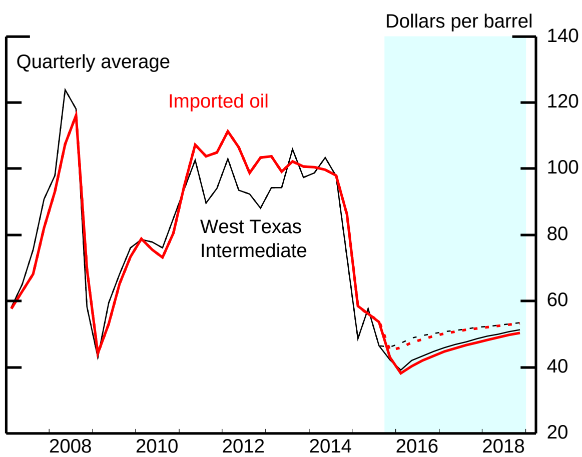
Equity Prices



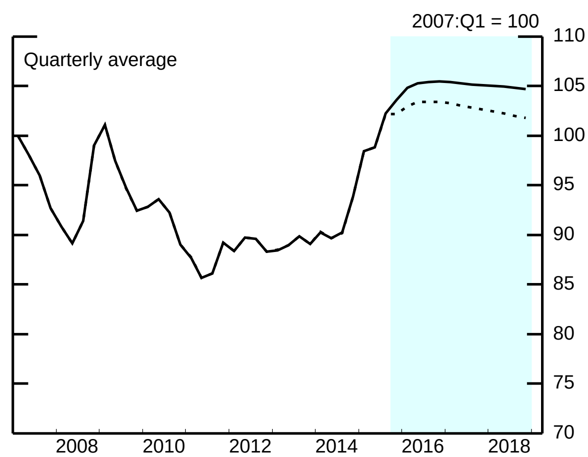
House Prices



Crude Oil Prices



Broad Real Dollar



KEY BACKGROUND FACTORS

Monetary Policy

- We continue to assume that the federal funds rate will lift off from its effective lower bound following the December meeting and that it will be governed thereafter by an inertial version of the Taylor (1999) policy rule.[1] Largely reflecting the tighter resource utilization in this projection, the path of the federal funds rate is somewhat higher than in the October Tealbook, reaching an average of 3.4 percent in the fourth quarter of 2018.

- The SOMA portfolio is assumed to remain at its current size until June 2016, at which point reinvestment of maturing assets is terminated and, accordingly, the portfolio begins to contract.

Other Interest Rates

- Our projection continues to call for the 10-year Treasury yield to rise significantly, reflecting the movement of the 10-year valuation window through the period of extremely low short-term interest rates as well as the increase in the term premium toward its historically normal level. Compared with the October Tealbook, the 10-year Treasury yield is somewhat higher in the medium term, in line with the higher future expected short-term rates over the valuation horizon.

- We revised the paths for the 30-year mortgage rate and the 10-year triple-B corporate bond rate approximately in line with the revision to Treasury yields.

Equity Prices and Home Prices

- Although equity prices have risen a little more in recent weeks than we had anticipated, our projected path for equity prices is revised down a bit relative to the October Tealbook. This revision mostly reflects the higher path of Treasury yields. In all, stock prices are projected to rise about 2 percent per

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[1] Model simulations can provide a sense of the sensitivity of the outlook to the liftoff assumption. For example, if we assume that the federal funds rate lifts off two meetings later (that is, after the March 2016 meeting), the FRB/US model would project that the level of real GDP is 0.2 percent higher by the end of 2018, the unemployment rate is less than 0.1 percentage point lower, core inflation is 2 basis points higher, and the federal funds rate is 8 basis points higher. One reason for these very small deviations is that the simulation implicitly assumes that the public does not draw any inference from the delayed liftoff regarding the monetary policymakers' reaction function, the outlook for economic activity, or inflation.

year on average. By the end of the medium-term forecast, the equity premium is projected to be close to the historical mean of its distribution conditional on the unemployment rate.

- We expect house prices to rise about 5¼ percent this year and around 2¾ percent per year over the medium term; we have revised down our expectations slightly in light of the news during the intermeeting period. One simple model of housing valuation that we monitor suggests that housing is currently overvalued by 7 percent, compared with more than 40 percent a decade ago.[2] Our forecast has rents rising slightly faster than house prices, bringing this valuation measure back toward neutral.

Fiscal Policy

- We now assume that fiscal policy will be somewhat more expansionary than in our previous projection, largely reflecting the Bipartisan Budget Act of 2015. The agreement, which was signed into law in early November, raises the debt ceiling through March 2017 and sets government spending for fiscal years 2016 and 2017 at higher levels than we had previously assumed. In reaction to the agreement, we have also pushed up our assumptions for the level of federal spending in fiscal 2018 on our expectation that another agreement will be reached then. All told, we now expect fiscal policy actions at all levels of government to provide a moderate stimulus in calendar-year 2016 as federal spending ramps up to the higher level set by the recent legislation. In 2017 and 2018, we expect fiscal policy to provide a small boost to the growth of real GDP.[3]

- The Congress must still pass appropriation bills by December 11 to avoid a government shutdown. We continue to assume that this deadline will be navigated without significant disruptions to government operations.[4]

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[2] The model assesses the price-to-rent ratio against costs of housing investment (such as interest rates) and a linear trend that may reflect challenges associated with measuring house prices and rents.

[3] Specifically, we now project fiscal impetus to be 0.4 percentage point in 2016 (up from 0.2 percentage point in the October Tealbook) and 0.2 percentage point in both 2017 and 2018.

[4] A short-term shutdown of the federal government would have only minor implications for the outlook. For example, the staff estimates that the 16-day shutdown in October 2013 reduced real GDP growth by ¼ percentage point in the fourth quarter of that year and boosted it by an equal amount in the

Foreign Economic Activity and the Dollar

- We estimate that foreign real GDP growth picked up to an annual rate of 2½ percent in the third quarter, a touch higher than our projection in the October Tealbook, from a subdued 1¼ percent pace in the second quarter. In particular, growth in many emerging market economies stepped up, and real GDP in Canada rebounded after a sharp fall in oil-industry investment caused GDP to decline in the first half of the year. We see growth abroad rising to about 3 percent by the end of 2016 and then staying at about that pace through 2018, supported by accommodative monetary policies, depreciated currencies, and low oil prices. This forecast is little changed from our projection in the October Tealbook.

- The broad nominal dollar has appreciated 2¾ percent, on net, since the time of the October Tealbook. The dollar strengthened against most currencies, reflecting recent ECB policy actions, firming expectations of Federal Reserve liftoff, and declines in commodity prices that weighed on commodity exporters. We expect the nominal dollar to rise a bit further through the first quarter of next year—pushed up by monetary policy actions in the United States and by continued accommodation by foreign central banks—and then to be little changed over the medium term. Beyond the current quarter, our path for the broad real dollar is about 2¼ percent higher than in the previous Tealbook.

Oil Prices and Other Commodity Prices

- Oil prices ratcheted down as crude inventories continued to build in the face of relatively resilient production and as OPEC reaffirmed its plans to maintain robust production. The spot price of Brent crude oil is down $8 per barrel relative to the October Tealbook, while prices for futures contracts with delivery at the end of 2018 have fallen about $4 per barrel. We now expect the price of imported oil to fall early next year to $38 per barrel, a price that has not been seen for a decade. Thereafter, we expect the price of imported oil to rise over the forecast period to about $50 per barrel by the end of 2018.

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following quarter. This calculation embodies our judgment that there were no material effects on private investment or consumption owing to reduced confidence or increased uncertainty.

Federal Reserve System Nowcasts of 2015:Q4 Real GDP Growth
(Percent change at annual rate from previous quarter)

Federal Reserve entity	Type of model	Nowcast as of Dec. 8, 2015
Federal Reserve Bank		
New York	• Factor-augmented autoregressive model combination	1.9
	• Factor-augmented autoregressive model combination, financial factors only	2.0
	• Dynamic factor model	1.4
Cleveland	• Bayesian regressions with stochastic volatility	2.0
	• Tracking model	1.3
Atlanta	• Tracking model combined with Bayesian vector autoregressions (VARs), dynamic factor models, and factor-augmented autoregressions (known as GDPNow)	1.5
Chicago	• Dynamic factor models	2.0
	• Bayesian VARs	1.8
St. Louis	• Dynamic factor models	2.2
	• News index model	2.8
	• Let-the-data-decide regressions	1.8
Minneapolis	• Bayesian VARs	2.7
Kansas City	• Accounting-based tracking estimate	1.9
Board of Governors	• Board staff's forecast (judgmental tracking model)[1]	1.7
	• Dynamic factor models	1.8
Memo: Median of Federal Reserve System nowcasts		1.9

1. The December Tealbook forecast, finalized on December 9, is also 1.7 percent.

- A price index for a broad selection of industrial metals has declined about 9 percent since the October Tealbook. Although recent dollar appreciation and ample supply have weighed on metals prices, the decline in prices likely also reflects market participants' pessimism regarding global metals demand. In line with the futures markets, we project metal prices to be little changed going forward.

THE OUTLOOK FOR REAL GDP

The latest available information is consistent with real GDP growth averaging about 2 percent at an annual rate in the second half of this year and the first quarter of next year—marginally better than we anticipated in the October Tealbook and modestly faster than potential GDP growth. The latest data on consumer and business spending have come in below our expectations, on balance, but net exports appear to have exerted less restraint in the second half of the year than we anticipated. Meanwhile, the passage of the Bipartisan Budget Act of 2015 should boost federal spending in the near term.[5]

- The recent data on consumer spending point to slightly slower growth this quarter.[6] Although motor vehicle sales in October and November were more robust than we had projected, non-motor-vehicle retail sales rose less than expected in October, and unseasonably warm weather pushed down our forecast of spending on energy services in the current quarter. Altogether, real PCE is projected to rise at an annual rate of 2½ percent in the fourth quarter—about ½ percentage point less than in the October Tealbook—after increasing 3 percent in the third quarter. We expect real PCE growth to step up to 3½ percent next quarter as spending gains return to levels consistent with household incomes, wealth, and consumer sentiment, and as weather is assumed to return to normal.

[5] As displayed in the table "Federal Reserve System Nowcasts of 2015:Q4 Real GDP Growth," the median of the projections generated by the near-term forecasting approaches used within the System, at 1.9 percent, is about ¼ percentage point higher than the staff's judgmental projection. By comparison, the standard error from the Board staff's dynamic factor model is nearly 1½ percentage points.

[6] The Quarterly Services Survey (for the third quarter) will be released on December 10, and the advance retail sales report (for November) will be released on December 11.

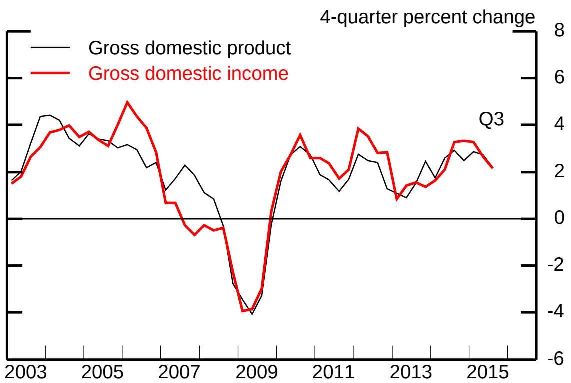
Summary of the Near-Term Outlook
(Percent change at annual rate except as noted)

Measure	2015:Q3 Previous Tealbook	2015:Q3 Current Tealbook	2015:Q4 Previous Tealbook	2015:Q4 Current Tealbook	2016:Q1 Previous Tealbook	2016:Q1 Current Tealbook
Real GDP	**1.4**	**2.1**	**2.1**	**1.7**	**2.0**	**2.1**
Private domestic final purchases	3.8	3.3	2.9	2.8	3.6	3.2
Personal consumption expenditures	3.2	3.0	2.8	2.4	3.2	3.4
Residential investment	7.4	8.5	.9	5.0	11.5	5.7
Nonres. private fixed investment	6.4	3.3	4.0	4.6	3.6	1.6
Government purchases	.7	1.8	.2	.5	.0	3.0
Contributions to change in real GDP						
Inventory investment[1]	-1.4	-.8	.4	-.3	.2	.2
Net exports[1]	-.6	-.2	-.7	-.5	-1.3	-1.3
Unemployment rate	**5.1**	**5.1**	**5.0**	**5.0**	**5.0**	**4.9**
PCE chain price index	**1.3**	**1.3**	**.4**	**.0**	**.8**	**.0**
Ex. food and energy	1.4	1.3	1.4	1.2	1.5	1.4

1. Percentage points.

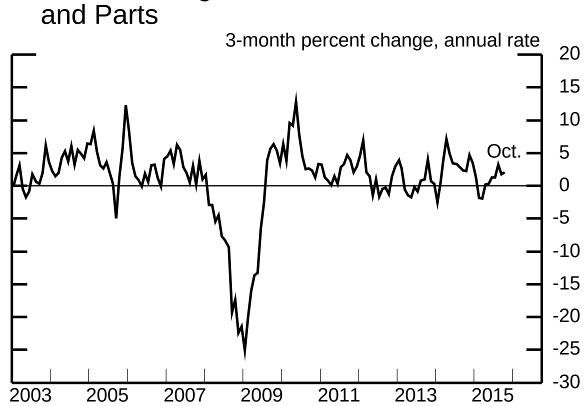
Recent Nonfinancial Developments (1)

Real GDP and GDI



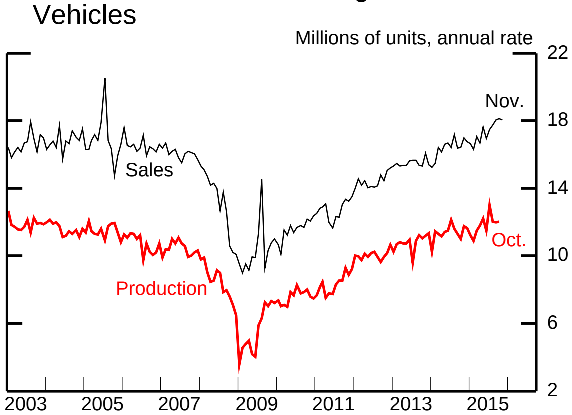
Source: U.S. Dept. of Commerce, Bureau of Economic Analysis.

Manufacturing IP ex. Motor Vehicles and Parts



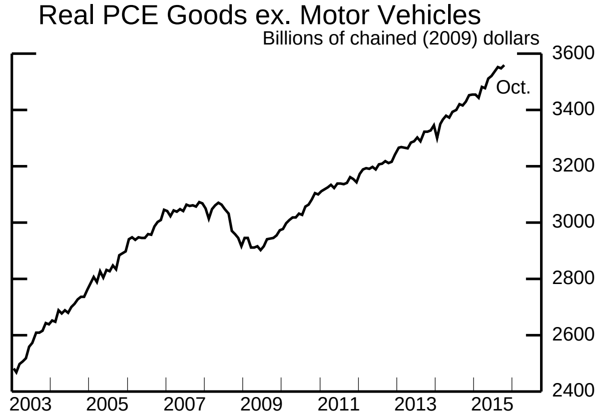
Source: Federal Reserve Board, G.17 Statistical Release, "Industrial Production and Capacity Utilization."

Sales and Production of Light Motor Vehicles



Source: Ward's Communications; Chrysler; General Motors; FRB seasonal adjustments.

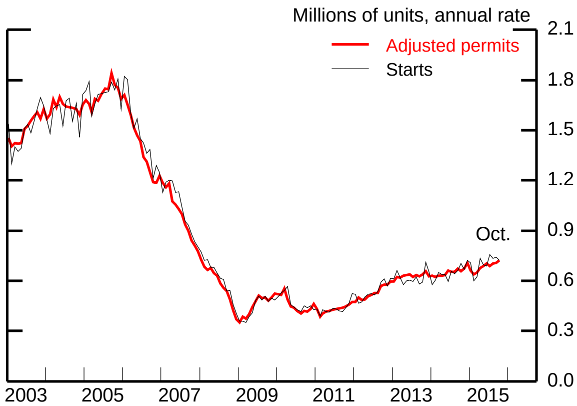
Real PCE Goods ex. Motor Vehicles



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

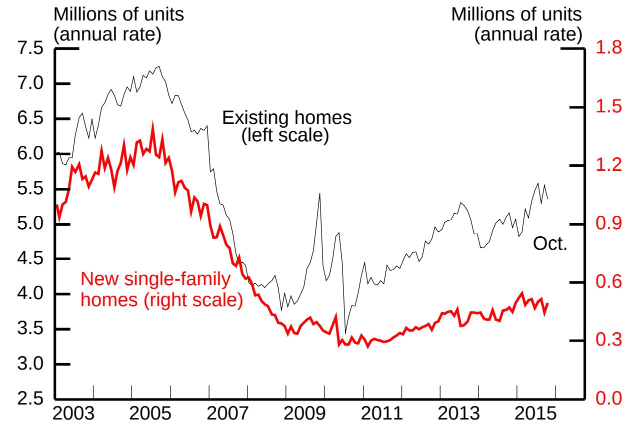
Recent Nonfinancial Developments (2)

Single-Family Housing Starts and Permits



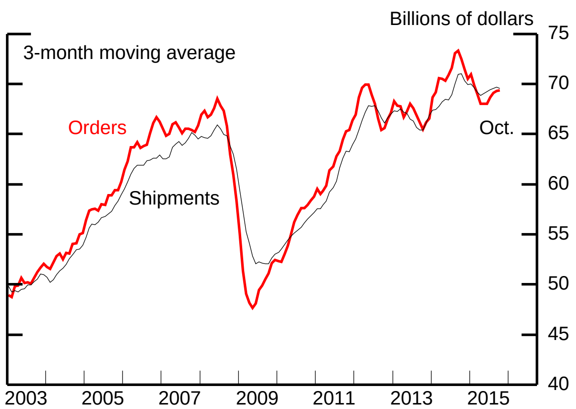
Note: Adjusted permits equal permit issuance plus total starts outside of permit-issuing areas.
Source: U.S. Census Bureau.

Home Sales



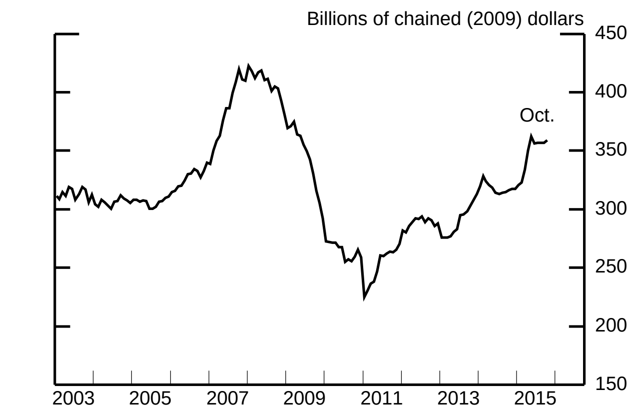
Source: For existing, National Association of Realtors; for new, U.S. Census Bureau.

Nondefense Capital Goods ex. Aircraft



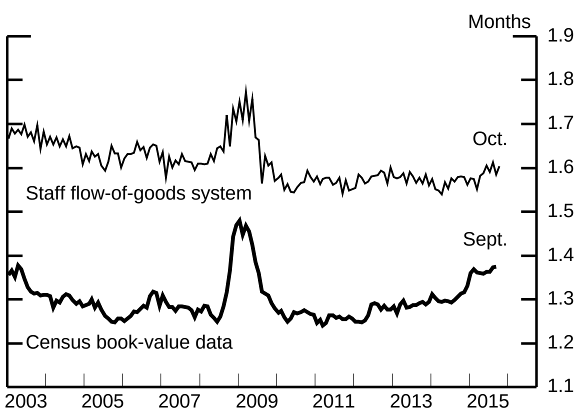
Source: U.S. Census Bureau.

Nonresidential Construction Put in Place



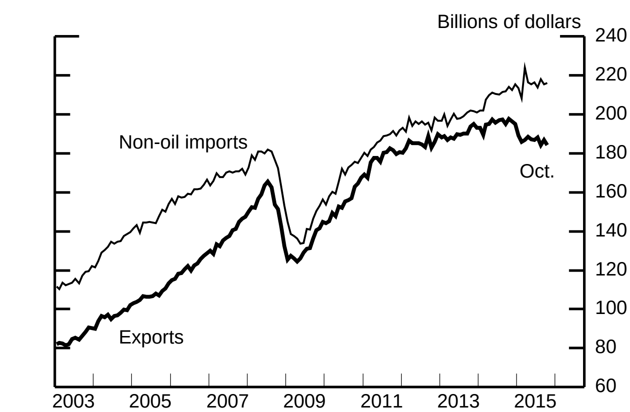
Note: Nominal CPIP deflated by BEA prices through 2015:Q2 and by the staff's estimated deflator thereafter.
Source: U.S. Census Bureau.

Inventory Ratios



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

Exports and Non-oil Imports



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

- The incoming data on housing activity—particularly information on housing starts and permits—indicate that the sector continues to recover only slowly from its very subdued levels of recent years.

- Business fixed investment looks set to average a moderate rate of growth of 4 percent over the second half of this year and then decelerate to about 1½ percent in the first quarter of next year. Outlays for transportation equipment are projected to decline in the near term following an outsized increase in spending in the third quarter, but spending on other equipment and intangibles is expected to rise at a solid pace. Meanwhile, drilling and mining investment continues to decline sharply, as depressed energy prices weigh on activity.

- We continue to expect inventory investment to subtract roughly ½ percentage point from output growth in the second half of 2015 after boosting activity by a similar amount during the first half. Data for the third quarter indicate that the correction in inventory investment was somewhat less frontloaded than anticipated at the time of the October Tealbook, leading us to now expect inventories to provide a small drag on growth this quarter. (See the box "The Near-Term Outlook for Business Inventories.")

- After having subtracted almost 1 percentage point from GDP growth in the first half of this year, net exports are projected to take a little less than ½ percentage point off growth in the second half. The expected drag from net exports in the second half is less negative than projected in the October Tealbook, as the data on imports in September and October were surprisingly weak, particularly for imported inputs related to oil drilling and extraction. But we view that slowdown in the growth of imports as transitory, and net exports are expected to be a much larger drag on GDP growth next year.

- Turning to the industrial sector, the sustained and sizable reductions in the drilling of oil and gas wells and declines in the extraction of crude oil continue to weigh on mining activity; they also are having some negative upstream effects on manufacturing. Nevertheless, overall manufacturing production was appreciably stronger than we had anticipated in October, and the available information for November suggests factory output rose again last month. As a result, we now expect manufacturing IP to increase just under 1½ percent in the fourth and the first quarters, a modest pace but more than 1 percentage point higher than we had previously projected. This tepid gain is broadly consistent with the subdued readings of the national and regional manufacturing surveys.

In the medium term, real GDP growth is projected to run modestly ahead of our estimate of its potential. Specifically, we project real GDP to increase 2½ percent in 2016 and then step down to a 2 percent pace in 2017 and 2018 as monetary accommodation wanes.

- Our forecast for output growth over the next three years is slightly faster than in the October Tealbook, with the projected level of real GDP at the end of 2018 about ½ percent higher than in our previous forecast. The upward revision largely reflects the more expansionary fiscal policy built into this projection.

- This projection also incorporates upward revisions to personal income and a lower path for oil prices, but the small positive impetus from these factors is roughly offset by a higher path for the dollar, weaker equity prices, and higher interest rates.[7]

- Although we still expect housing construction to continue to move up toward a level more consistent with our estimate of its demographically driven trend, we have pushed some of the projected expansion from 2016 into 2017 and 2018.

- As in previous Tealbooks, we expect above-trend growth in aggregate demand to be led by additional solid gains in consumer spending. As labor markets improve further, we project real personal income to continue to rise faster than potential output. In addition, lagged effects of earlier increases in the wealth-to-income ratio are anticipated to lead to spending growth that modestly exceeds income growth.

[7] Wage and salary income revised up about $62 billion in the second quarter of this year, as the BEA incorporated data from the Quarterly Census of Employment and Wages.

The Near-Term Outlook for Business Inventories

In the first half of 2015, inventory investment contributed roughly ½ percentage point to the annual rate of increase in real GDP. Although incoming data show stockbuilding as having slowed in the third quarter (and therefore as having been a substantial drag on GDP growth), inventory investment remained elevated by recent historical standards and was above our projection in the October Tealbook (figure 1).

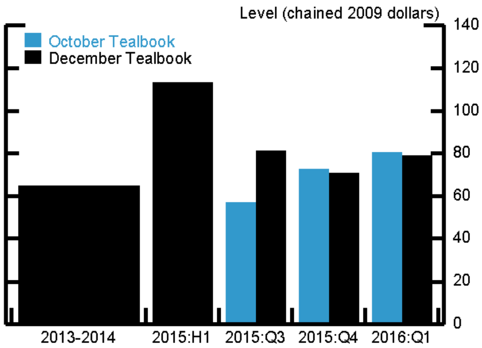
We view the near-term outlook for inventories with some unease. The growth of inventory stocks tends to move roughly in line with that of domestic final sales (figure 2). For the past several quarters, however, inventories are estimated to have increased faster than final demand, giving rise to the concern that at least some of the recent buildup in stocks may have been undesired.

Although the signals from the information the staff uses to assess the state of business inventories are mixed, inventory imbalances do not appear to be widespread. To be sure, the ratio of manufacturing and trade inventories to final sales has moved up noticeably so far this year, and a similarly broad measure from the staff's flow-of-goods (FOG) inventory system, which captures inventory stocks held at all stages of the distribution chain, has also risen (figure 3). However, within the FOG system, detailed industry estimates indicate that, on net, the rise has been in the energy sector, where crude oil stocks have expanded (figure 4). Elsewhere, the days' supply of inventories has remained in the middle of its range since 2010.

Other indicators of the inventory situation also paint a varied picture. For example, the days' supply of motor vehicles appears at the low end of its range of recent years (figure 5). The latest readings from the Institute for Supply Management's manufacturing survey indicate that a plurality of respondents viewed their customers' inventories as too high, and all previous readings above 50 for this question (dating back to 1996) have been associated with inventory corrections (figure 6). Even so, manufacturers already appear to have made progress in aligning their own inventory stocks with sales, as in the same survey, the own-inventory diffusion index has registered below 50 for five straight months.

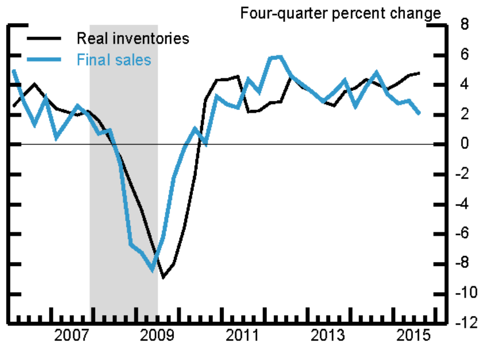
Taken as a whole, we do not see the evidence as portending an abrupt slowing in inventory investment, but the elevated pace of accumulation over the past year presents some downside risk to our near-term GDP forecast. Our Tealbook projection expects inventory investment to level off and to be a roughly neutral influence on GDP growth in the next few quarters. However, if much of the buildup in recent quarters was undesired, the pace of accumulation could slow further and continue to be a drag on GDP growth.

Figure 1. Real Inventory Investment



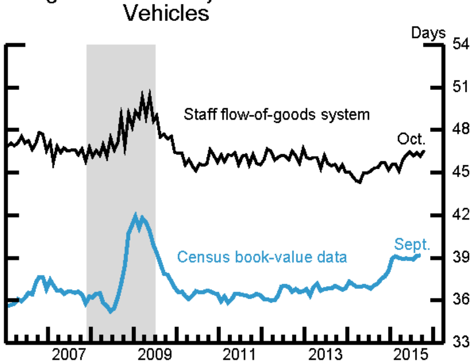
Source: U.S. Dept. of Commerce, Bureau of Economic Analysis; staff projections.

Figure 2. Inventories and Final Sales



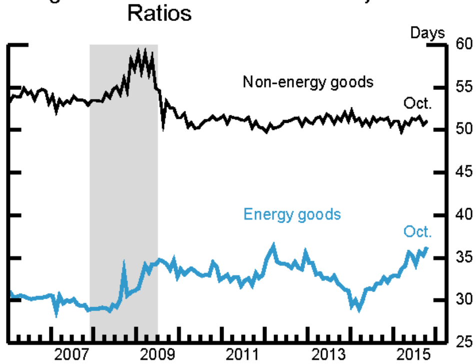
Note: Final sales includes goods and structures and excludes services.
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Figure 3. Inventory Ratios Ex. Motor Vehicles



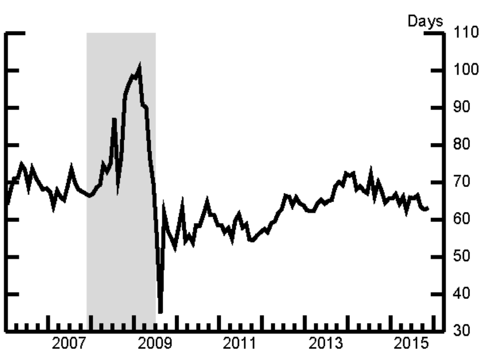
Note: Flow-of-goods inventories include manufacturing and mining industries and are relative to consumption. Census data cover manufacturing and trade, and inventories are relative to sales.
Source: U.S. Census Bureau; staff calculations.

Figure 4. Flow-of-Goods Inventory Ratios



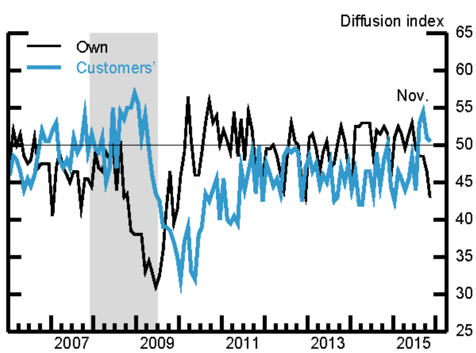
Source: Staff calculations.

Figure 5. Motor Vehicles Days' Supply



Source: Ward's Communications; staff seasonal factors.

Figure 6. Inventory Diffusion Indexes



Note: For own inventories, a number below 50 indicates inventories are contracting. For customers' inventories a number below 50 indicates inventories are "too low."
Source: Institute for Supply Management (ISM), Manufacturing ISM Report on Business.

Note: Gray shaded bars in all charts indicate a period of business recession as defined by the National Bureau of Economic Research.

- As monetary policy tightens, both consumer and business spending are expected to decelerate. This deceleration is partially offset by a diminishing drag from net exports on GDP growth as the effects of the past appreciation of the dollar fade.

The Outlook for the Labor Market and Aggregate Supply

Taken together, the two employment reports that we have received since the October Tealbook indicate that the labor market has improved a little more than we had projected. In particular, job gains have come in above our expectations, while readings from the household survey were about in line with our October projection.

- Total nonfarm payrolls rose at an average pace of 250,000 per month in October and November, about 70,000 above our previous projection and up from the average pace of 170,000 per month in the third quarter. We now project payroll employment to rise 210,000 per month through the first quarter of next year—about 35,000 per month faster than we projected in the October Tealbook.

- The unemployment rate came in at 5.0 percent in October and November. In light of the greater momentum in the labor market indicated by the payroll survey, we now expect the unemployment rate to edge down to 4.9 percent in December and to remain there through the first quarter—0.1 percentage point lower than in the October Tealbook.

- The labor force participation rate was little changed in the past two months after having fallen through the summer. We continue to expect the participation rate to hold at 62.5 percent through the near term.

- Other indicators of labor market slack also improved over the intermeeting period. The share of employed individuals working part time for economic reasons declined 0.2 percentage point, on net, over the past three months and has fallen about ½ percentage point over the past year. In addition, the share of long-term unemployed edged down further.

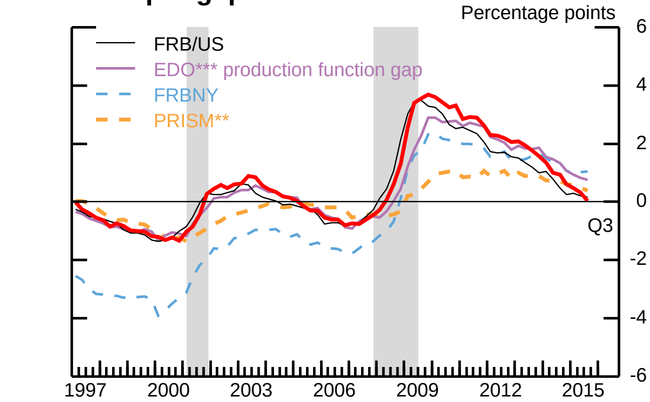
- The staff's labor market conditions index (LMCI) provides an alternative, strictly mechanical assessment of the change in labor market conditions. The LMCI registered a small gain in November, chiefly reflecting the increase in

Domestic Econ Devel & Outlook

Alternative Measures of Slack

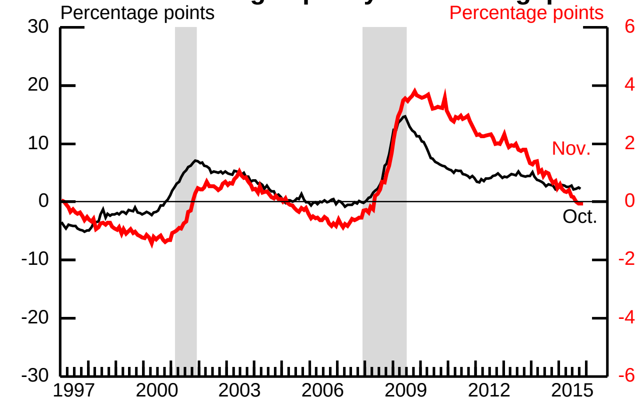
The red line in each panel is the staff's measure of the unemployment rate gap (right axis).

Output gaps*



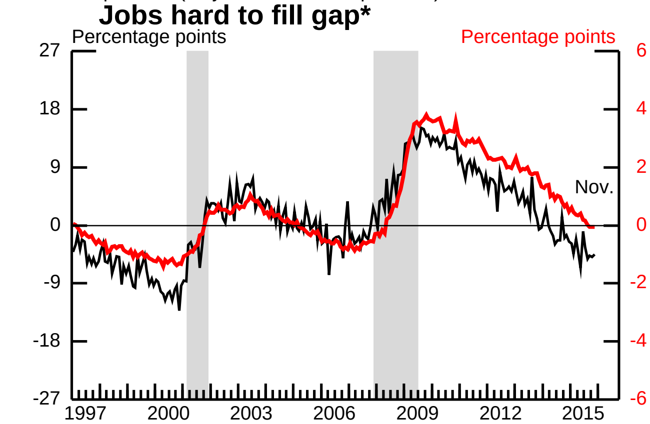
** PRISM uses a flex-price output gap.
*** EDO is Estimated, Dynamic, Optimization-based model.
Source: Federal Reserve Board; PRISM: Federal Reserve Board Bank of Philadelphia, PRISM Model Documentation (June 2011); FRBNY: Federal Reserve Bank of New York Staff Report 618 (May 2013, revised April 2014).

Manufacturing capacity utilization gap*



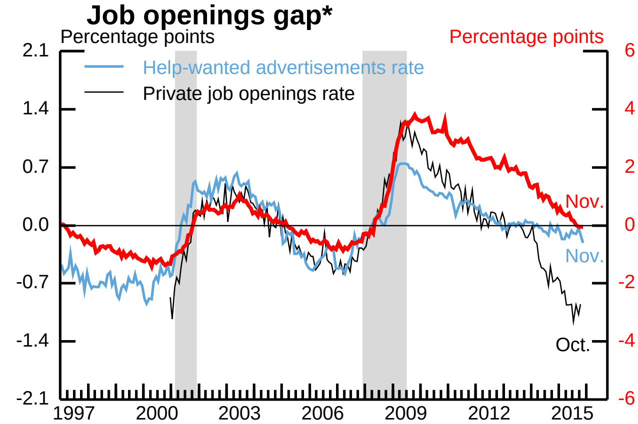
Source: Federal Reserve Board.

Jobs hard to fill gap*



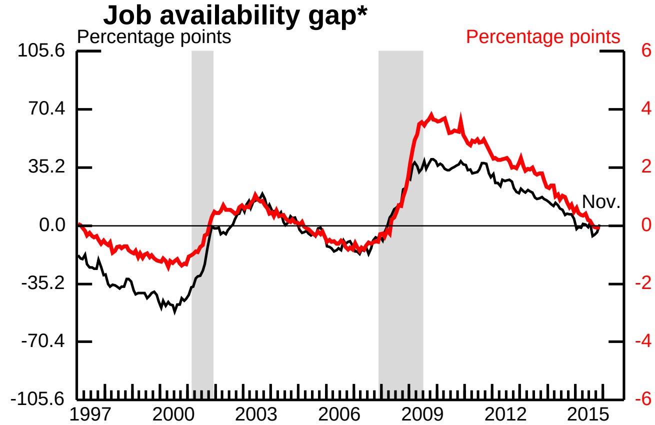
Note: Percent of small businesses surveyed with at least one "hard to fill" job opening. Seasonally adjusted by Federal Reserve Board Staff.
Source: National Federation of Independent Business, Small Business Economic Trends Survey.

Job openings gap*



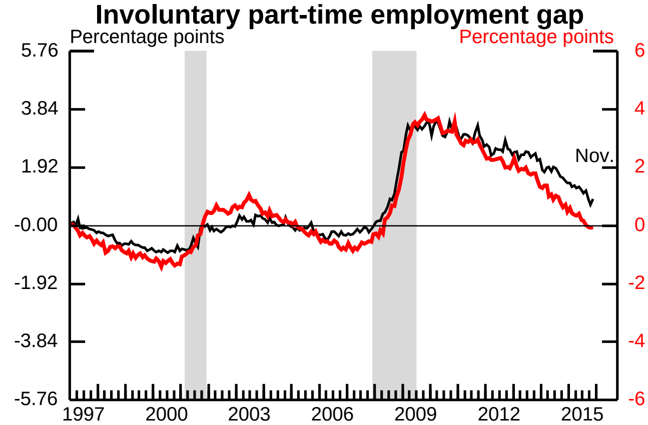
Note: Job openings rate is the number of job openings divided by employment plus job openings.
Source: Job Openings and Labor Turnover Survey; U.S. Department of Labor, Bureau of Labor Statistics, Current Employment Statistics.

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.

private payroll employment. The statistical machinery was disappointed by the unemployment rate and a variety of readings from consumer and business surveys.

- Since the September Tealbook—the last time we adjusted our supply-side assumptions—the participation rate has come in lower than we expected. As a result, we lowered a little further our estimate of trend labor force participation. Because we saw no puzzle in the relationship between GDP and the unemployment rate, we did not allow this adjustment to show through to potential output.

Given the upward revisions to the GDP projection and with potential output unrevised, the medium-term outlook for the labor market is somewhat stronger than in our previous projection.

- We expect that GDP will exceed its potential level by 1½ percent at the end of the medium term, ½ percentage point more than in the October Tealbook.

- With output increasing faster than its potential rate, the unemployment rate moves down further, reaching 4½ percent by 2018, roughly ¼ percentage point lower than in the October Tealbook and a little more than ½ percentage point below our estimate of its natural rate.

- At 210,000, the average pace of monthly payroll gains this year has been surprisingly strong relative to GDP growth. We expect job gains to slow over the projection period to roughly 120,000 per month in 2018.

- Although the unemployment rate in October and November was slightly below our estimate of its natural rate, we continue to believe that a modest amount of slack remains in the labor market. This judgment reflects our view that the labor force participation rate is still unusually low relative to its trend (our small revisions to this trend estimate notwithstanding), and that the level of involuntary part-time employment remains somewhat elevated. As labor demand improves further, we expect additional individuals to be drawn into the labor force and the rate of involuntary part-time employment to move down, slowing the decline in the unemployment rate relative to the improvement in the output gap.

THE OUTLOOK FOR INFLATION

The overall PCE price index is projected to be unchanged both this quarter and next, reflecting recent and prospective declines in consumer energy prices.[8] Core PCE price inflation is anticipated to step up from 1¼ percent in the fourth quarter to 1½ percent in the first quarter of next year, reflecting residual seasonality and an anticipated rebound from the recent low readings on nonmarket price inflation.

- The projection for core PCE price inflation in the second half of this year and in the first quarter is a bit below our October Tealbook forecast due to the lower-than-expected readings on nonmarket prices and downward revisions to our projection for core import prices.

- Our forecast for headline PCE price inflation over the fourth and first quarters averages roughly ½ percentage point below our previous projection, reflecting further declines in crude oil prices as well as the small downward revision to core PCE inflation.

- Prices for core goods imports are expected to decline at an annual rate of 3 percent in the fourth quarter of 2015, ¾ percentage point more negative than in the October Tealbook, as both dollar appreciation and commodity price declines were greater than expected. In the first half of 2016, continued pass-through of the dollar's appreciation and lower commodity prices are expected to result in core import prices declining at an annual rate of 1½ percent, 1½ percentage points more negative than in the October Tealbook.

Over the medium term, core PCE price inflation is projected to edge up gradually from 1.3 percent this year to 1.9 percent in 2018, as import prices turn back up, the effects on core inflation of the previous large declines in energy prices dissipate, and resource utilization continues to tighten in an environment of well-anchored inflation expectations. With consumer food and energy prices now projected to rise slightly faster than core prices after the first quarter of next year, total PCE inflation is expected to run a touch above core inflation throughout the medium term and to reach 2 percent in 2018.

[8] The consumer price index for November will be released on December 15, the first day of the FOMC meeting.

Overall, the medium-term projection for inflation is little changed relative to that in the October Tealbook.

- We expect import prices to rise at a 1¼ percent annual rate beginning in 2017, consistent with moderate foreign inflation and relatively flat projected trajectories for the dollar and commodity prices.

- Quantitatively, the upward move in import price inflation contributes about 0.3 percentage point to the 0.6 percentage point rise in our core PCE inflation projection between 2015 and 2018. Given that we think the Phillips curve is nearly flat and our assumption that inflation expectations are anchored and not formed adaptively, tightening resource utilization contributes only about 0.15 percentage point to that pickup.

- Survey-based measures of longer-term inflation expectations have remained relatively stable over the intermeeting period, but they are at the lower end of the ranges seen in recent years. Market-based measures of longer-term inflation compensation have edged up since the October Tealbook but remained at low levels.

The incoming data on labor compensation were stronger than our expectations in the October Tealbook. Smoothing through the noise in the data, we continue to expect compensation gains to pick up gradually over the medium term.

- Average hourly earnings rose 2¼ percent over the 12 months ending in November, a bit above the pace of increases recorded since 2009. Taking account of prior-year estimates that will soon drop out of the 12-month change, we expect this measure to fluctuate between 2½ and 2¾ percent in the next few months.

- Incorporating the sizable upward revisions to wages and salaries from the Quarterly Census of Employment and Wages, the four-quarter change in hourly compensation from the Productivity and Costs release was 3½ percent in the third quarter, well above the previously published estimate of 2½ percent. Nevertheless, mindful of the substantial volatility of these data, we expect this measure of hourly compensation to step down somewhat next year before moving back up to 3½ percent by the end of the medium term.

- The employment cost index (ECI) for private workers increased at an annual rate of 2½ percent between June and September after being unchanged in the previous quarter. The 12-month change stood at 1.9 percent—close to the average pace of increase over the past several years. We project ECI growth of about 2½ percent through the medium term.

The Long-Term Outlook

- With the economy running above its potential level and inflation having reached the Committee's 2 percent objective, the federal funds rate moves above its long-run value over the 2018–20 period.

- The Federal Reserve's holdings of securities continue to put downward pressure on longer-term interest rates, albeit to a diminishing extent over time. The SOMA portfolio is projected to have returned to a normal size by 2021.

- The natural rate of unemployment remains at 5.1 percent, and potential GDP rises about 2 percent per year, on average, in 2019 and 2020.

- As monetary policy continues to tighten, real GDP decelerates further and rises 1½ percent in both 2019 and 2020. The unemployment rate remains at 4.5 percent in 2019, but with real GDP rising less than potential, the unemployment rate moves back up toward its assumed natural rate thereafter.

- PCE price inflation remains near the Committee's long-run objective of 2 percent through 2020.

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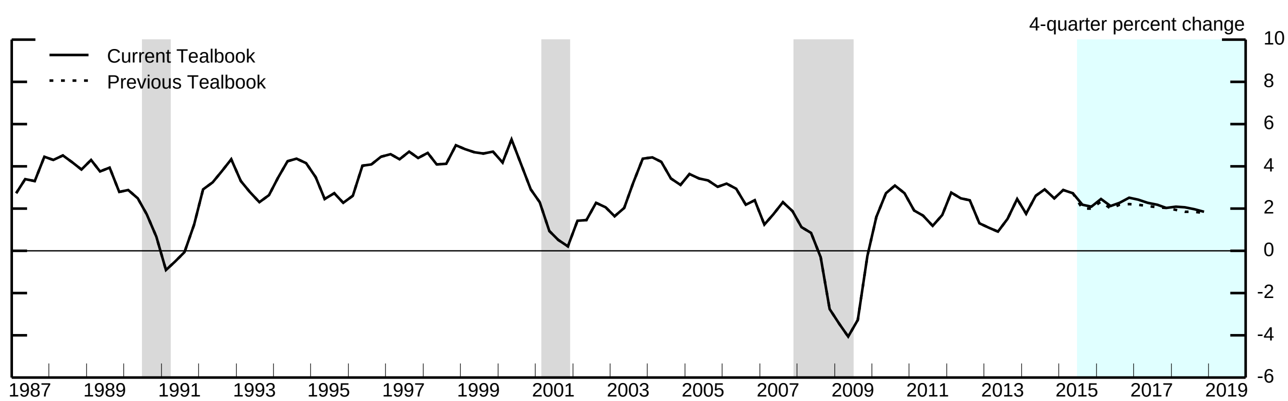
Projections of Real GDP and Related Components
(Percent change at annual rate from final quarter of preceding period except as noted)

Measure	2015	2015 H1	2015 H2	2016	2017	2018
Real GDP	**2.1**	**2.3**	**1.9**	**2.5**	**2.0**	**1.9**
Previous Tealbook	2.0	2.3	1.7	2.2	2.0	1.8
Final sales	2.1	1.8	2.4	2.5	2.2	2.2
Previous Tealbook	2.0	1.8	2.3	2.3	2.1	2.0
Personal consumption expenditures	2.7	2.7	2.7	3.5	2.8	2.3
Previous Tealbook	2.8	2.7	3.0	3.2	2.6	2.1
Residential investment	8.2	9.7	6.7	6.7	7.8	5.4
Previous Tealbook	6.9	9.7	4.1	11.2	5.3	3.9
Nonresidential structures	-1.9	-.8	-3.0	.6	3.3	1.4
Previous Tealbook	.5	-.8	1.9	1.5	2.7	1.2
Equipment and intangibles	4.9	3.9	5.9	4.6	2.7	2.8
Previous Tealbook	5.0	3.9	6.1	5.0	2.6	2.2
Federal purchases	.4	.5	.3	2.4	-.5	-1.2
Previous Tealbook	-.5	.5	-1.6	-1.0	-.8	-.6
State and local purchases	1.7	1.7	1.7	1.5	1.8	1.8
Previous Tealbook	1.7	1.7	1.7	1.5	1.8	1.8
Exports	.0	-.6	.6	.5	1.7	3.8
Previous Tealbook	.3	-.6	1.3	1.1	2.2	4.2
Imports	3.9	5.1	2.8	7.2	4.6	3.6
Previous Tealbook	5.2	5.1	5.4	6.7	4.0	3.2
	Contributions to change in real GDP (percentage points)					
Inventory change	.0	.4	-.5	.1	-.2	-.3
Previous Tealbook	.0	.4	-.5	-.1	-.1	-.2
Net exports	-.6	-.9	-.4	-1.0	-.5	-.1
Previous Tealbook	-.8	-.9	-.7	-.9	-.4	.0

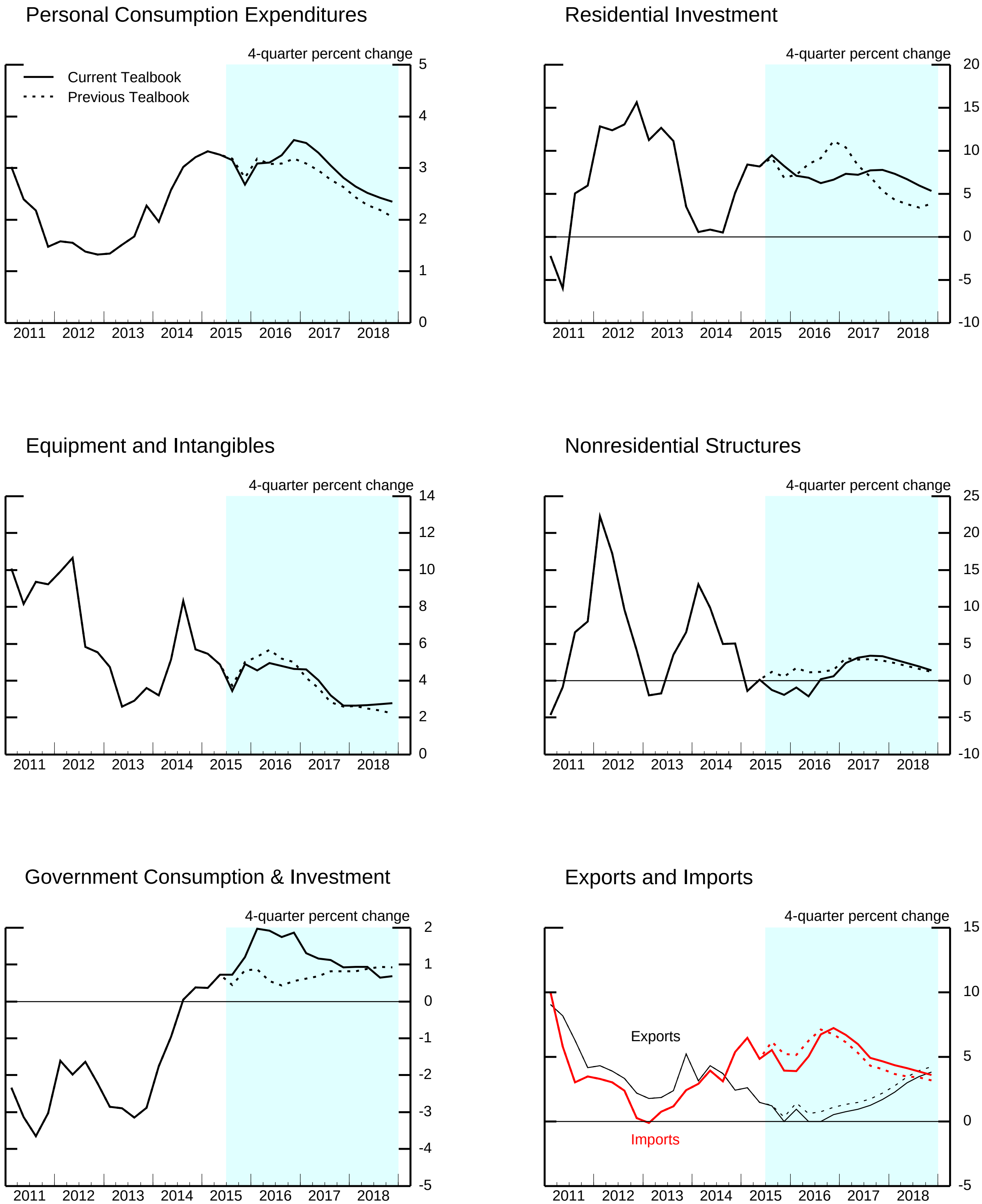
Real GDP



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.

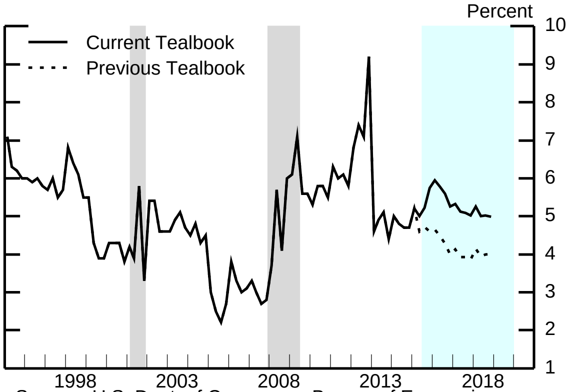
Components of Final Demand



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

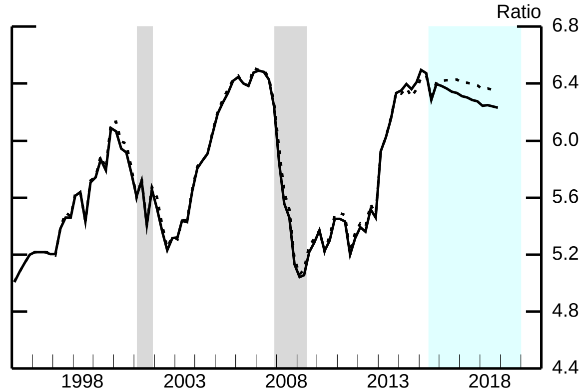
Aspects of the Medium-Term Projection

Personal Saving Rate



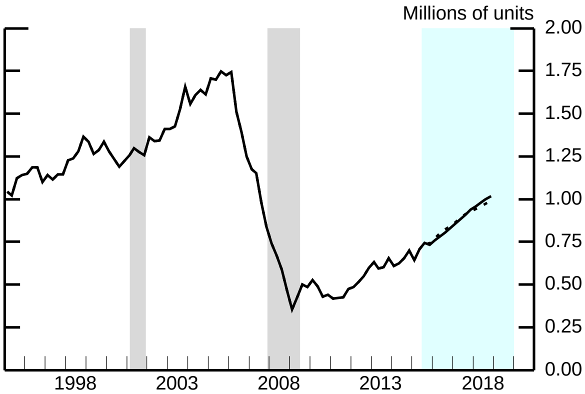
Source: U.S. Dept. of Commerce, Bureau of Economic Analysis.

Wealth-to-Income Ratio



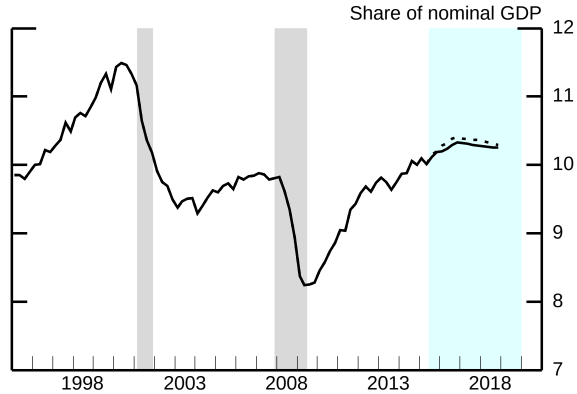
Note: Ratio of household net worth to disposable personal income.
Source: For net worth, Federal Reserve Board, Financial Accounts of the United States; for income, U.S. Dept. of Commerce, Bureau of Economic Analysis.

Single-Family Housing Starts



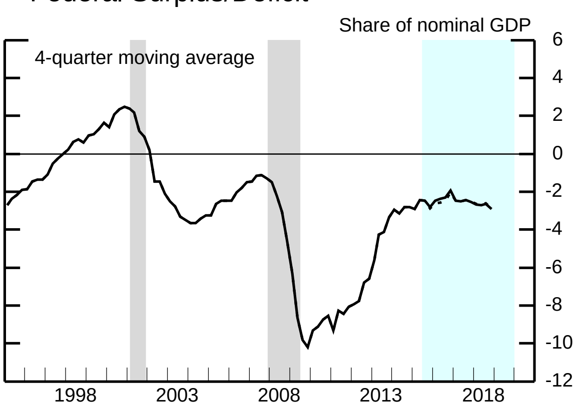
Source: U.S. Census Bureau.

Equipment and Intangibles Spending



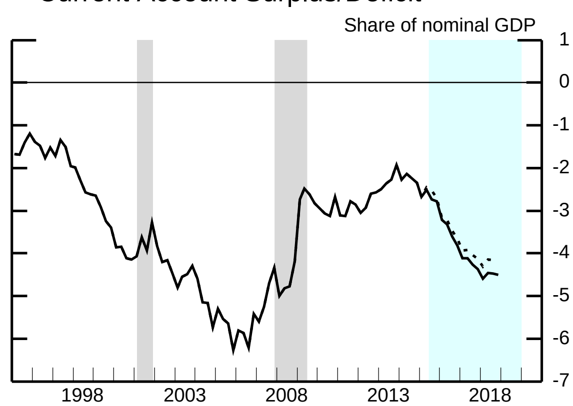
Source: U.S. Dept. of Commerce, Bureau of Economic Analysis.

Federal Surplus/Deficit



Source: *Monthly Treasury Statement.*

Current Account Surplus/Deficit



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

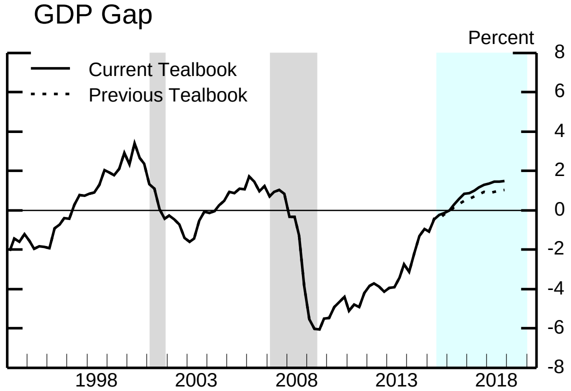
Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

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

Measure	1974-95	1996-2000	2001-07	2008-10	2011-14	2015	2016	2017	2018
Potential real GDP	3.1	3.4	2.6	1.7	1.1	1.3	1.5	1.6	1.7
Previous Tealbook	3.1	3.4	2.6	1.7	1.1	1.3	1.5	1.6	1.7
Selected contributions[1]									
Structural labor productivity[2]	1.6	2.9	2.8	1.5	.8	1.2	1.3	1.4	1.5
Previous Tealbook	1.6	2.9	2.8	1.5	.8	1.2	1.3	1.4	1.5
Capital deepening	.7	1.5	1.0	.3	.6	.8	.8	.8	.7
Multifactor productivity	.5	1.0	1.5	1.0	.1	.3	.4	.5	.7
Structural hours	1.6	1.2	.8	-.1	.6	.5	.4	.4	.3
Previous Tealbook	1.6	1.2	.8	-.1	.6	.5	.4	.4	.3
Labor force participation	.4	-.1	-.2	-.5	-.7	-.6	-.5	-.5	-.5
Previous Tealbook	.4	-.1	-.2	-.5	-.7	-.6	-.5	-.5	-.5
Memo:									
GDP gap[3]	-1.9	2.4	.8	-4.4	-.9	-.1	.8	1.3	1.5
Previous Tealbook	-1.9	2.4	.8	-4.4	-.9	-.2	.5	.9	1.0

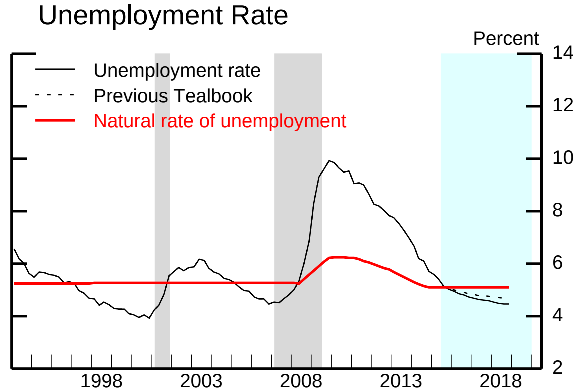
Note: For multiyear periods, the percent change is the annual average from Q4 of the year preceding the first year shown to Q4 of the last year shown.
1. Percentage points.
2. Total business sector.
3. Percent difference between actual and potential GDP in the final quarter of the period indicated. A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

GDP Gap



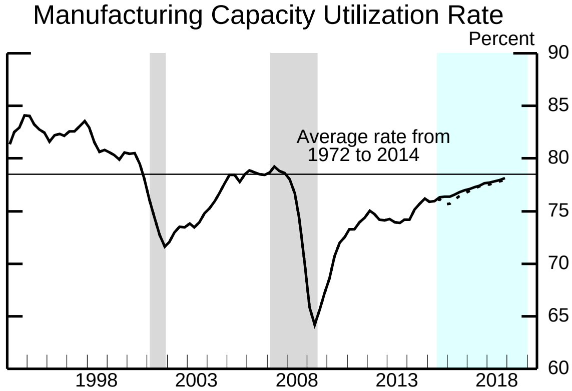
Note: The GDP gap is the percent difference between actual and potential GDP; a negative number indicates that the economy is operating below potential.
Source: U.S. Department of Commerce, Bureau of Economic Analysis; staff assumptions.

Unemployment Rate



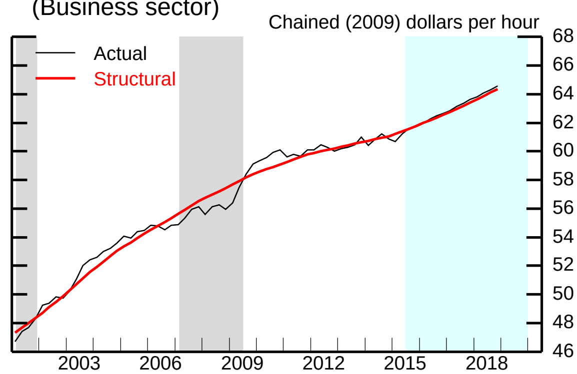
Source: U.S. Department of Labor, Bureau of Labor Statistics; staff assumptions.

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	2015	2015 H1	2015 H2	2016	2017	2018
Output per hour, business[1]	1.4	1.2	1.6	1.6	1.5	1.5
Previous Tealbook	1.4	1.2	1.6	1.5	1.4	1.5
Nonfarm payroll employment[2]	210	213	207	200	153	118
Previous Tealbook	193	213	174	163	139	107
Private employment[2]	202	207	198	185	135	100
Previous Tealbook	180	207	154	150	121	90
Labor force participation rate[3]	62.5	62.8	62.5	62.4	62.3	62.0
Previous Tealbook	62.5	62.8	62.5	62.4	62.3	62.0
Civilian unemployment rate[3]	5.0	5.4	5.0	4.7	4.6	4.5
Previous Tealbook	5.0	5.4	5.0	4.9	4.7	4.7

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.

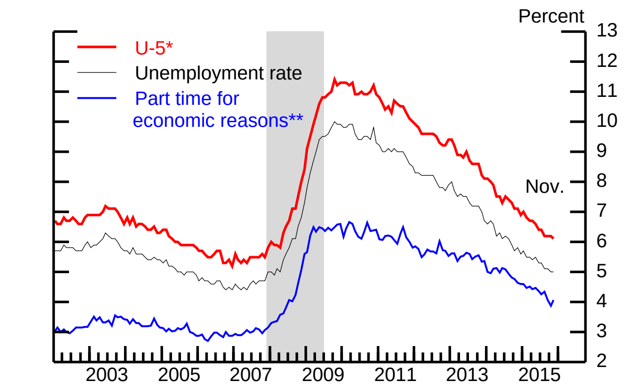
Inflation Projections
(Percent change at annual rate from final quarter of preceding period)

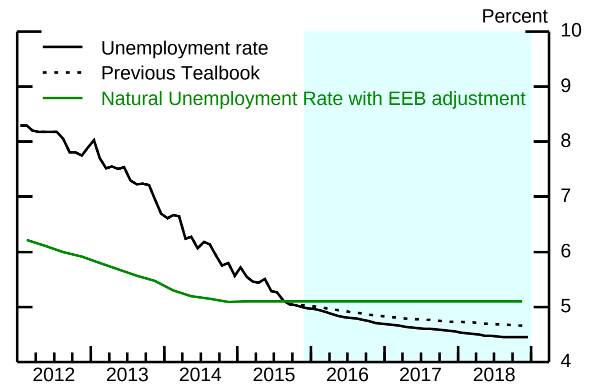
Measure	2015	2015 H1	2015 H2	2016	2017	2018
PCE chain-weighted price index	.4	.1	.7	1.2	1.8	2.0
Previous Tealbook	.5	.1	.9	1.4	1.7	1.9
Food and beverages	.7	-.7	2.1	1.7	2.0	2.0
Previous Tealbook	.7	-.7	2.1	1.8	2.0	2.0
Energy	-16.8	-20.0	-13.3	-4.1	4.3	2.8
Previous Tealbook	-15.7	-20.0	-11.2	-.9	2.7	1.8
Excluding food and energy	1.3	1.4	1.3	1.4	1.7	1.9
Previous Tealbook	1.4	1.4	1.4	1.4	1.7	1.9
Prices of core goods imports[1]	-3.2	-3.8	-2.5	-.4	1.2	1.2
Previous Tealbook	-3.1	-3.8	-2.3	.4	1.2	1.2

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

Labor Market Developments and Outlook (1)

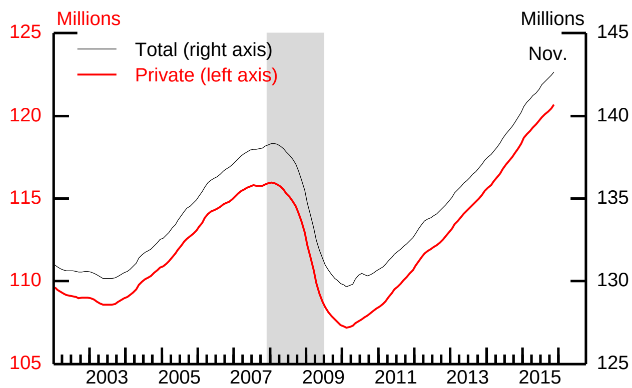
Measures of Labor Underutilization

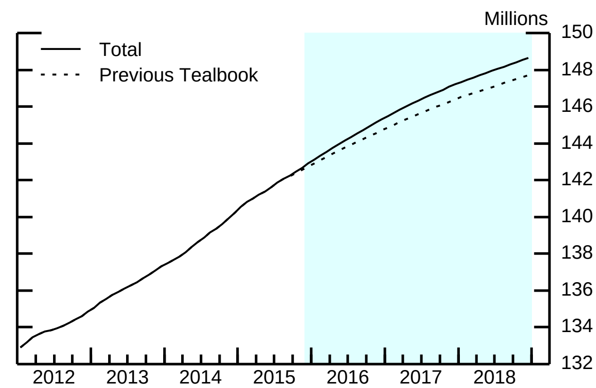




* U-5 measures total unemployed persons plus all marginally attached to the labor force, as a percent of the labor force plus persons marginally attached to the labor force.
** Percent of Current Population Survey employment.
EEB Extended and emergency unemployment benefits.
Source: U.S. Department of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

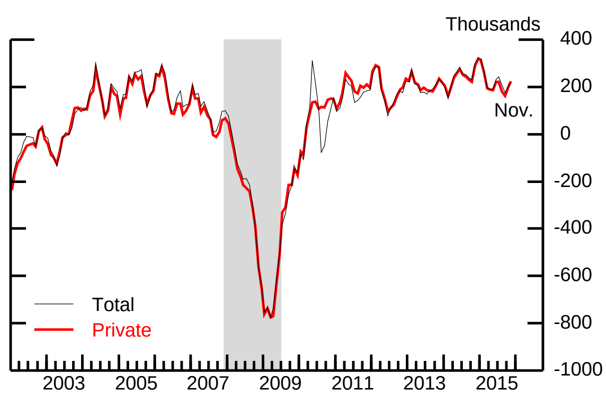
Level of Payroll Employment*

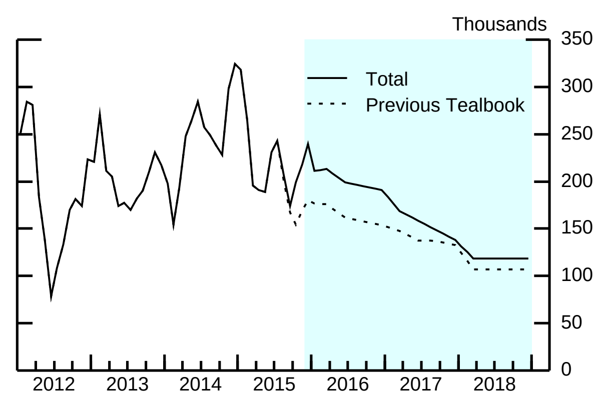




* 3-month moving averages.
Source: U.S. Department of Labor, Bureau of Labor Statistics.

Change in Payroll Employment*



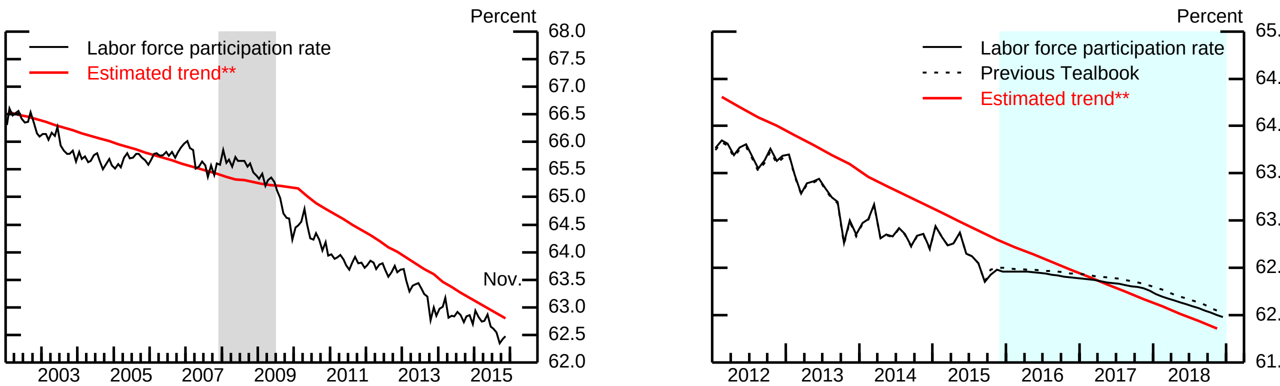


* 3-month moving averages.
Source: U.S. Department of Labor, Bureau of Labor Statistics.

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

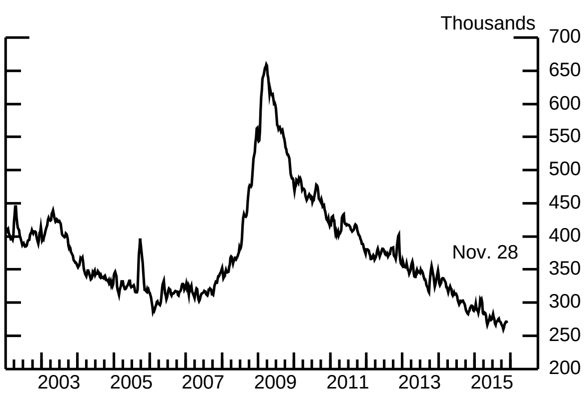
Labor Market Developments and Outlook (2)

Labor Force Participation Rate*



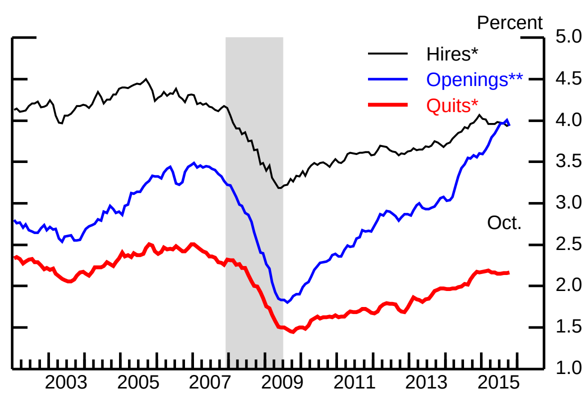
* Published data adjusted by staff to account for changes in population weights.
** Includes staff estimate of the effect of extended and emergency unemployment benefits.
Source: U.S. Department of Labor, Bureau of Labor Statistics; staff assumptions.

Initial Unemployment Insurance Claims*



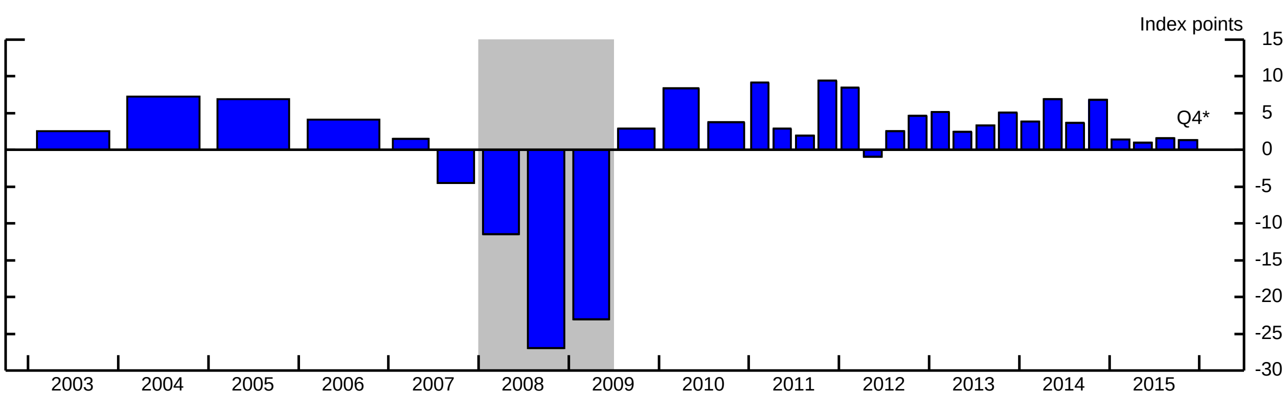
* 4-week moving average.
Source: U.S. Department of Labor, Employment and Training Administration.

Private Hires, Quits, and Job Openings



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

Average Monthly Change in Labor Market Conditions Index



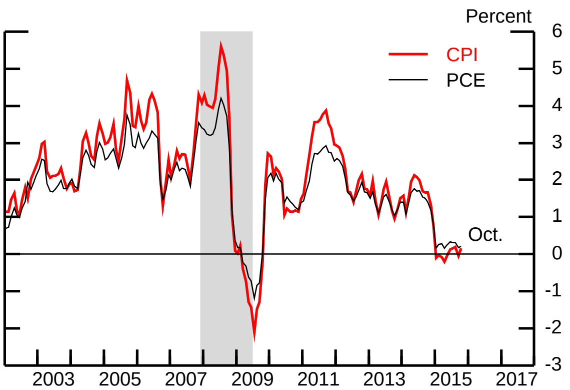
* Value shown for Q4 is an average of November and October data.
Source: Labor market conditions index estimated by staff.

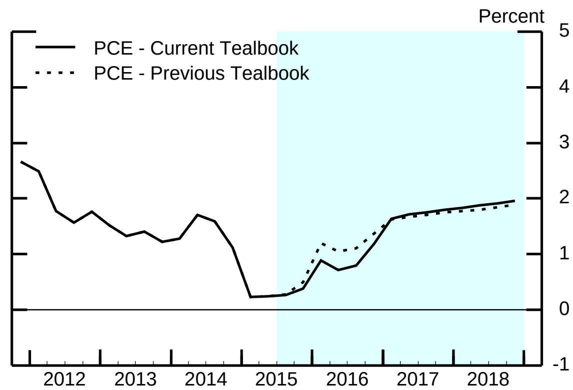
Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

Inflation Developments and Outlook (1)

(Percent change from year-earlier period)

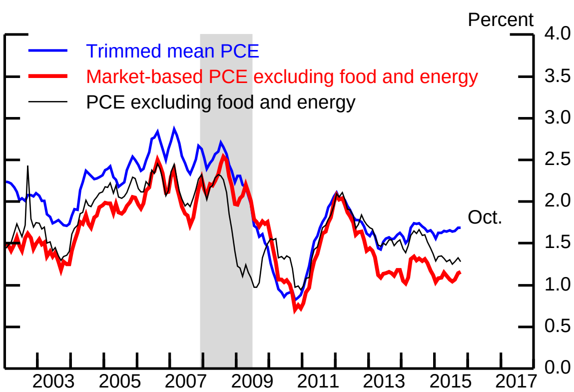
Headline Consumer Price Inflation

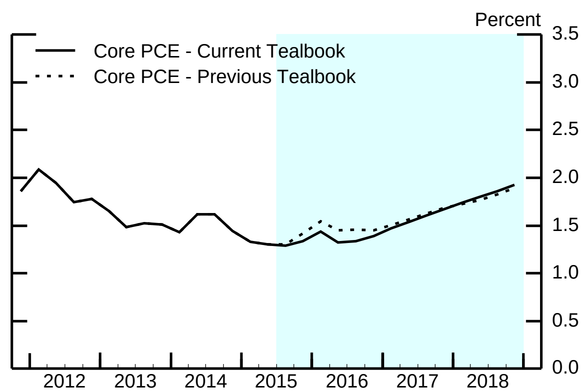




Source: For CPI, U.S. Department of Labor, Bureau of Labor Statistics; for PCE, U.S. Department of Commerce, Bureau of Economic Analysis.

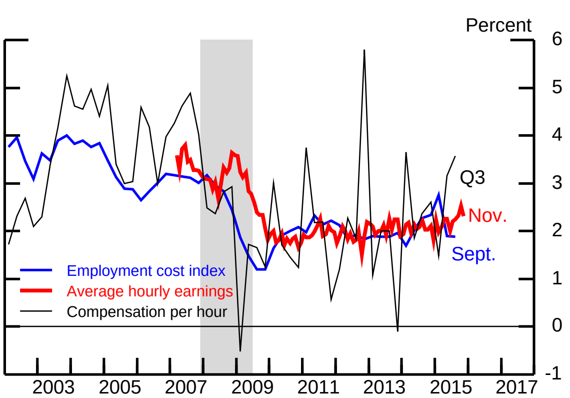
Measures of Underlying PCE Price Inflation

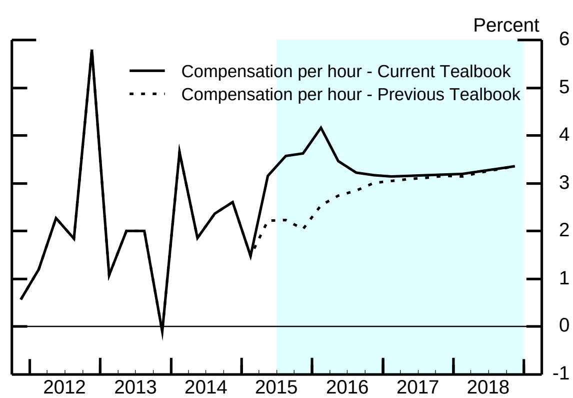




Source: For trimmed mean PCE, Federal Reserve Bank of Dallas; otherwise, U.S. Department of Commerce, Bureau of Economic Analysis.

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.

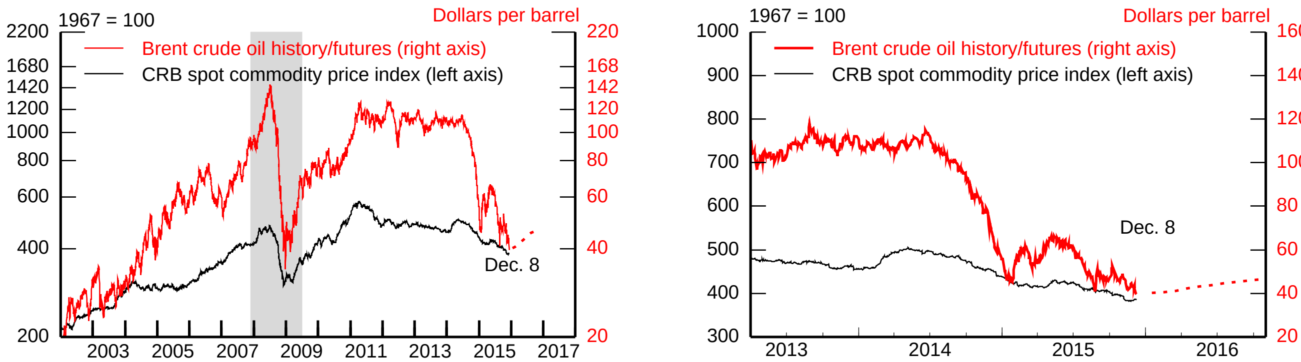
Source: U.S. Department of Labor, Bureau of Labor Statistics.

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)

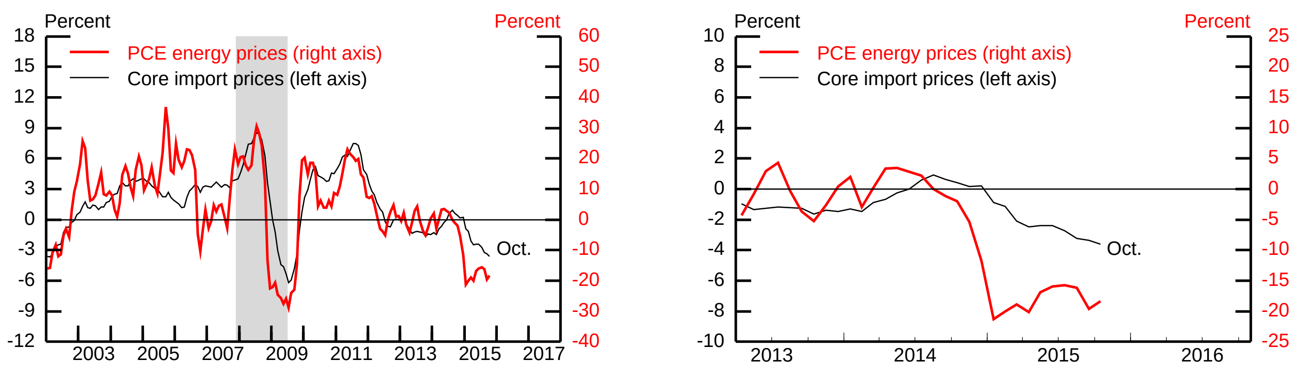
(Percent change from year-earlier period, except as noted)

Commodity and Oil Price Levels



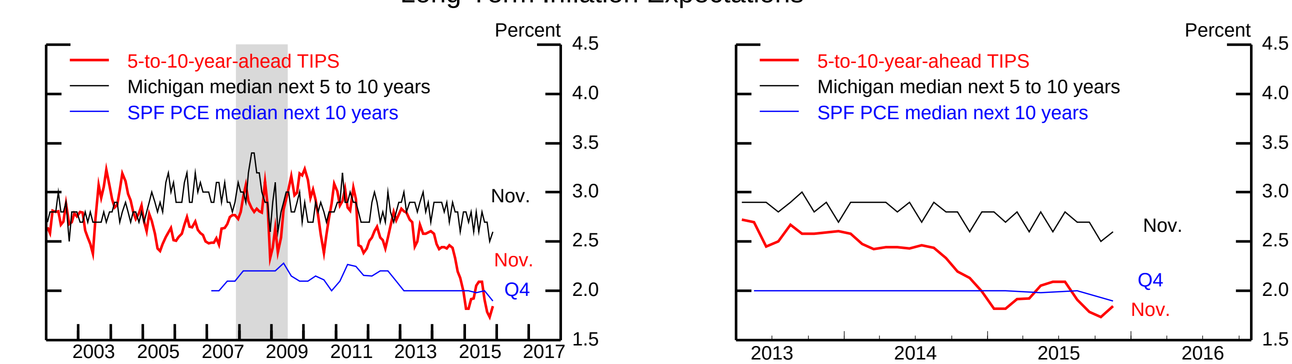
Note: Futures prices (dotted lines) are the latest observations on monthly futures contracts.
Source: For oil prices, U.S. Department of Energy, Energy Information Agency; for commodity prices, Commodity Research Bureau (CRB).

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.

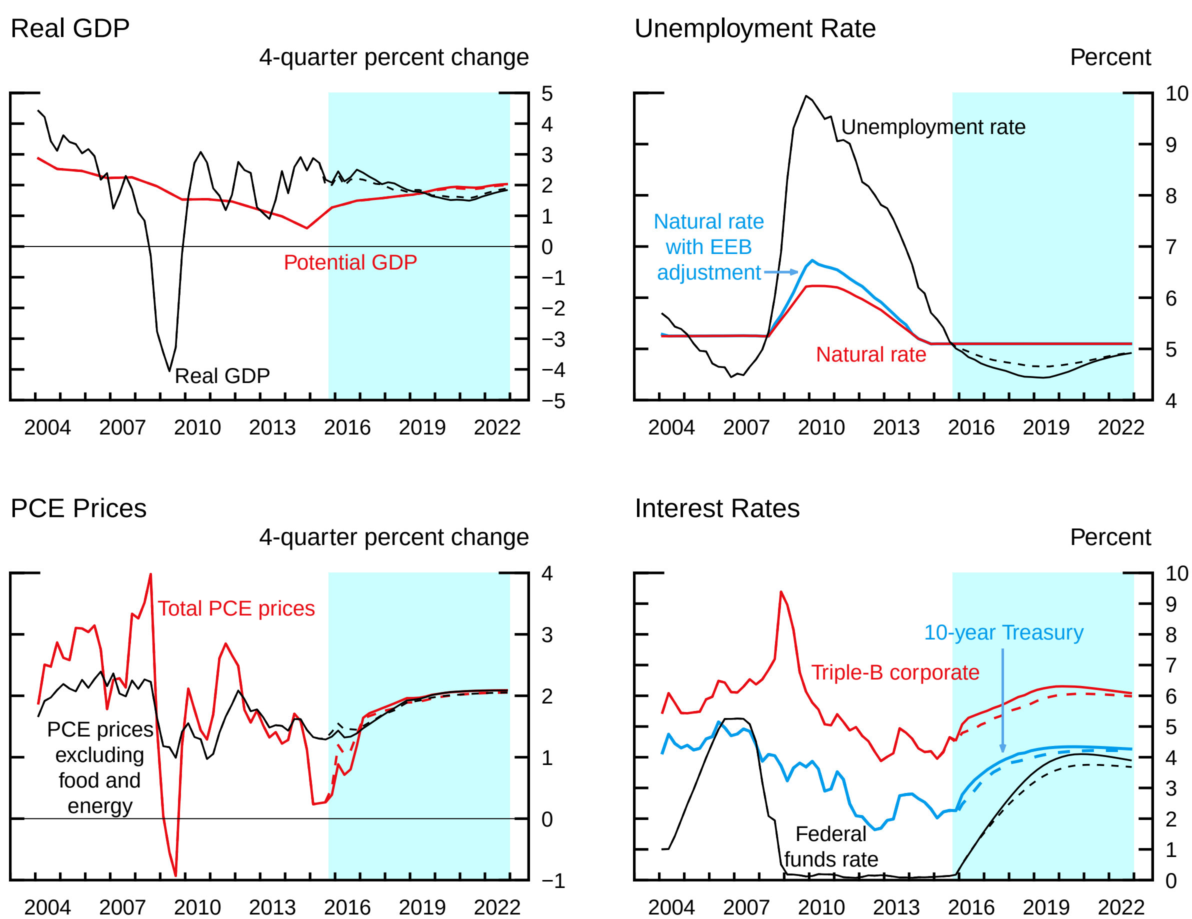
Note: The gray shaded bars indicate a period of business recession as defined by the National Bureau of Economic Research.

The Long-Term Outlook

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

Measure	2015	2016	2017	2018	2019	2020	Longer run
Real GDP	2.1	2.5	2.0	1.9	1.6	1.5	1.9
Previous Tealbook	2.0	2.2	2.0	1.8	1.7	1.6	1.9
Civilian unemployment rate[1]	5.0	4.7	4.6	4.5	4.5	4.7	5.1
Previous Tealbook	5.0	4.9	4.7	4.7	4.7	4.7	5.1
PCE prices, total	.4	1.2	1.8	2.0	2.0	2.1	2.0
Previous Tealbook	.5	1.4	1.7	1.9	2.0	2.0	2.0
Core PCE prices	1.3	1.4	1.7	1.9	2.0	2.1	2.0
Previous Tealbook	1.4	1.4	1.7	1.9	2.0	2.0	2.0
Federal funds rate[1]	.2	1.4	2.5	3.4	3.9	4.1	3.3
Previous Tealbook	.2	1.4	2.4	3.1	3.6	3.7	3.3
10-year Treasury yield[1]	2.3	3.4	3.9	4.2	4.3	4.3	4.1
Previous Tealbook	2.1	3.2	3.7	4.0	4.1	4.2	4.1

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

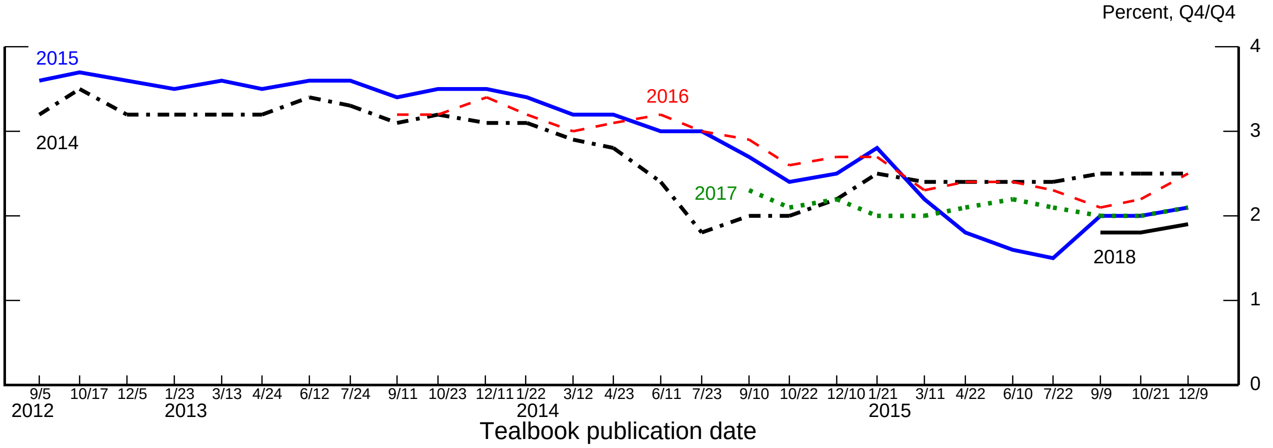


Note: In each panel, shading represents the projection period, and dashed lines are the previous Tealbook.

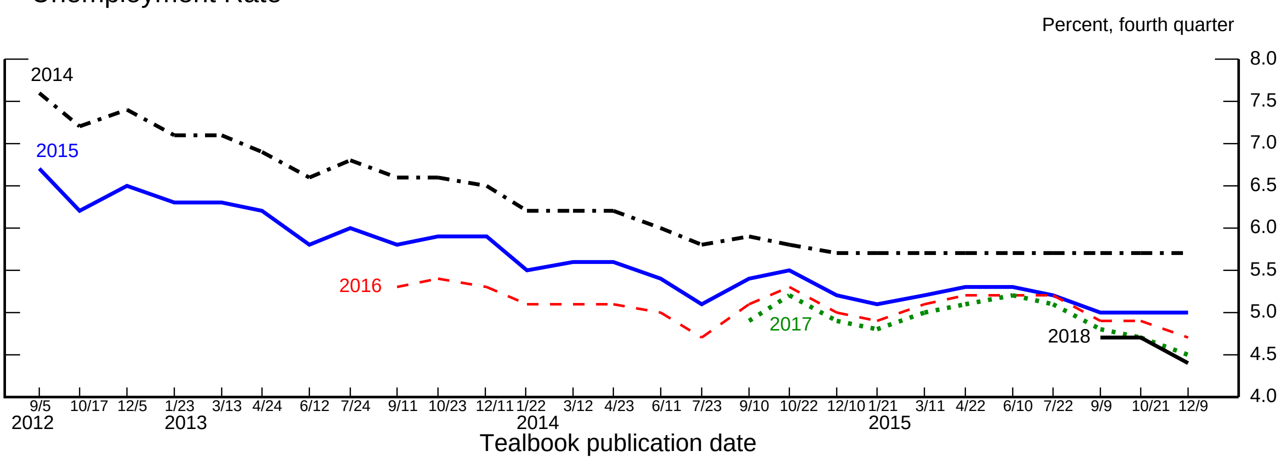
Domestic Econ Devel & Outlook

Evolution of the Staff Forecast

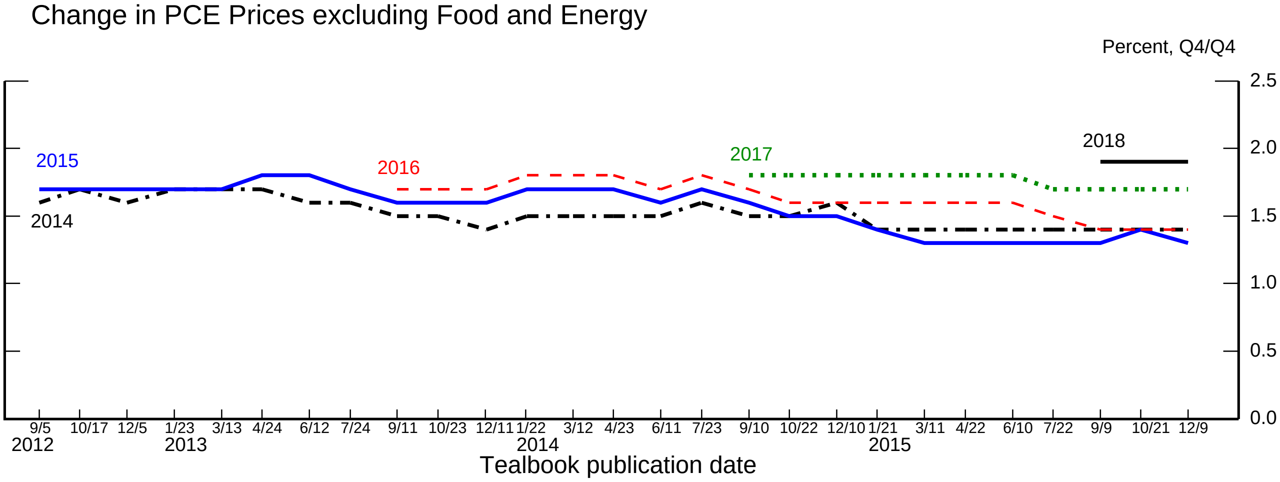
Change in Real GDP



Unemployment Rate



Change in PCE Prices excluding Food and Energy



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International Economic Developments and Outlook

Foreign real GDP growth picked up to 2½ percent in the third quarter from an anemic 1½ percent pace in the first half of the year. Growth in the emerging market economies (EMEs), which have been the focus of considerable concern in recent months, rebounded more vigorously than we had expected despite another large downside surprise in Brazil. The Canadian and Japanese economies also recovered from contractions earlier in the year. In contrast, growth in the euro area and the United Kingdom weakened a touch.

For the foreign economies as a whole, the third-quarter outcome was a little stronger than our October projection, reinforcing our view that the pickup in foreign growth that we have been anticipating for some time is finally occurring. More recent indicators have also been encouraging. We estimate that the foreign economies grew at a 2¼ percent pace during the current quarter, and we see growth rising to a little under 3 percent by the end of next year. In the advanced foreign economies (AFEs), the expansion is supported by further monetary accommodation, gradually improving credit market conditions, and, for Europe and Japan, low oil prices. Stronger growth in the advanced economies should, in turn, boost EME growth, with emerging Asia also benefitting from low oil prices and accommodative monetary policies.

The European Central Bank (ECB) eased policy further at its December meeting, responding to concerns that inflation and inflation expectations have been persistently below target. Although the ECB's cut in deposit rates and expansion of its asset purchases fell short of market expectations just prior to the December ECB meeting, the ECB's actions were more aggressive than we had anticipated in October. Accordingly, we have revised our forecast for euro-area inflation and growth up a touch.

With foreign economies appearing to shake off some of their earlier torpor, it now seems easier to imagine that foreign growth will pick up faster than we are currently projecting. The "Faster Foreign Growth" scenario in the Risks and Uncertainty section explores such a possibility. Nonetheless, we continue to view the risks to the foreign outlook as tilted to the downside. In particular, weak earnings, declining commodity prices, and increased corporate leverage have raised financial stability risks in many EMEs, and a tightening of U.S. monetary policy could aggravate these vulnerabilities. A financial crisis and sharp economic slowdown in China remains a significant concern. And the situation in Brazil has become increasingly worrisome in recent months.

We estimate that inflation fell to only ¼ percent in the AFEs in the fourth quarter, largely reflecting declines in retail energy prices. The further drop in oil prices since the October Tealbook led us to revise down AFE inflation slightly in the near term. AFE inflation is projected to rise to just under 1 percent early next year as energy prices stabilize and then to increase gradually to 1¾ percent by the end of the forecast period as economic slack diminishes. In the EMEs, we estimate that inflation fell to 1½ percent in the current quarter, reflecting lower retail energy prices and a reversal of earlier food price increases in China, but we see it rising back to 3 percent by the second half of next year.

Advanced Foreign Economies

- ***Canada.*** Following a contraction in the first half of this year driven by sharp declines in oil-industry investment, real GDP growth rebounded as expected in the third quarter to 2.3 percent. The improvement reflected strength in exports and a diminishing drag from investment spending. We expect growth to be just above 2 percent through 2016, as investment continues to recover, exports are supported by past currency depreciation, and monetary policy remains accommodative. Thereafter, growth should edge down to a near-potential pace of a little less than 2 percent by the middle of 2017.

  Third-quarter inflation was 2¼ percent, in line with our estimate and supported by the depreciation of the Canadian dollar. But, given further declines in oil prices, we expect inflation to moderate to 1¼ percent in the fourth quarter before slowly rising back to the Bank of Canada's (BOC) 2 percent target by 2017 as oil prices stabilize. With inflation pressures contained, we continue to anticipate that the BOC will keep its policy rate at 0.5 percent until the first quarter of 2017.

- ***Japan.*** GDP rose 1 percent in the third quarter, which is stronger than our October Tealbook forecast. Growth was driven by both domestic demand and robust exports. Recent indicators, including October industrial production and the November manufacturing PMI, point to GDP growth of about 1 percent in the fourth quarter as well. We expect growth to maintain that pace in 2016, supported by accommodative monetary policy and low oil prices, before a second hike in the consumption tax stalls the expansion in 2017.

  As expected, the consumer price index was flat in the third quarter, and we forecast mild deflation in the current quarter. These low inflation readings largely reflect falling retail energy prices. As the effects of declines in oil prices dissipate and the output gap narrows, we project that inflation (excluding the direct effect of the consumption tax hike) will rise to 1 percent by the second half of 2016 and to just under 1½ percent by the end of the forecast period. With inflation projected to remain below the Bank of Japan's (BOJ) 2 percent inflation target, we continue to anticipate that the BOJ will continue to purchase assets at least through the end of 2017, and we place some weight on the possibility that the BOJ will ramp up its asset purchase program in the future.

- ***Euro Area.*** Real GDP expanded 1.2 percent in the third quarter, down from 1.6 percent in the second quarter and a little below our October Tealbook forecast. Recent indicators on economic activity suggest that output growth in the current quarter also will be a bit lower than anticipated. Nevertheless, given the additional monetary stimulus announced during the intermeeting period, a weaker euro, low oil prices, and easing credit conditions, we expect GDP growth to rise to 2 percent in 2016 and to remain near that rate through 2018, a touch higher than our October Tealbook projection.

  Through November, 12-month inflation remained at 0.1 percent, but core inflation was considerably higher at 1 percent, with falling retail energy prices accounting for most of the difference. On a quarterly basis, we expect headline inflation to stay slightly negative in the fourth quarter and then step up to about 1½ percent next year as energy prices stabilize, reaching 1¾ percent by the end of the forecast period. This forecast is slightly weaker in the current quarter due to incoming data and recent oil price declines, but it is a touch higher over the medium term due to additional monetary stimulus and the depreciated euro.

In an effort to bring inflation back to target more quickly, the ECB decided on December 3 to extend its asset purchase program by six months, to March 2017, and to cut its deposit rate by 10 basis points to minus 30 basis points. (See the box "European Experience with Negative Policy Rates" for a discussion of the recent experience of a number of European countries where policy rates have dropped below zero.) As a result, the ECB's cumulative asset purchases are likely to reach about 15 percent of GDP by mid-2017. These additional measures were more accommodative than we had assumed in the October Tealbook. As such, we boosted the projected level of euro-area GDP by about ¼ percent and the level of consumer prices about one-tenth of a percent over the forecast horizon.

- ***United Kingdom.*** Real GDP growth slowed to 1.9 percent in the third quarter from 2.6 percent in the second quarter. This reading is ½ percentage point lower than the October Tealbook projection, largely reflecting disappointing net exports. As domestic demand remains robust, we forecast GDP growth to bounce back to 2¼ percent in the fourth quarter and to remain near that pace through the projection period.

  Amid lower readings on retail energy prices in recent months, we project that inflation in the fourth quarter will be negative ¼ percent. Inflation is expected to rise to the Bank of England's (BOE) 2 percent target as the effect of past declines in energy prices dissipates and the economy continues to strengthen. We continue to expect that the BOE will begin raising its policy rate, now at 0.5 percent, in the second quarter of 2016. Of note, the BOE indicated in its November Inflation Report that it intends to start reducing the size of its balance sheet only after the policy rate reaches 2 percent, which we project to happen in the second half of 2017.

EMERGING MARKET ECONOMIES

- ***China.*** After registering a 7¼ percent pace in the third quarter, we estimate that real GDP growth stepped down to 6½ percent in the current quarter. Growth in the past several quarters has been propped up by an unusually elevated contribution of financial services, which we expect will decline in the fourth quarter. We expect this decline to more than offset a modest rebound in manufacturing growth from a very weak third quarter, consistent with recent readings on industrial production, PMIs, and exports. Going forward, we see growth falling gradually to 6 percent by the end of the forecast period, in line with our estimate of China's potential growth. This forecast is little changed from the October Tealbook.

  After rising to over 3 percent in the third quarter, inflation in China is estimated to have turned slightly negative in the current quarter, primarily reflecting a reversal of an earlier surge in pork prices. We see inflation rising back to 2½ percent by the second half of next year and holding at that pace thereafter. Amid low inflation and significant headwinds to growth, the People's Bank of China (PBOC) lowered benchmark interest rates and banks' required reserve ratios in late October, and we expect the PBOC to provide some further stimulus going forward to help smooth China's adjustment to slower growth.

- ***Other Emerging Asia.*** Real GDP grew at a healthy 3½ percent pace in the third quarter, about 1 percentage point faster than in our October Tealbook forecast, after increasing a sluggish 2 percent in the second quarter. Much of the surprise is attributable to a strong rebound in **Korea**, as the effect of the MERS (Middle-East Respiratory Syndrome) outbreak dissipated. Elsewhere in the region, the pickup in growth reflected some stabilization in exports after earlier declines. We expect overall growth to remain at 3½ percent in the

European Experience with Negative Policy Rates

On December 3, the European Central Bank (ECB) announced further monetary stimulus, including a six-month extension of its asset purchase program and a cut of 10 basis points in its deposit rate to minus 0.30 percent (the blue line in figure 1). The ECB's deposit rate has been negative since June 2014, when it was lowered to minus 0.10 percent. In September 2014, when the rate was cut to minus 0.20 percent, ECB President Mario Draghi said that "now we are at the lower bound." However, in October of this year he indicated that lowering the deposit rate was again under consideration, in part after observing the experience of other countries that had cut their policy rates more deeply, including Switzerland, Denmark, and Sweden.

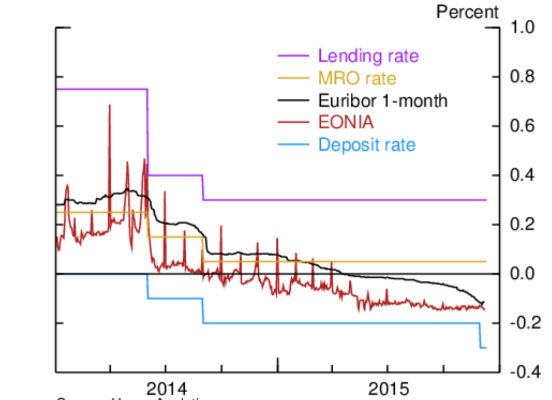
The Swiss National Bank (SNB) moved its policy rate into negative territory in December 2014 and sharply cut it to minus 0.75 percent in January of this year (figure 2), in part to offset considerable appreciation pressure after the SNB abandoned its exchange rate ceiling versus the euro. Soon after, speculation that the Danish krone would be forced off its peg to the euro prompted the Danish central bank to undertake heavy intervention sales of kroner and to cut its deposit rate in rapid steps to minus 0.75 percent. This year, the Swedish Riksbank cut its repo rate more gradually to the current rate of minus 0.35 percent (the red line in figure 3).

Negative policy rates generally have not faced the problems that some had anticipated. Adverse effects on money market functioning have been limited, and euro-area money market funds have adjusted by moving into higher-yielding investments and toward variable net asset value frameworks. Moreover, cash holdings have not risen significantly in these countries, in part because of the nonnegligible costs of insuring, storing, and transporting physical cash. These favorable outcomes may be partly because not all deposits at central banks in these countries are subject to negative rates. Both Switzerland and Denmark, where the policy rates have gone most negative, allow large shares of bank reserves to be held at a zero interest rate, with exemptions depending on a bank's size and money market activity. At the ECB, required reserves (about €110 billion) earn the 0.05 percent rate on marginal refinancing operations, while excess reserves (about €350 billion and rising) are charged the negative deposit rate.

Increasingly negative policy rates appear to have eased credit conditions in much the same way as rate cuts in positive territory. As seen in figures 1, 2, and 3, short-term money market rates declined along with policy rates in the euro area, Switzerland, and Sweden. Moreover, it appears that the easing was transmitted to assets of longer maturity and greater risk, although the effects of the rate cuts are hard to distinguish from those of concurrent asset purchase expansions by the ECB and the Riksbank. Bond yields have declined, as have bank lending rates in the euro area (figure 4), and the volume of euro-area bank lending to corporations and households has picked up notably (figure 5). Additionally, interest rate reductions, including cuts into negative territory, exerted some downward pressures on home currencies—a primary motivation in Denmark and Switzerland for lowering rates. Increasingly negative rates, along with asset purchases, likely also contributed to a weakening of the euro and the Swedish krona.

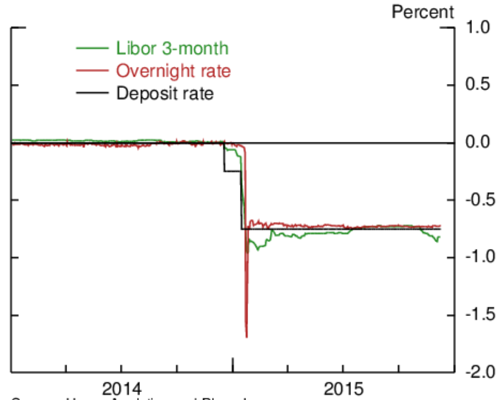
Some concern has been voiced over the extent to which negative policy rates lower bank profits, potentially lessening their effectiveness as a policy tool. Banks' interest margins are squeezed, as banks generally do not pass on negative rates to retail depositors even if bank lending rates are falling. Some analysts have viewed the modest rise in Swiss long-term mortgage rates this year, even as bond yields declined, as an attempt by banks to bolster their profits (figure 6). If banks increase lending rates and fees to maintain profits, those actions could limit the effectiveness of negative policy rates in transmitting easier credit conditions to the general economy. However, the rise in Swiss mortgage rates is the exception, and, overall, it appears that moving policy rates into negative territory has contributed to an easing of credit conditions in these economies. It is unclear how low policy rates can go before problems arise, but the European experience has shown that zero is not the effective lower bound.

1. Euro Area



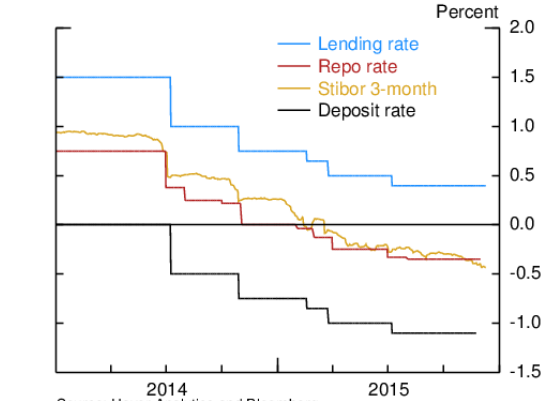
Source: Haver Analytics.

2. Switzerland



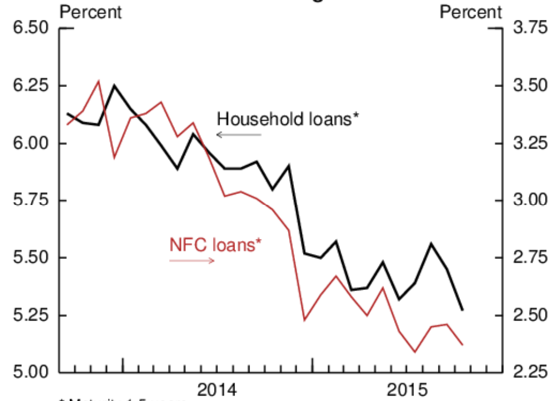
Source: Haver Analytics and Bloomberg.

3. Sweden



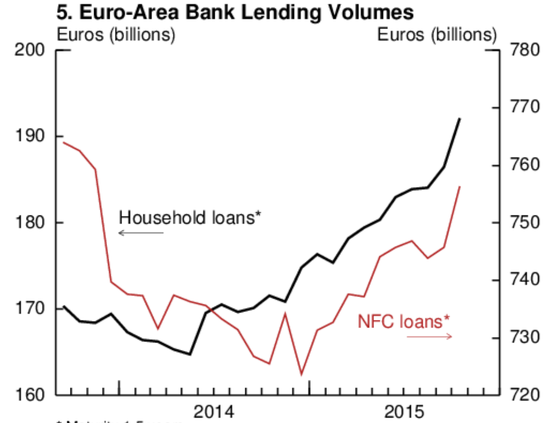
Source: Haver Analytics and Bloomberg.

4. Euro-Area Bank Lending Rates



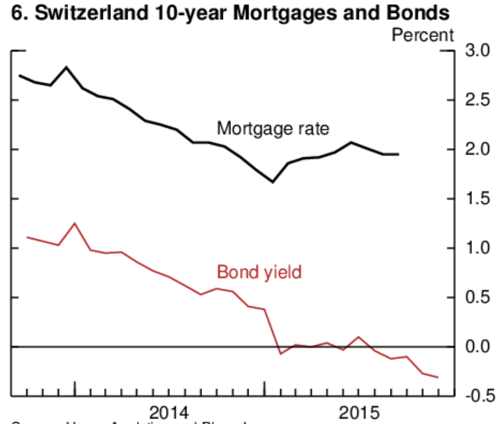
* Maturity 1-5 years.
Source: Haver Analytics.

5. Euro-Area Bank Lending Volumes



* Maturity 1-5 years.
Source: Haver Analytics.

6. Switzerland 10-year Mortgages and Bonds



Source: Haver Analytics and Bloomberg.

fourth quarter, unchanged from our projection in the October Tealbook. We see growth rising to 4¼ percent next year, supported by stronger growth abroad, accommodative monetary and fiscal policies, and low oil prices.

We expect inflation in the region to pick up to 2¼ percent in the current quarter from 1½ percent in the third quarter, reflecting in part the removal of rental subsidies in **Hong Kong** and a reversal of earlier food price declines in **India**. We see inflation moving up gradually to 3¼ percent by 2017.

- ***Latin America.*** In **Mexico**, real GDP growth rose to 3 percent in the third quarter, up from 2½ percent in the second quarter and ¾ percentage point above our October projection. Growth was supported by a diminution of fiscal drag and a pickup in external demand following a weak first half. We expect growth to dip back to 2½ percent in the current quarter, in line with the projected slowing of U.S. manufacturing growth. Growth then rises gradually to 3¼ percent by 2018, boosted by stronger U.S. manufacturing, accommodative monetary policy, and past currency depreciation.

  We expect Mexican inflation to edge up to 3¼ percent in the current quarter and to remain at that level over the rest of the forecast period. We now expect the Bank of Mexico to hike its policy rate at its meeting the day after the December FOMC meeting.

  Brazilian real GDP plunged 6¾ percent at an annual rate in the third quarter following a downwardly revised 8 percent decline in the second quarter. Private domestic demand, especially investment, fell sharply again on a jump in unemployment, persistently high inflation, and considerable skepticism that the country's economic problems will be resolved soon. Political gridlock continues to stymie the government's efforts to restore fiscal discipline, with President Dilma Rousseff now potentially facing impeachment proceedings, and consumer and business confidence remain at a near-record low. Accordingly, we have significantly revised down our forecast for Brazil and now expect real GDP to contract 4¼ percent in the current quarter. We do not expect activity to begin to recover until 2017, and we see growth reaching only 2 percent by the end of that year. Our baseline forecast assumes that spillovers from the Brazilian economy's weakness are confined to direct economic effects on its major trading partners. However, in this weak and uncertain economic climate, we do see some risk that Brazil could experience more intense financial disruptions; these could spill over to other countries as investors reassess EME prospects more generally.

Despite the weak economy, inflation has remained stubbornly high at an estimated 9 percent annual rate in the current quarter, fueled by increases in administered prices and the substantial depreciation of the *real*. We expect past policy tightening and lower pressure from administered prices to bring inflation down to 5½ percent by 2017, still above the central bank's 4½ percent inflation target.

In **Argentina** and **Venezuela**, populist leaders have suffered stunning losses in recent elections. In Argentina, opposition candidate Mauricio Macri won the presidential election and takes office December 10. He has pledged to tackle the country's serious economic problems and restore its access to global capital markets. In Venezuela, which is suffering a deep downturn and high inflation, the opposition secured a strong majority in the December 6 congressional elections. This victory raises the likelihood that Venezuela will begin to address its serious economic problems.

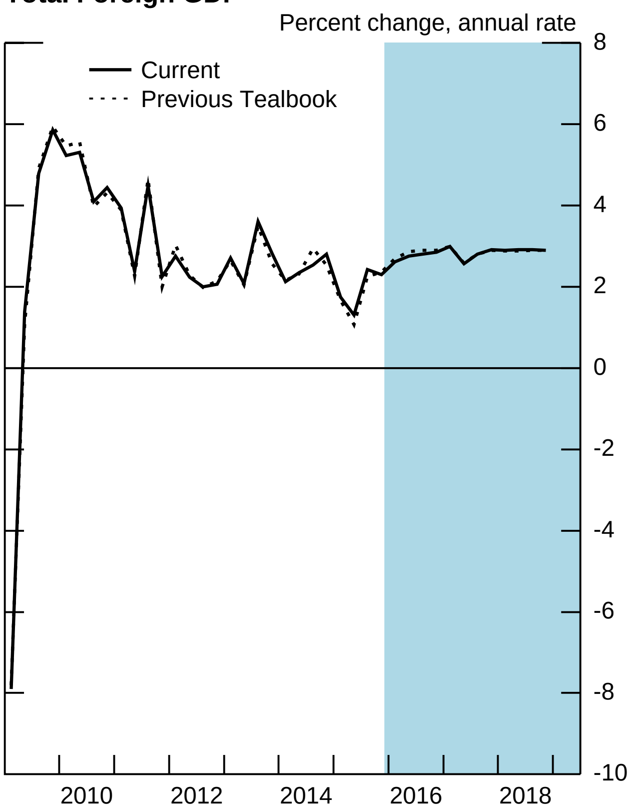
The Foreign GDP Outlook

Real GDP* Percent change, annual rate

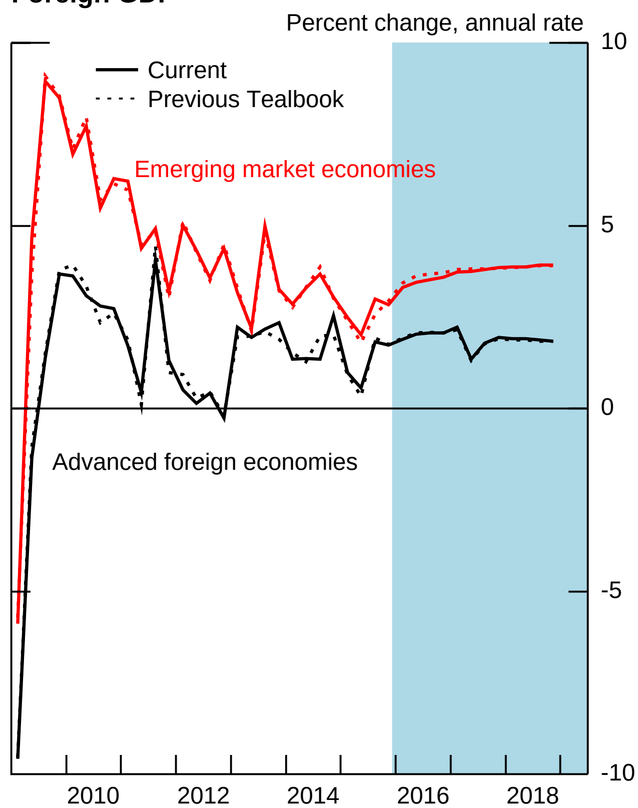
	2014	2015 H1	2015 Q3	2015 Q4	2016 H1	2016 H2	2017	2018
1. Total Foreign	**2.5**	**1.5**	**2.4**	**2.3**	**2.7**	**2.8**	**2.8**	**2.9**
Previous Tealbook	*2.5*	*1.4*	*2.3*	*2.4*	*2.8*	*2.9*	*2.8*	*2.9*
2. Advanced Foreign Economies	**1.7**	**0.8**	**1.8**	**1.7**	**2.0**	**2.1**	**1.8**	**1.9**
Previous Tealbook	*1.7*	*0.6*	*1.9*	*1.8*	*2.0*	*2.1*	*1.8*	*1.9*
3. Canada	2.4	-0.5	2.3	2.0	2.2	2.1	1.9	1.8
4. Euro Area	0.9	1.9	1.2	1.4	1.8	2.2	2.1	2.1
5. Japan	-0.9	1.9	1.0	1.0	1.1	1.2	-0.3	1.0
6. United Kingdom	3.0	2.1	1.9	2.3	2.5	2.4	2.4	2.3
7. Emerging Market Economies	**3.2**	**2.3**	**3.0**	**2.8**	**3.4**	**3.6**	**3.8**	**3.9**
Previous Tealbook	*3.2*	*2.1*	*2.6*	*3.0*	*3.5*	*3.7*	*3.8*	*3.9*
8. China	7.2	6.5	7.2	6.5	6.3	6.2	6.1	6.0
9. Emerging Asia ex. China	3.5	2.7	3.6	3.6	4.1	4.2	4.1	4.1
10. Mexico	2.6	2.3	3.0	2.5	2.8	2.8	3.1	3.2
11. Brazil	-0.7	-5.7	-6.7	-4.2	-1.5	0.2	1.6	2.1

* GDP aggregates weighted by shares of U.S. merchandise exports. The weights were updated in this forecast and the Previous Tealbook forecast has been updated to reflect this change.
... Not applicable.

Total Foreign GDP



Foreign GDP



The Foreign Inflation Outlook

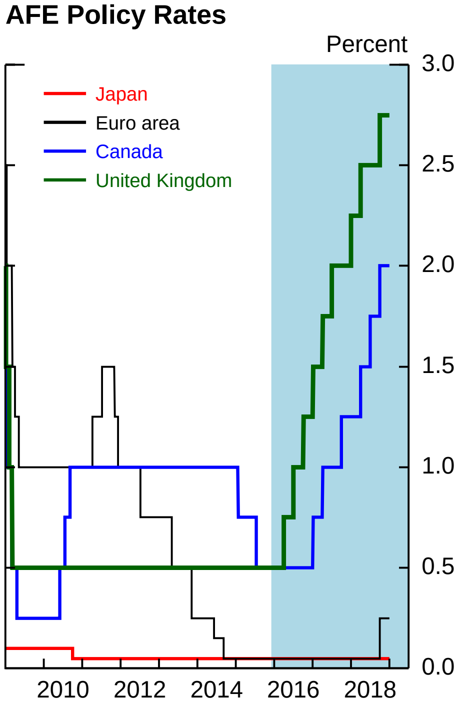
Consumer Prices* Percent change, annual rate

	2014	2015			2016		2017	2018
		H1	Q3	Q4	H1	H2		
1. Total Foreign	**2.0**	**1.4**	**2.0**	**1.0**	**2.0**	**2.4**	**2.5**	**2.5**
Previous Tealbook	*2.0*	*1.3*	*2.0*	*1.7*	*2.3*	*2.4*	*2.6*	*2.5*
2. Advanced Foreign Economies	**1.1**	**0.6**	**0.7**	**0.2**	**1.1**	**1.5**	**1.9**	**1.7**
Previous Tealbook	*1.1*	*0.6*	*0.7*	*0.5*	*1.3*	*1.5*	*1.9*	*1.7*
3. Canada	1.9	1.1	2.3	1.3	1.4	1.7	2.0	2.0
4. Euro Area	0.2	0.5	-0.2	-0.2	1.1	1.5	1.6	1.6
5. Japan	2.5	0.7	0.0	-0.6	0.4	1.0	2.5	1.3
6. United Kingdom	0.9	-0.2	0.9	-0.2	1.5	1.9	2.0	2.0
7. Emerging Market Economies	**2.6**	**2.0**	**2.9**	**1.6**	**2.7**	**3.0**	**3.0**	**3.0**
Previous Tealbook	*2.6*	*1.9*	*3.1*	*2.7*	*3.1*	*3.1*	*3.1*	*3.1*
8. China	1.5	1.4	3.1	-0.5	1.7	2.4	2.5	2.5
9. Emerging Asia ex. China	2.3	1.4	1.5	2.3	2.9	3.1	3.2	3.3
10. Mexico	4.2	1.8	3.0	3.2	3.2	3.2	3.2	3.2
11. Brazil	6.6	10.6	10.1	8.8	6.4	6.2	5.5	5.4

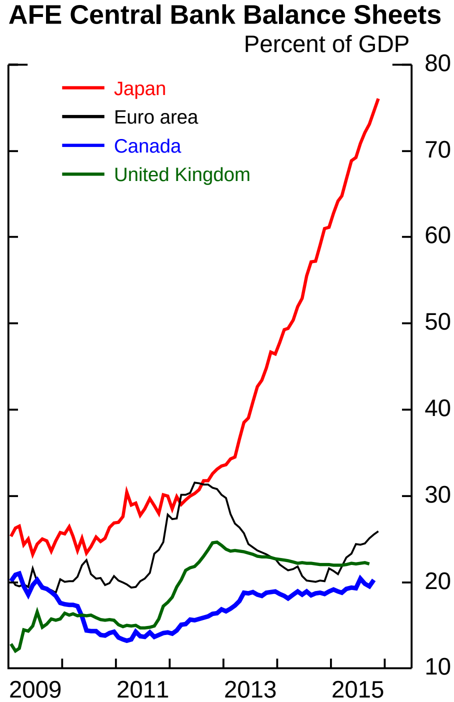
* CPI aggregates weighted by shares of U.S. non-oil imports. The weights were updated in this forecast and the Previous Tealbook forecast has been updated to reflect this change.
... Not applicable.

Foreign Monetary Policy

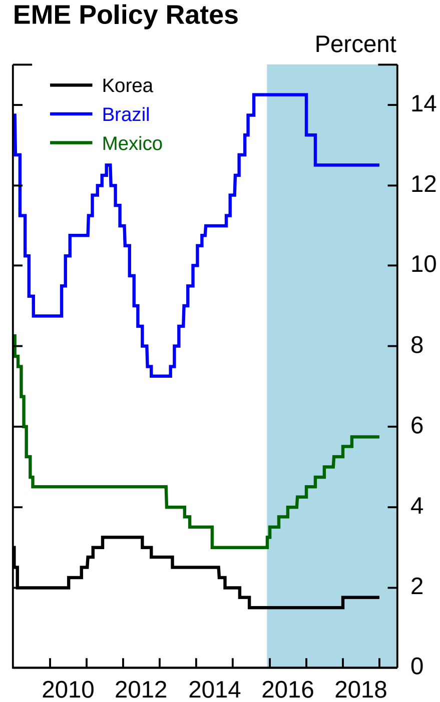
AFE Policy Rates



AFE Central Bank Balance Sheets

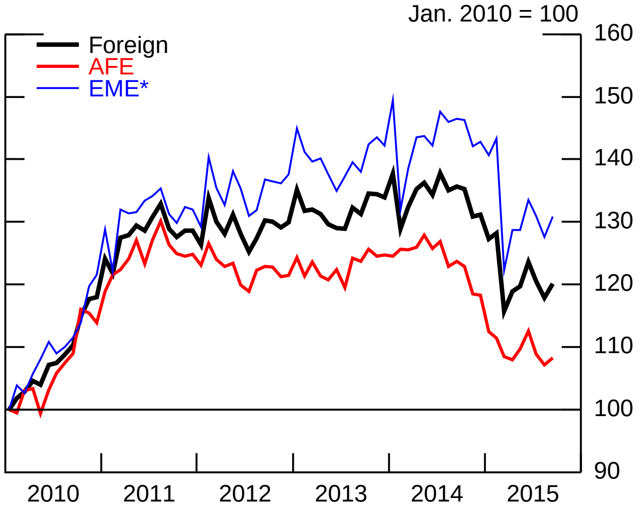


EME Policy Rates



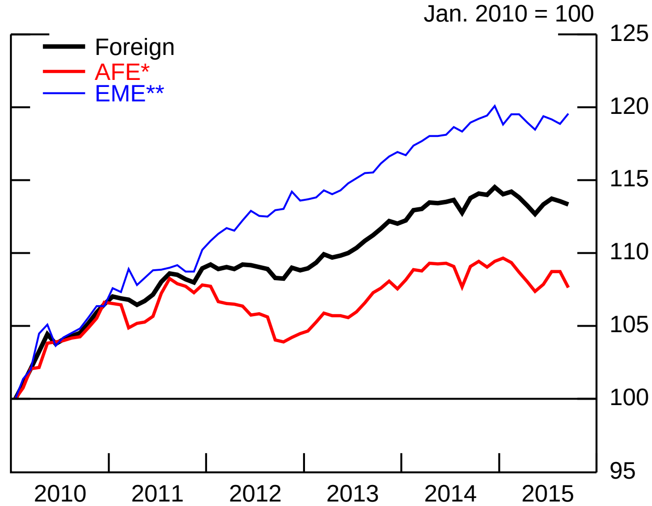
Recent Foreign Indicators

Nominal Exports



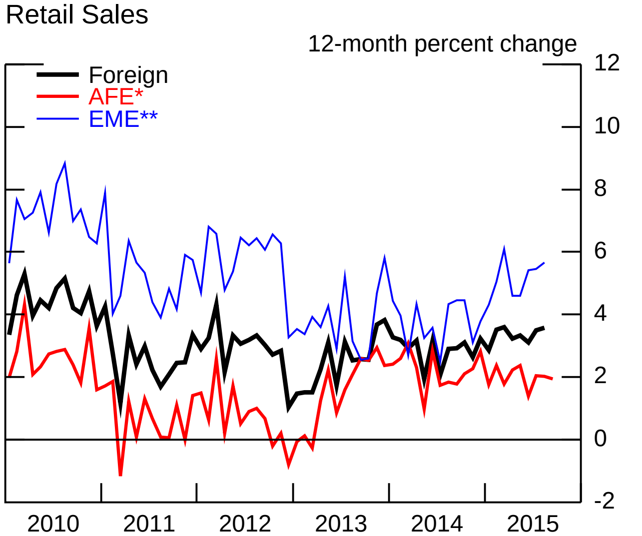
* Excludes Venezuela.

Industrial Production



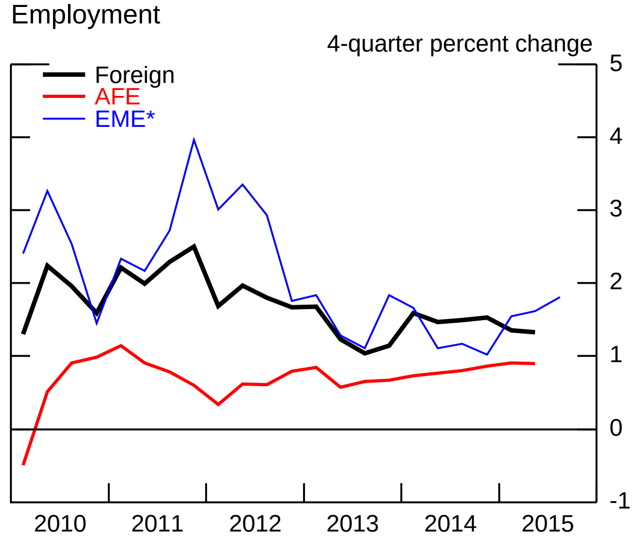
* Excludes Australia and Switzerland.
** Excludes Venezuela, Hong Kong, and Colombia.

Retail Sales



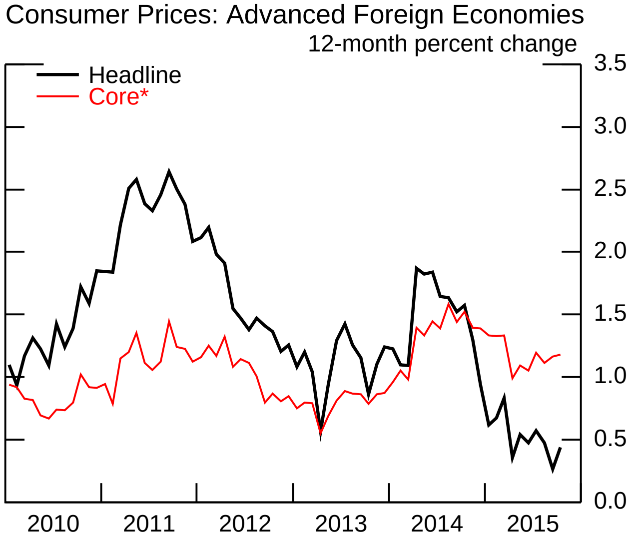
* Excludes Australia.
** Includes Brazil, Chile, China, Indonesia, Korea, Mexico, and Taiwan.

Employment



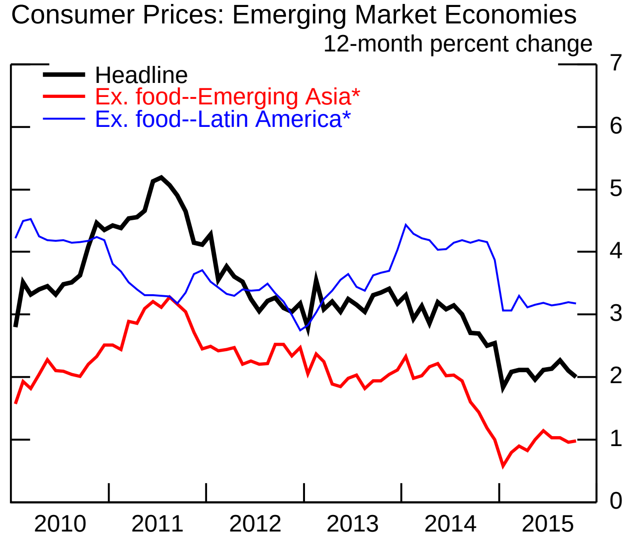
* Excludes Argentina, China, and Venezuela.

Consumer Prices: Advanced Foreign Economies



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

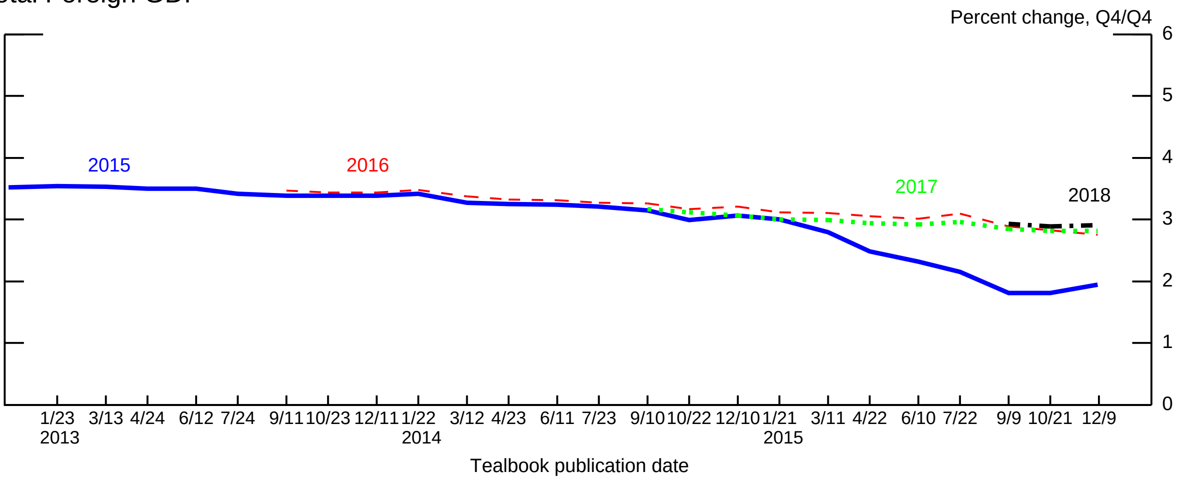
Consumer Prices: Emerging Market Economies



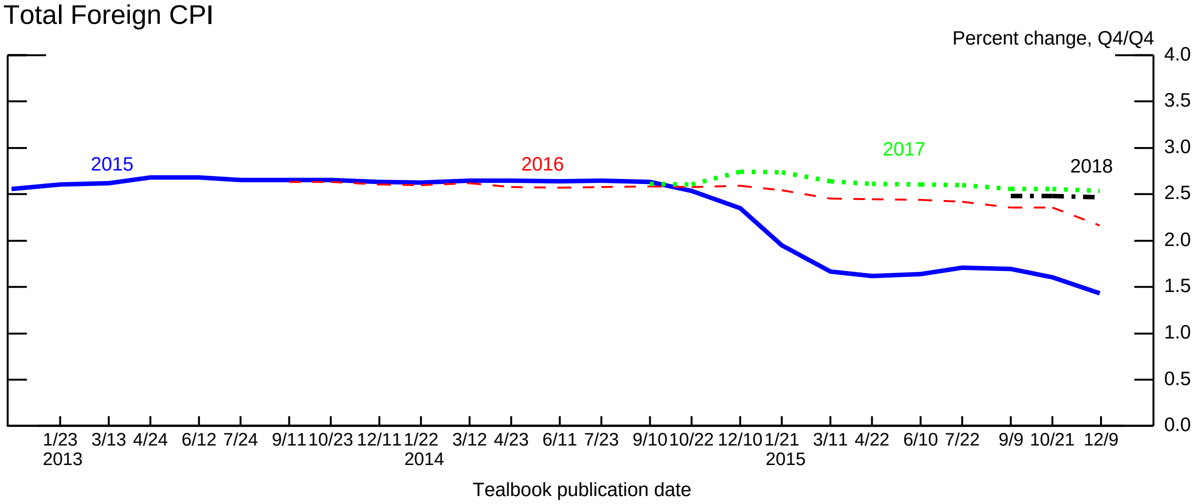
* Excludes all food; staff calculation.

Evolution of Staff's International Forecast

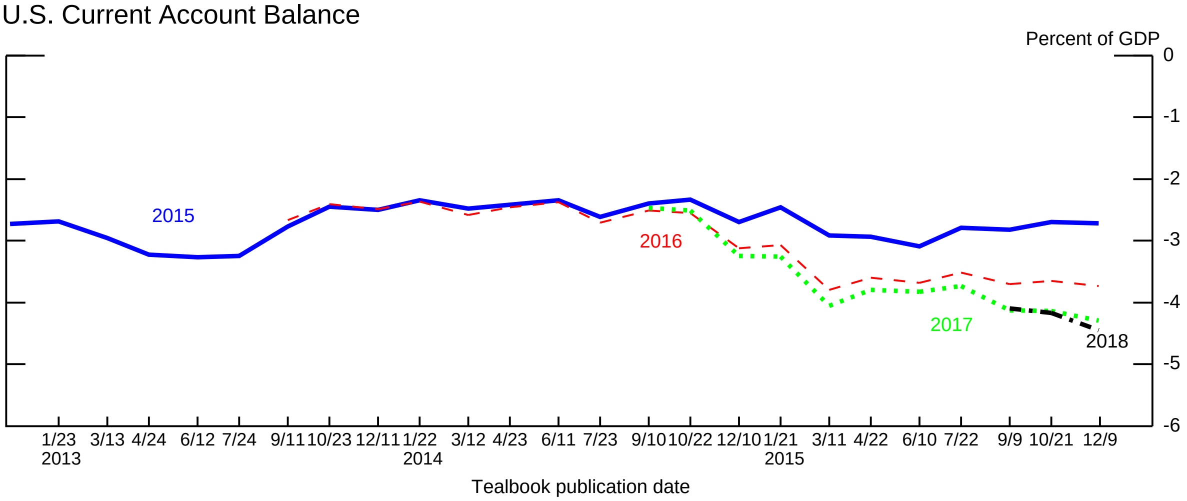
Total Foreign GDP



Total Foreign CPI



U.S. Current Account Balance



Int'l Econ Devel & Outlook

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Financial Developments

Following the October FOMC statement and the stronger-than-expected October employment report, market participants substantially revised upward their expectations that the FOMC will raise the target range for the federal funds rate in December. Subsequent data releases and Federal Reserve communications firmed those views; market participants now attach high odds to the possibility of a December liftoff. Notably, the rising likelihood of liftoff did not appear to generate any increase in actual or expected volatility in equity and fixed-income markets. Financing conditions for most businesses and households remained generally accommodative.

- Based on federal funds futures, the odds that investors attached to an initial increase in the federal funds rate in December more than doubled to between 80 and 95 percent, and the expected federal funds rate implied by OIS quotes rose moderately, increasing 23 basis points and 31 basis points at the end of 2016 and 2017, respectively.

- Yields on 2-, 5-, and 10-year nominal Treasury securities increased notably, rising 34, 29, and 21 basis points, respectively.

- Despite a sizable decline in oil prices, TIPS-based measures of inflation compensation edged up over the period but remained at low levels.

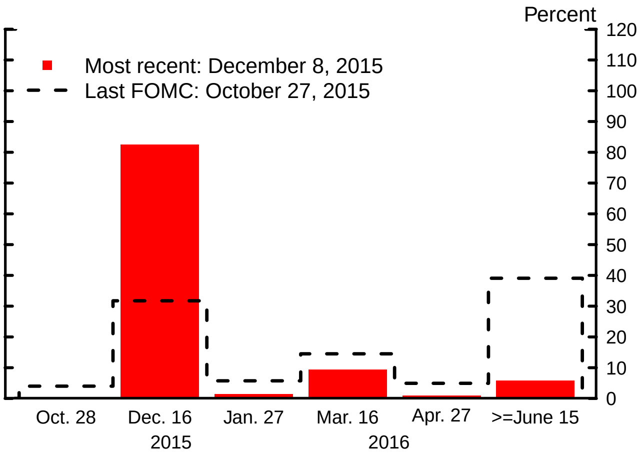
- The U.S. dollar appreciated about 1¾ percent, as prospects for monetary policy divergence among the advanced economies firmed and as declines in global commodity prices weighed on emerging market currencies.

- The S&P 500 index was little changed, on net, and traded in a relatively narrow range. The VIX edged higher, on balance, but remained below its historical median level.

- Yield spreads on investment-grade corporate bonds were little changed, on net, while spreads on speculative-grade bonds widened somewhat further, particularly for the energy sector. CMBS spreads also widened further.

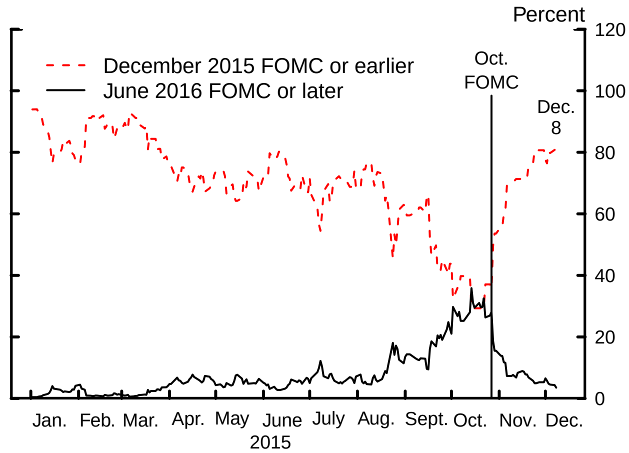
Policy Expectations

Implied Probability Distribution of Liftoff



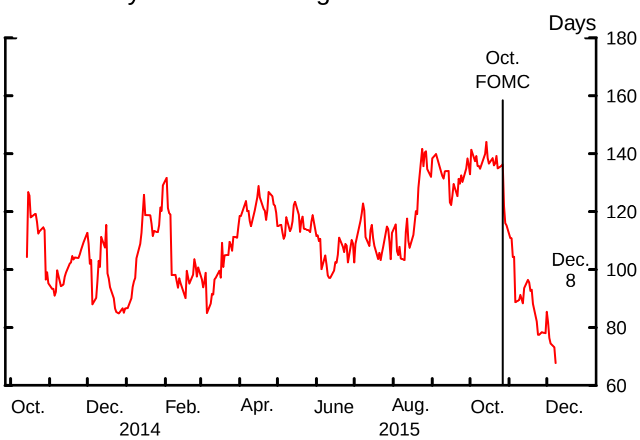
Note: Implied by federal funds futures. The model assumes that investors expect the federal funds rate to trade around 37.5 basis points after liftoff.
Source: CME Group; Federal Reserve Board staff estimates.

Implied Probability of Liftoff



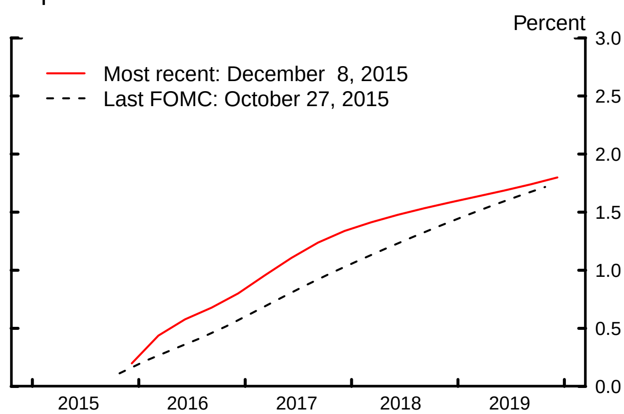
Note: Implied by federal funds futures. The model assumes that investors expect the federal funds rate to trade around 37.5 basis points after liftoff.
Source: CME Group; Federal Reserve Board staff estimates.

Uncertainty of Liftoff Timing



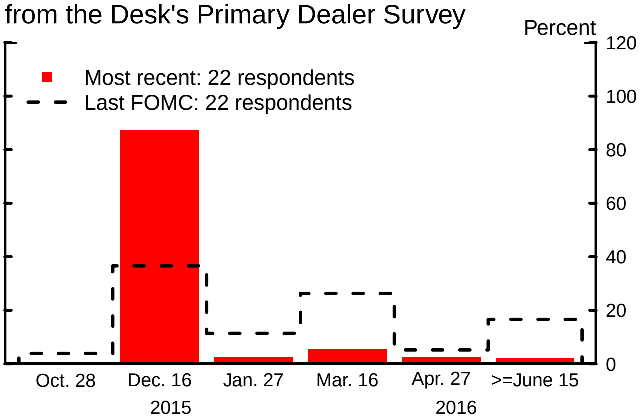
Note: Implied by federal funds futures. Standard deviation (in days) of the date of liftoff as implied by rates on federal funds futures contracts.
Source: CME Group; Federal Reserve Board staff estimates.

Implied Federal Funds Rate



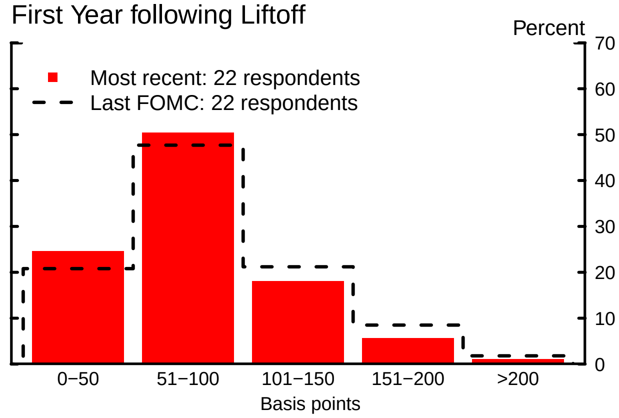
Note: Path is estimated using overnight index swap quotes with a spline approach and a term premium of zero basis points.
Source: Bloomberg; Federal Reserve Board staff estimates.

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 June 2016, expected timing is during or after that meeting.
Source: Desk's primary dealer survey from December 7, 2015.

Conditional Pace of Tightening, First Year following Liftoff



Note: Distribution conditional on the federal funds rate not returning to its zero lower bound.
Source: Desk's primary dealer survey from December 7, 2015.

Financial Developments

POLICY EXPECTATIONS AND TREASURY YIELDS

Federal Reserve communications and economic data releases over the intermeeting period led investors to revise up sharply their perceived odds of liftoff in December. In particular, investors reportedly read the October FOMC statement as suggesting that the Committee judged that the downside risks to the U.S. economy stemming from global economic and financial developments had eased since the September meeting. Further, the change in the forward-guidance language, especially the reference to "at its next meeting," was also seen as indicating a higher likelihood of a December liftoff. The stronger-than-expected October employment report also contributed notably to the rise in perceived odds of a December liftoff. Other communications, including some policymakers' speeches and the October minutes, as well as the November employment report appeared to firm the likelihood of a December liftoff.

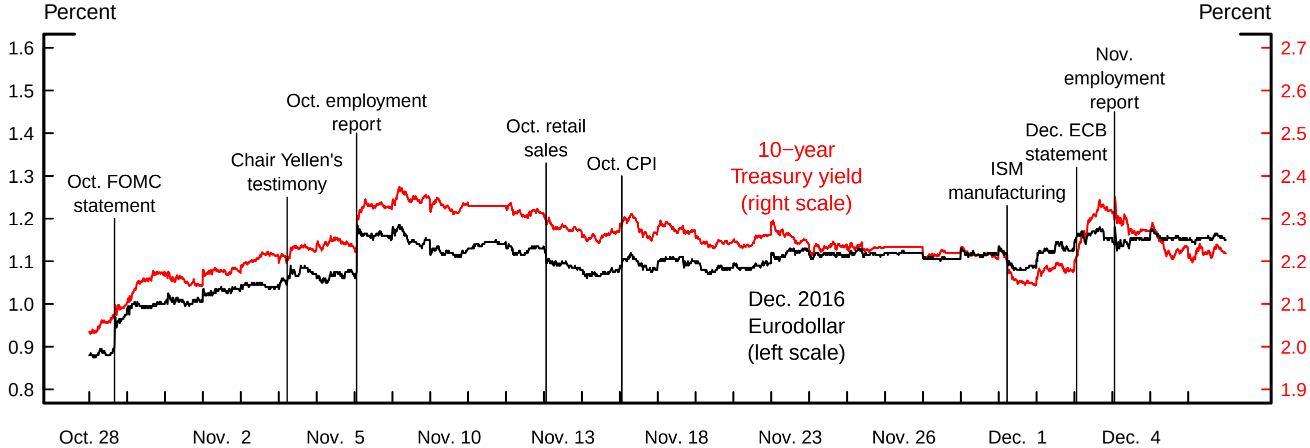
All told, investors now see a December rate hike as highly likely. Based on federal funds futures, the probability of a December liftoff more than doubled to between 80 and 95 percent.[1] The expected path of the federal funds rate implied by OIS quotes also rose moderately over the intermeeting period; for instance, the implied rate at the end of 2016 increased 23 basis points to a little over ¾ percent, and the implied rate at the end of 2017 increased 31 basis points to a little over 1¼ percent. Relative to just before the FOMC initiated its tightening cycles in 1994 and 2004, the current probability of liftoff is somewhat above that observed in 1994 and somewhat below that observed in 2004. At the same time, the current expected pace of tightening is much slower than in 1994 and 2004.

Similar to financial market quotes, the average probability distribution from the Desk's December surveys of primary dealers and market participants shows that liftoff at the December meeting is highly likely. The average probability assigned to a December liftoff increased to about 90 percent, from about 35 percent in the October surveys. The average pace of tightening in the first year following liftoff, conditioned on not returning to the zero lower bound, was little changed.

[1] Estimates of the probability of liftoff generally fall in a range of 80 to 95 percent depending on the technical assumptions underlying the calculations.

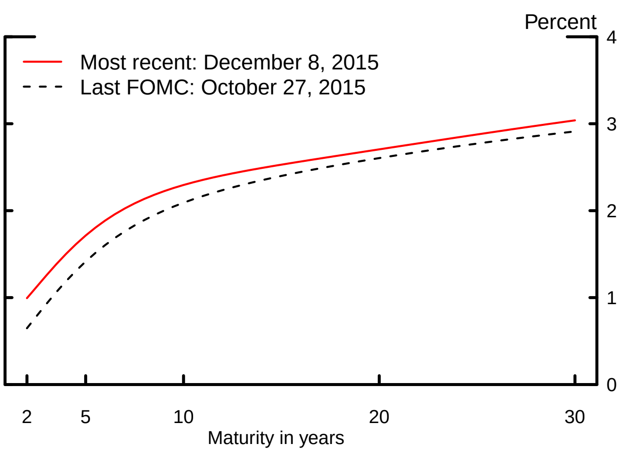
Treasury Yields

Selected Interest Rates



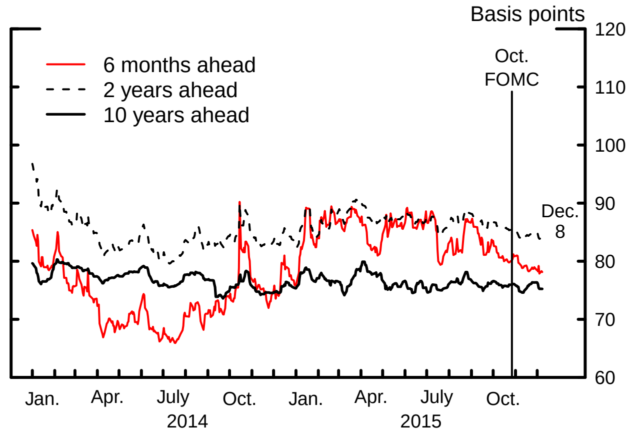
Note: 5−minute intervals, 8:00 a.m. to 4:00 p.m.
Source: Bloomberg.

Treasury Yield Curve



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

Implied Volatility on 10−Year Swap Rate

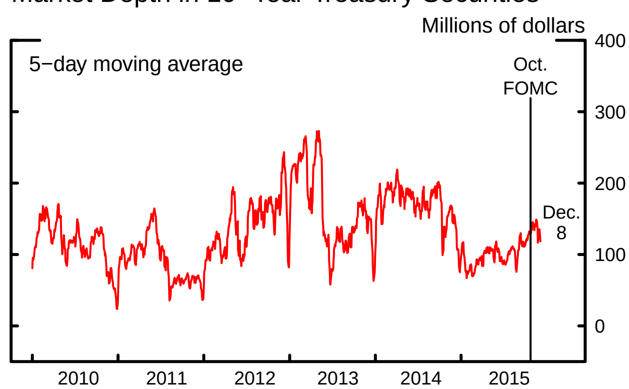


Source: Barclays.

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: Federal Reserve Bank of New York; Federal Reserve Board staff estimates.

Market Depth in 10−Year Treasury Securities



Note: Market depth is defined as the average top 3 bid and asked quote sizes.
Source: BrokerTec.

Financial Developments

Consistent with the rise in the expected path of the federal funds rate and generally stronger-than-expected economic data releases, nominal Treasury yields rose 34, 29, and 21 basis points on securities with 2-, 5-, and 10-year maturities, respectively. Swap rates of comparable horizons rose less than Treasury yields, narrowing swap spreads to historical lows. (See the box "Recent Declines in Swap Spreads.") Near-term uncertainty about longer-term interest rates, measured by swaption-implied volatilities on the 10-year swap rate, edged down, even as expectations for an imminent liftoff firmed.

Despite a notable decline in oil prices and modest appreciation of the dollar, 5- and 5-to-10-year measures of TIPS-based inflation compensation rose 6 basis points and 7 basis points, respectively, but remained at low levels. Inflation compensation measures based on inflation swaps also edged higher.

On October 30, the Congress passed a bill to suspend the debt ceiling until mid-March 2017. Treasury bill supply, which had fallen considerably as the Treasury Department maneuvered to remain under the debt ceiling, subsequently rebounded strongly. Throughout the debt ceiling episode and the rest of the intermeeting period, liquidity conditions in the Treasury (and agency MBS) markets remained stable.[2]

Foreign Developments

Since the October FOMC meeting, movements in foreign financial markets have reflected the firming of expectations for the Federal Reserve to begin raising interest rates in December, as well as shifts in expectations for additional easing by the European Central Bank (ECB). The dollar strengthened moderately against most currencies, and longer-term yields on foreign sovereign bonds generally moved higher along with U.S. Treasury yields. Credit spreads for emerging market economies (EMEs) were little changed, but equity prices were weaker, in part reflecting declines in commodity prices.

Strong signals of more accommodation sent by ECB President Mario Draghi since the October 22 ECB policy meeting led to further depreciation of the euro ahead of the ECB's December meeting, a rise in euro-area stock prices, and a muted response of benchmark long-term bond yields to rising U.S. yields. At its December 3 policy meeting, the ECB cut its deposit rate by 10 basis points to minus 0.30 percent, extended

[2] Since the October FOMC meeting, the Treasury has auctioned $268 billion of Treasury nominal fixed-rate securities, $13 billion in Treasury Inflation-Protected Securities, and $28 billion of two-year Floating Rate Notes.

Recent Declines in Swap Spreads

Interest rate swap spreads have declined noticeably since mid-August to historically low levels, leaving spreads at intermediate and long horizons in negative territory (figure 1).[1] Similar declines are observed for other spreads over Treasury securities, particularly those on overnight index swaps. Spreads on debt instruments with default risk comparable with Treasury securities, such as triple-A corporate bonds, also declined, but not to unusually low levels (figures 2 and 3).

There are several reasons why one would expect swap spreads to be positive. One reason is that swap rates reflect premiums that investors demand for risk associated with exposure to the swap contract counterparty and for credit risk embedded in the LIBOR rate. Another is that investors are willing to pay a premium for the safety and liquidity of Treasury securities, leading to lower Treasury yields and higher swap spreads. In addition to factors driving those premiums, swap spreads are also driven by technical factors specific to the swap market, including corporate issuance, mortgage-related hedging flows, and demand for synthetic duration on the part of institutional investors such as insurance companies. Market participants have focused, in particular, on the recent decline in swap spreads at short and intermediate horizons, pointing to a couple of developments that might have contributed to such a decline. The following discussion reviews these developments and examines their relevance for recent spread declines.

One development is heavy corporate bond issuance ahead of the approaching liftoff in the target federal funds rate. Corporate bond issuers reportedly often swap their fixed-rate liabilities for floating-rate ones to match the duration of their assets, potentially leading to higher demand to receive fixed-rate payments in swap contracts, putting downward pressure on swap rates, and, consequently, lowering swap spreads. However, fixed-rate corporate bond issuance by financial firms—the type of corporate bond issuance that is reportedly more likely to be swapped—has not been elevated recently relative to the levels of the past few years, suggesting that hedging of corporate bond issuance was probably not the most important factor recently (figure 4).[2]

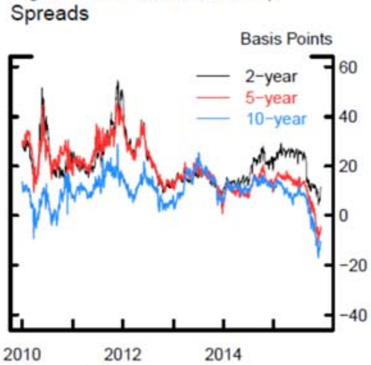
Another factor that market participants have pointed to is the sale of Treasury securities by foreign reserve managers, which could have increased the effective supply of these securities in the market, leading to higher Treasury yields and, thus, lower swap spreads (all else being equal). Indeed, Treasury International Capital, or TIC, data point to substantial net sales of Treasury securities by foreign official investors in the third quarter of 2015 (figure 5). Consistent with such sales, decreases in

[1] Swap spreads shown in figure 1 are derived from quotes on plain fixed-for-floating interest rate swap contracts, in which two parties exchange periodic payments that are based on a pre-specified fixed rate (swap rate) and on the three-month LIBOR, and are computed by subtracting yields on on-the-run Treasury securities from swap rates of comparable horizons. An example of a real-world situation in which swap contracts are used is when a corporation issuing fixed rate debt swaps it into floating- rate debt to better match duration of its assets.

[2] This conclusion is supported by regression results (not shown) suggesting that while in some specifications fixed-rate financial issuance is associated with lower swap spreads, it can explain, at most, a few basis points of the spreads' recent declines (including overall corporate issuance instead of fixed-rate financial issuance does not change the conclusions). In addition, available data on trading volumes in the swap market do not appear to point to any recent run-ups in fixed-for-floating swapping activity. More generally, one would expect the effect of corporate issuance to be transitory.

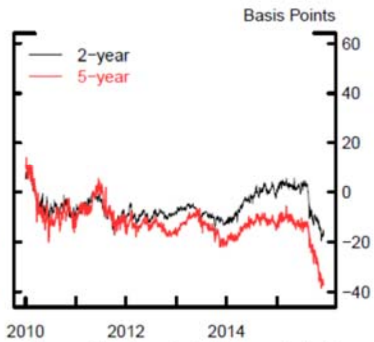
swap spreads over the September intermeeting period were most pronounced in shorter tenors, in which holdings of Treasury securities by foreign official investors are said to have been concentrated. In addition, some market participants suggested that initial declines in swap spreads triggered by foreign reserve sales were magnified by reduced willingness and capacity of dealers to serve as intermediaries in the Treasury markets. In particular, due in part to regulatory changes, dealers may have become less willing to provide financing for Treasury securities or to take on leverage to finance their own Treasury inventories, leading to a larger increase in Treasury yields than otherwise.[3] In addition, reduced willingness of dealers to provide funding in the repo market could be one factor contributing to the downward trend in the spread of the three-month LIBOR over the GC repo rate in the past couple of years, which has accelerated since August and early September (figure 6). Since taking positions predicated on expectations for a widening of swap spreads would involve financing long positions in Treasury securities in the GC repo market and becoming a receiver of floating-rate payments in swap contracts, lower spreads between the LIBOR and the GC repo prate may, in turn, make it more costly for investors to take such positions, leading swap spreads to remain low for a longer time.[4] These developments in the Treasury cash and repo markets might help explain why rates implied by derivative contracts, such as OIS and interest rate swaps, have not risen in line with Treasury yields since mid-August.

Figure 1: Interest Rate Swap Spreads



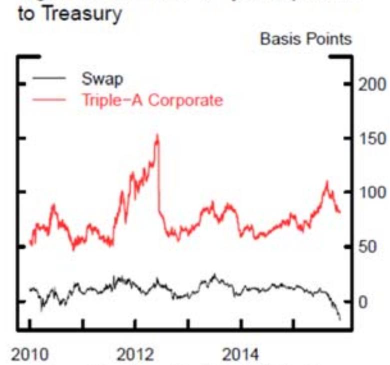
Source: Bloomberg.

Figure 2: OIS Spreads to Treasury



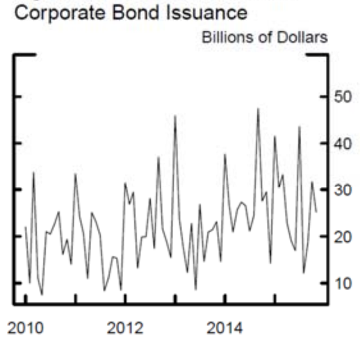
Source: Bloomberg; Federal Reserve Bank of New York; staff estimates.

Figure 3: Selected 10-year Spreads to Treasury



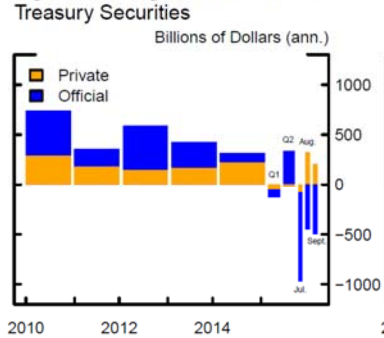
Source: Bloomberg; Merrill Lynch; Federal Reserve Bank of New York; staff estimates.

Figure 4: Financial Fixed-Rate Corporate Bond Issuance



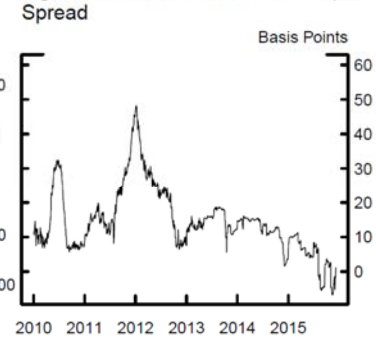
Source: FISD.

Figure 5: Foreign Net Purchases of Treasury Securities



Note: Includes nominal and inflation notes and bonds, bills, and non-marketable debt.
Source: Staff estimates from TIC data.

Figure 6: 3-month LIBOR-GC Repo Spread



Source: Bloomberg.

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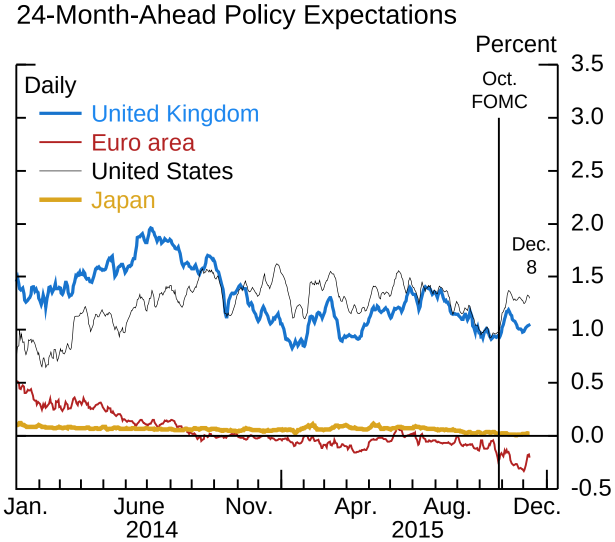
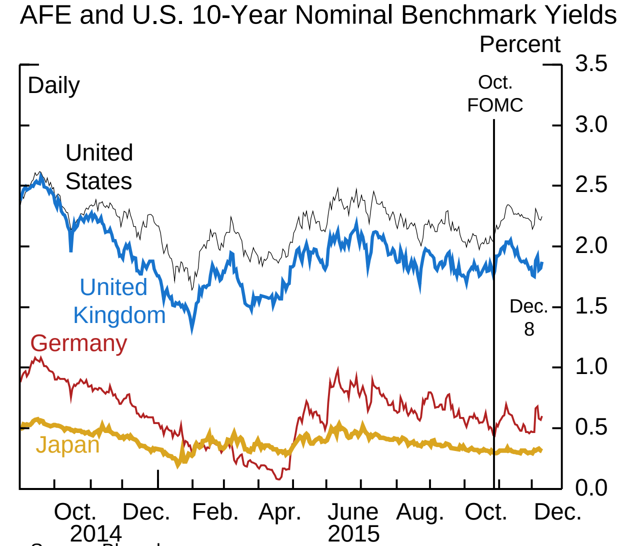
[3] At the same time, other new regulations could have reportedly led to higher demand for Treasury securities, particularly those with short maturities.

[4] In addition, participants of the Desk's most recent Survey of Primary Dealers considered the increased balance sheet cost for cash products as the most important factor in explaining the narrowing of swap spreads, followed by foreign central bank selling of Treasury securities and increased issuance of corporate debt.

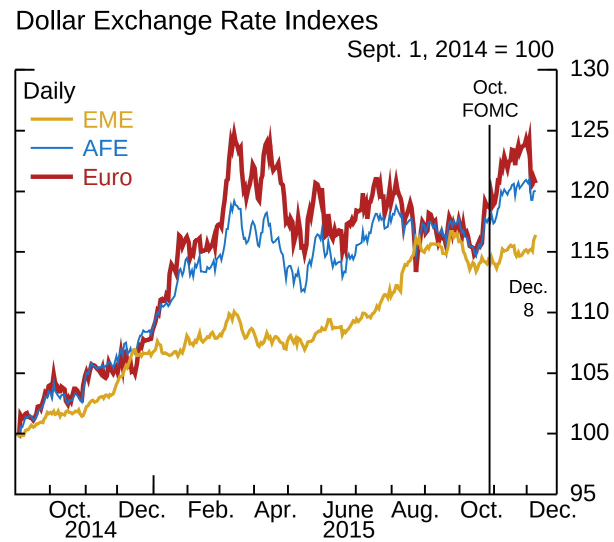
Foreign Developments



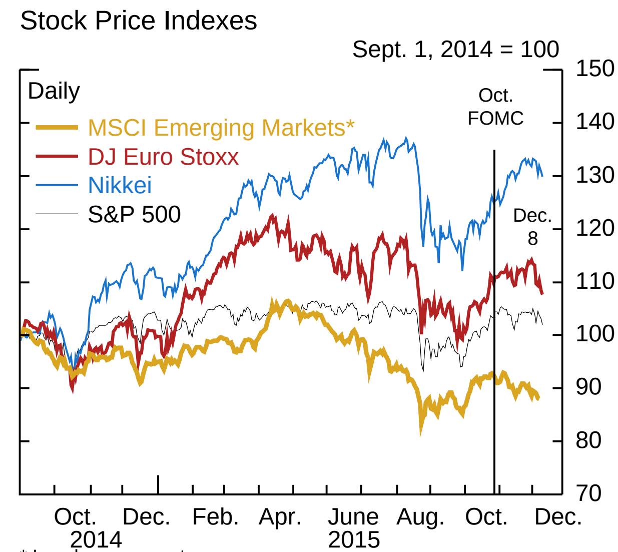
Note: 1-month forward rates from OIS quotes, 3-day moving average.
Source: Bloomberg.



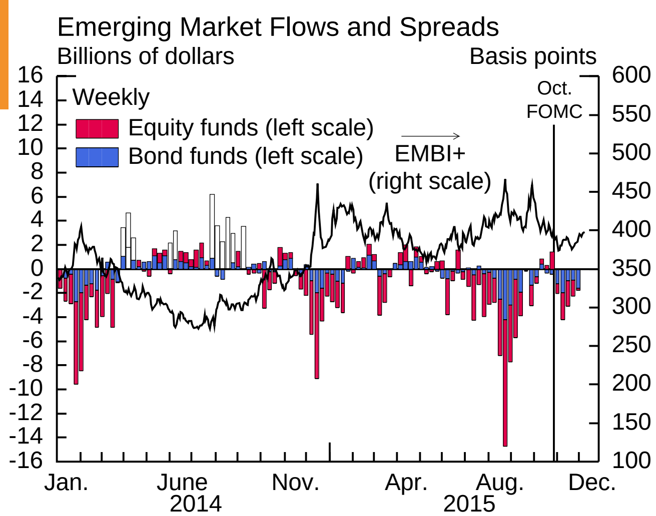
Source: Bloomberg.



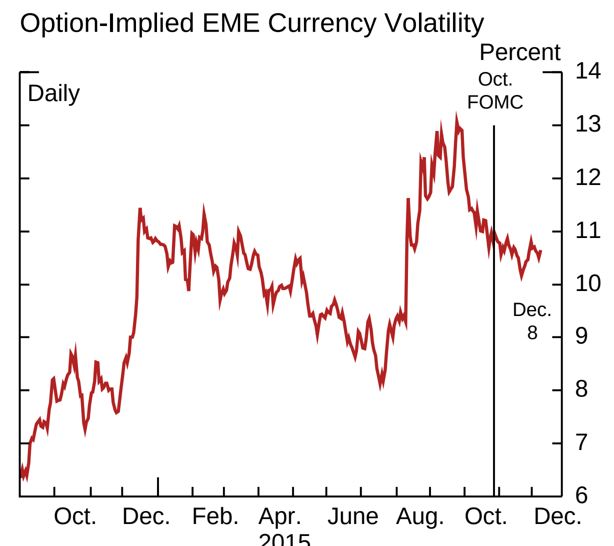
Source: Federal Reserve Board; Bloomberg.



* Local currency returns.
Source: Bloomberg.



Note: Emerging market bond spreads over zero-coupon Treasury securities. Excludes intra-China flows.
Source: Emerging Portfolio Fund Research.



Source: Bloomberg.

Financial Developments

the minimum horizon for its asset purchase program by six months, and left the pace of purchases unchanged. These measures were less accommodative than expected by markets, resulting in a sharp but only partial retracement in euro-area markets, which spilled over into global bond and equity prices. On balance over the intermeeting period, the euro declined 1½ percent against the dollar, euro-area equity prices fell roughly 1 percent, and longer-term German bond yields rose almost 15 basis points.

The Bank of Japan maintained the existing pace of asset purchases at its October and November meetings, despite revising its forecast so that inflation does not meet its 2 percent target until early 2017, six months later than previously projected. During the intermeeting period, the yen depreciated 2 percent against the dollar, longer-term government bond yields were little changed, and Japanese equities rose almost 4 percent.

In the United Kingdom, 24-month-ahead policy rate expectations initially tracked the rise in similar indicators for the United States, but they subsequently retraced most of that increase after the release of the November *Inflation Report.* In the report, the Bank of England revised down its inflation forecast, signaled that interest rates would likely rise only very gradually, and provided new guidance that the bank will wait until its policy rate reaches about 2 percent before reducing its asset holdings, a threshold that is higher than previously expected.

Most EME assets showed only limited weakness in reaction to increased expectations for an imminent U.S. liftoff. However, declines in commodity prices late in the period weighed on EME currencies and equity prices. On net, EME currencies depreciated by 1¾ percent against the U.S. dollar, and equity prices declined about 6 percent, reflecting falling earnings and commodity prices.

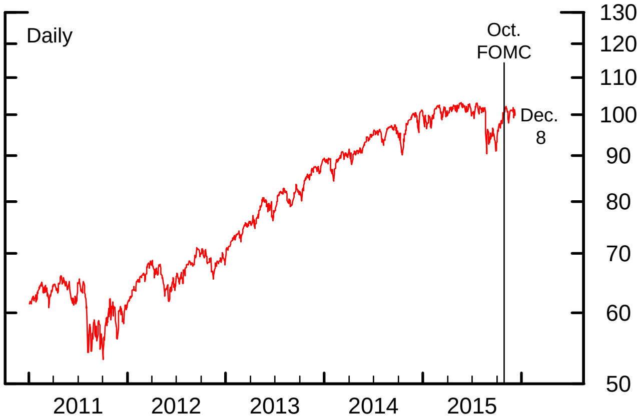
Corporate Asset Prices and Earnings

Despite a steep selloff of energy-sector stocks, broad stock price indexes were little changed, on net, since the October FOMC meeting. The one-month-ahead option-implied volatility on the S&P 500 index—the VIX—edged higher on balance. Spreads on investment-grade corporate bonds were little changed, while spreads on speculative-grade bonds widened somewhat further, particularly in the energy sector.

Corporate earnings and credit quality showed some continued signs of weakening. With earnings reports for essentially all S&P 500 companies in hand, aggregate earnings

Corporate Asset Prices and Earnings

S&P 500 Stock Price Index



Source: Bloomberg.

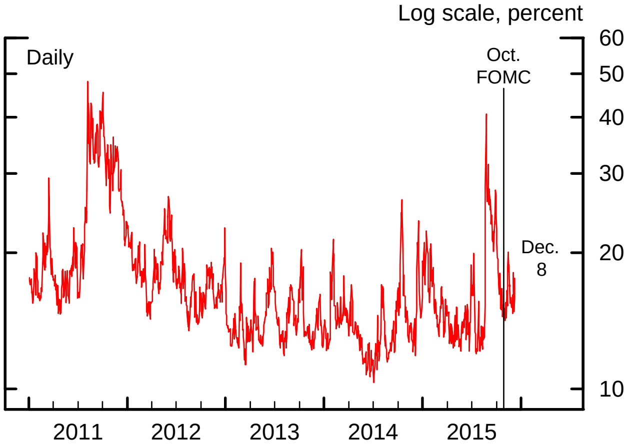
Selected Index Percent Changes from October FOMC

Percent

Composite indexes	
S&P 500 composite	-0.1
1. Technology	1.8
2. Financial	1.1
3. Consumer discretionary	0.8
4. Health care	0.8
5. Telecommunications	0.6
6. Consumer staples	-1.0
7. Basic materials	-1.0
8. Industrial	-1.1
9. Utilities	-4.6
10. Energy	-7.5

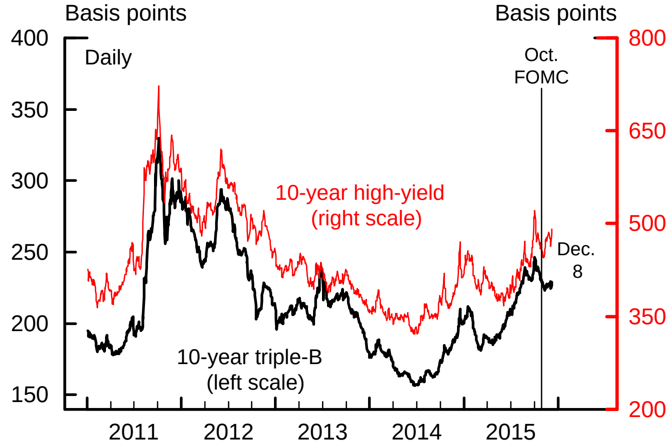
Note: Indexes are sorted in descending order of growth (except for S&P composite).
Source: Bloomberg.

Implied Volatility on S&P 500 (VIX)



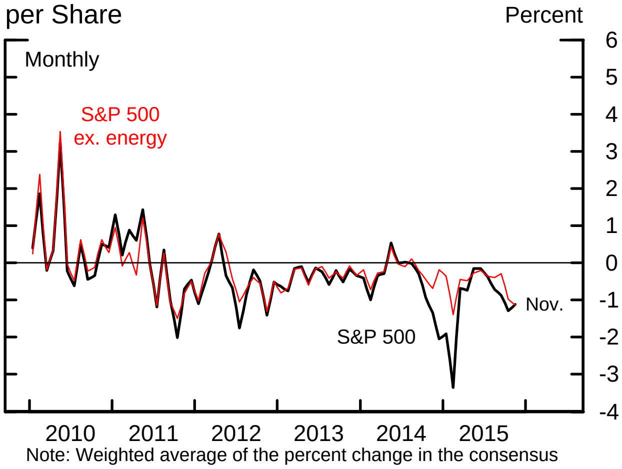
Source: Chicago Board Options Exchange.

Corporate Bond Spreads



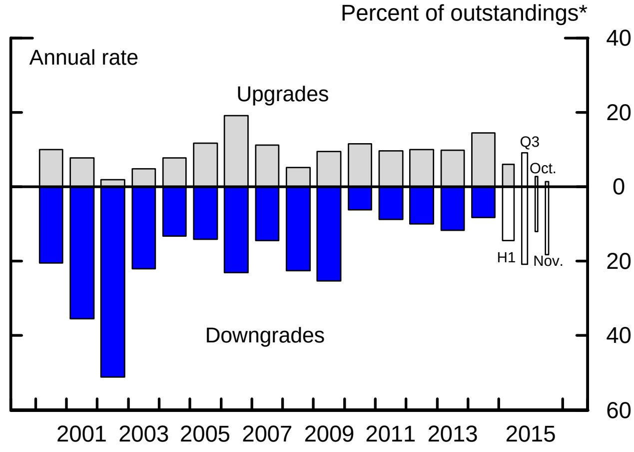
Note: Spreads over 10-year Treasury yield.
Source: Staff estimates of smoothed corporate yield curves based on Merrill Lynch data and smoothed Treasury yield curve.

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



Note: Weighted average of the percent change in the consensus forecasts of current-year and following-year earnings per share.
Source: Thomson Reuters Financial.

Bond Ratings Changes of Nonfinancial Firms



* Computed as a percent of nonfinancial bonds outstanding.
Source: Calculated using Moody's ratings from Mergent Fixed Income Securities Database.

Financial Developments

per share in the third quarter is projected to have declined slightly compared with year-earlier levels, in line with expectations. Earnings growth was particularly weak in the energy and materials sectors due to declines in oil and metals prices; the stronger dollar appeared to weigh on earnings growth across many sectors. Earnings have now declined for two consecutive quarters, and Wall Street analysts' projections suggest that the weakness in earnings growth will persist, with a continued drag coming from the energy sector. In addition, the volume of nonfinancial bonds that were downgraded by Moody's Investors Service in November significantly outpaced the volume of upgrades, particularly for speculative-grade firms.

Business and Municipal Finance

Overall, nonfinancial businesses continued to tap financial markets at a brisk pace. Issuance of corporate bonds and institutional new money leveraged loans remained solid, driven by demand to finance M&A activity, while refinancing-related leveraged loan issuance stayed weak. Growth of C&I loans on banks' books continued to be strong in October and November, driven mainly by large banks making large loans. In contrast, public equity issuance remained subdued.

Financing conditions for commercial real estate lending tightened somewhat over the intermeeting period as CMBS spreads widened further, suggesting that CMBS investors continued to reassess the riskiness of the sector following several years of robust demand for these securities. Nonetheless, CMBS issuance remained high and underwriting standards stayed relatively loose, indicating that financing conditions continued to be quite accommodative overall.

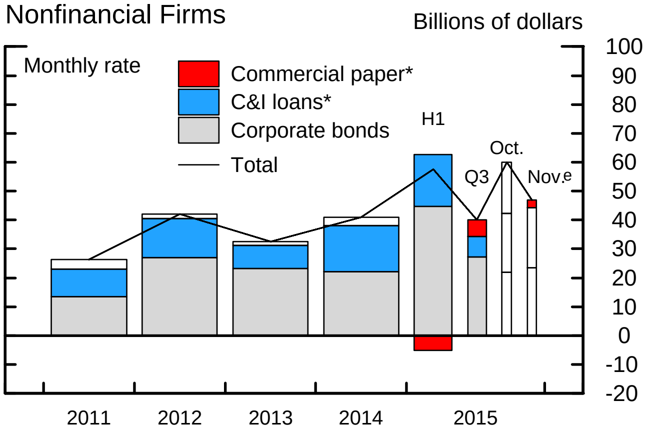
On balance, financing conditions for municipalities were generally stable. Gross issuance of municipal bonds was solid in recent months, and yields declined over the intermeeting period, leaving their ratios to long-term Treasury yields somewhat lower but still at the high end of their historical distribution. Puerto Rico met its scheduled debt payments, but it continued to experience significant financial strains and reportedly continued negotiations with investors to restructure its sizable outstanding debt.

Household Finance

Financing conditions in consumer credit markets remained accommodative on balance. Consumer loan balances continued to rise at a robust pace through October,

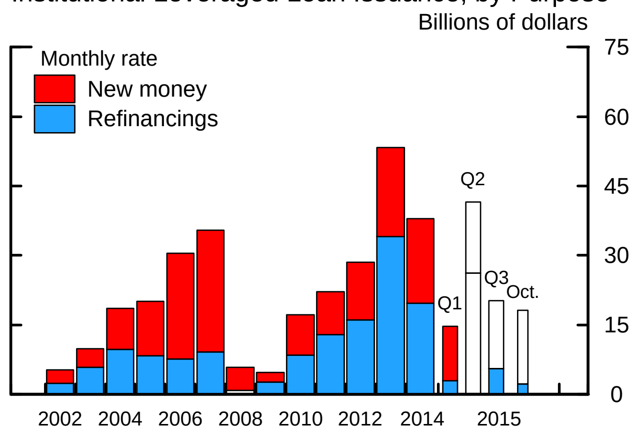
Business and Municipal Finance

Selected Components of Net Debt Financing, Nonfinancial Firms



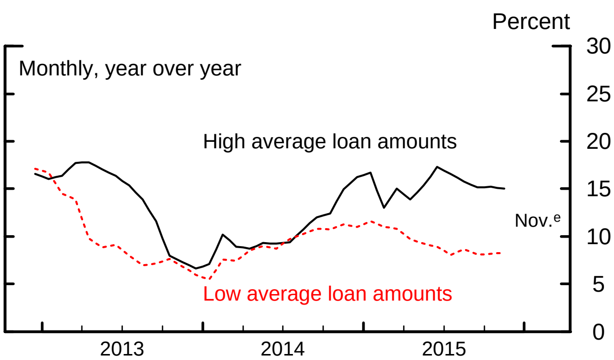
e Estimate for change in commercial and industrial (C&I) loans.
* Period-end basis, seasonally adjusted.
Source: Depository Trust & Clearing Corporation; Mergent Fixed Investment Securities Database; Federal Reserve Board.

Institutional Leveraged Loan Issuance, by Purpose



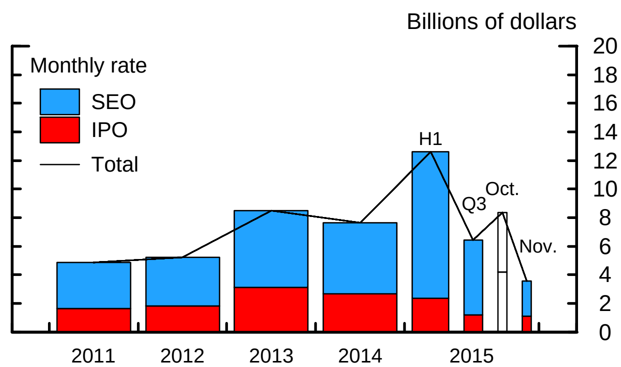
Source: Thomson Reuters LPC LoanConnector.

Commercial and Industrial Loans at Large Banks



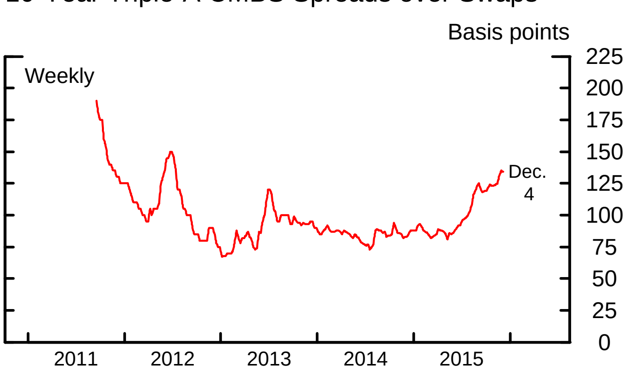
Note: Growth rates based on average monthly levels. Banks with average loan originations greater than $2 million in 2015:Q2 are categorized as having high average loan amounts.
e Estimate.
Source: Federal Reserve Board, FR Y-14Q, Capital Assessments and Stress Testing; Federal Reserve Board, FR 2644, Weekly Report of Selected Assets and Liabilities of Domestically Chartered Commercial Banks and U.S. Branches and Agencies of Foreign Banks.

Nonfinancial Equity Issuance: IPO and SEO



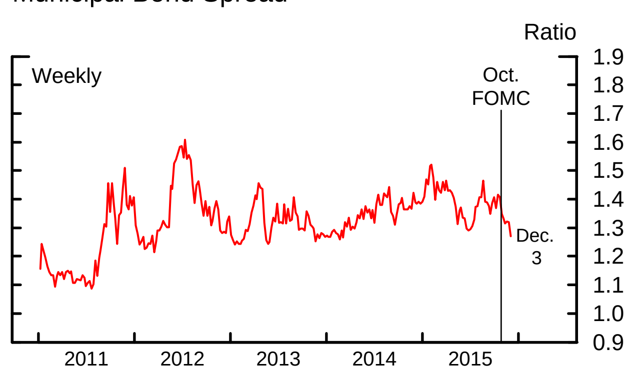
Note: IPO is initial public offering; SEO is seasoned equity offering.
Source: Securities Data Company.

10-Year Triple-A CMBS Spreads over Swaps



Source: J.P. Morgan.

Municipal Bond Spread

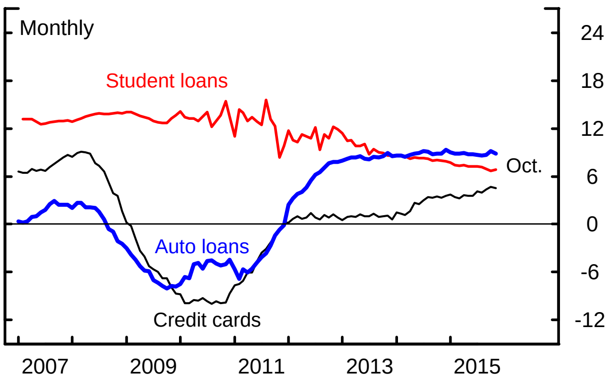


Note: Bond Buyer general obligation 20-year index over 20-year Treasury yields.
Source: Bond Buyer; Merrill Lynch.

Household Finance

Consumer Credit

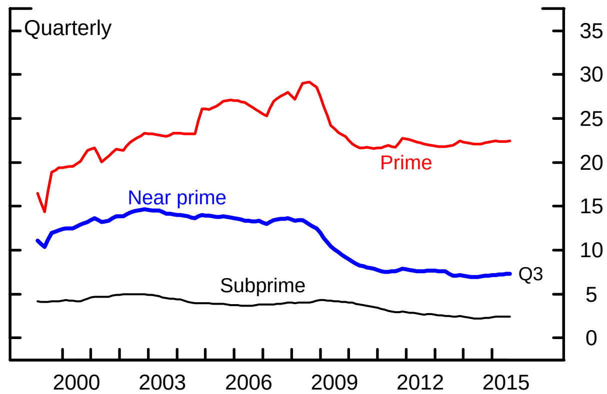
Percent change from a year earlier



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

Credit Card Limits per Capita

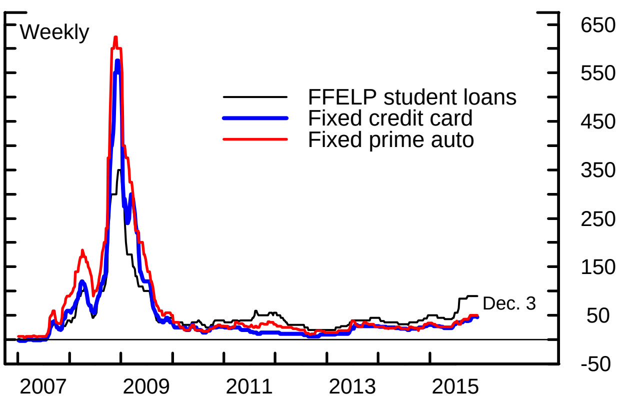
Thousands of dollars



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

Selected ABS Spreads (3-Year Triple-A)

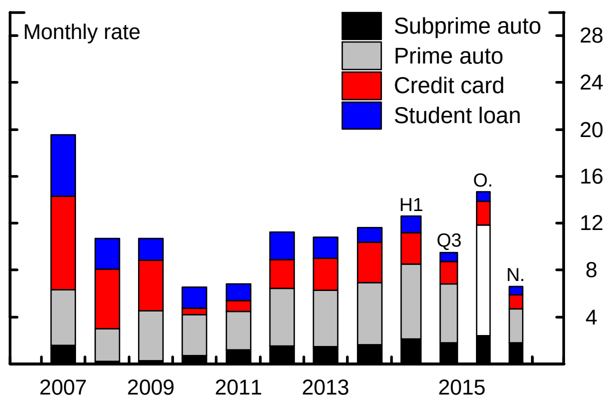
Percent



Note: Spreads are to swap rate for credit card and auto ABS and to 3-month LIBOR for student loans. FFELP is Federal Family Education Loan Program.
Source: J.P. Morgan.

Gross Consumer ABS Issuance

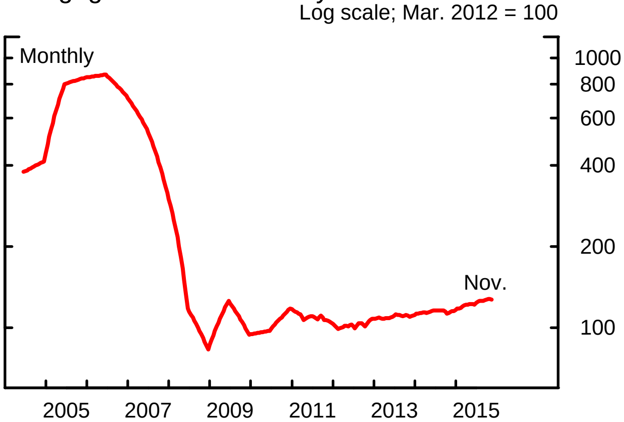
Billions of dollars



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

Mortgage Credit Availability Index

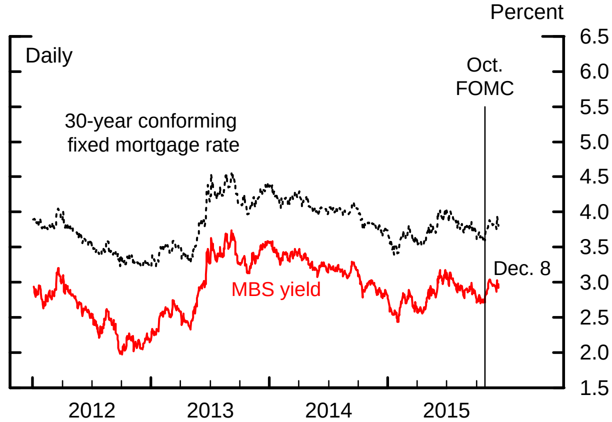
Log scale; Mar. 2012 = 100



Source: Mortgage Bankers Association.

Mortgage Rate and MBS Yield

Percent

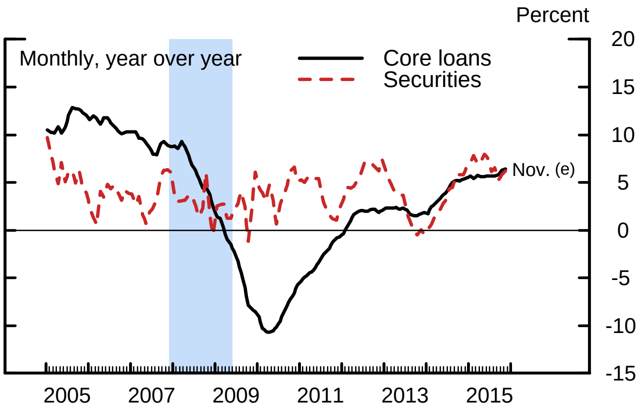


Note: The MBS yield is the Fannie Mae 30-year current-coupon rate.
Source: For MBS yield, Barclays; for mortgage rate, Loansifter.

Financial Developments

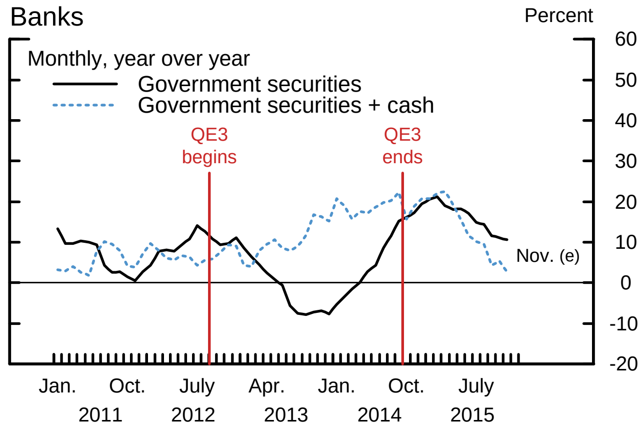
Banking Developments and Money

Core Loans and Securities



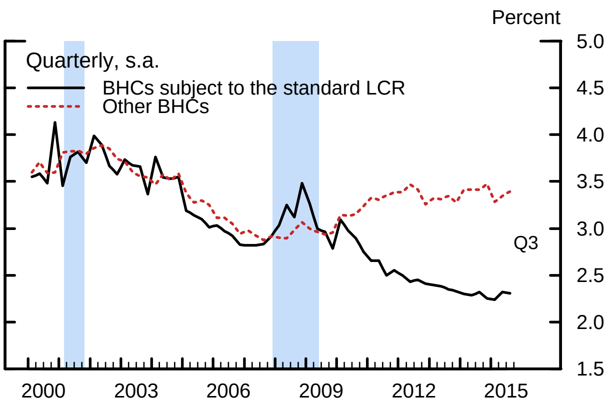
Note: Growth rates based on average monthly levels, not seasonally adjusted.
e Estimated.
Source: Federal Reserve Board, FR 2644, Weekly Report of Selected Assets and Liabilities of Domestically Chartered Commercial Banks and U.S. Branches and Agencies of Foreign Banks.

Selected Components of Liquid Assets at Large Banks



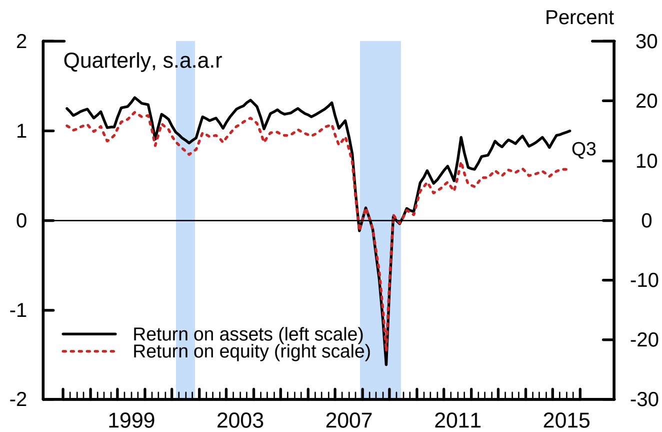
Note: Year over year growth rates are shown. Government securities include Treasury and agency debt plus agency mortgage-backed securities.
e Estimated.
Source: Federal Reserve Board, FR 2644, Weekly Report of Selected Assets and Liabilities of Domestically Chartered Commercial Banks and U.S. Branches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

Net Interest Margin, by BHC Type



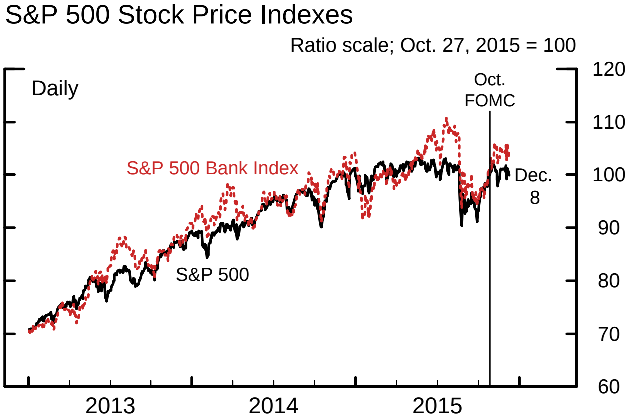
Note: Bank holding companies (BHCs) subject to the standard liquidity coverage ratio (LCR): Bank of America, Bank of New York Mellon, BB&T, Capital One, Citigroup, Goldman Sachs, JPMorgan Chase, Morgan Stanley, Northern Trust, PNC Financial, State Street, U.S. Bancorp, and Wells Fargo.
Source: Federal Reserve Board, FR Y-9C, Consolidated Financial Statements for Holding Companies.

Return on Assets and Return on Equity at BHCs



Note: BHC is bank holding company.
Source: Federal Reserve Board, FR Y-9C, Consolidated Financial Statements for Holding Companies.

S&P 500 Stock Price Indexes



Source: Bloomberg.

Growth of M2 and Its Components

Percent, s.a.a.r.	M2	Liquid deposits	Small time deposits	Retail MMFs	Curr.
2014	5.8	7.1	-8.1	-2.8	7.5
2014:H2	5.2	6.6	-8.8	-2.8	6.2
2015:Q1	7.6	9.1	-9.8	-4.0	9.8
2015:Q2	4.7	6.7	-20.6	-5.3	5.1
2015:Q3	6.1	7.9	-27.0	3.5	6.4

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

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

reflecting sustained expansion in credit card balances and sizable increases in auto and student loans, although growth of student loans continued to slow gradually. Student and auto loans remained broadly available, even to borrowers with subprime credit histories, while the availability of credit card loans for subprime borrowers stayed tight. Meanwhile, after having widened earlier in the fall, yield spreads on consumer ABS were little changed in recent weeks, and ABS issuance maintained its robust third-quarter pace.

Financing conditions for residential mortgages were also little changed, on net, over the intermeeting period, remaining tight for borrowers with low credit scores, hard-to-document income, or higher debt-to-income ratios. Interest rates on 30-year fixed-rate mortgages increased 21 basis points over the intermeeting period, in line with the increases in MBS yields and comparable-maturity Treasury yields. Still, mortgage rates for qualified borrowers remained below 4 percent—quite low by historical standards.

BANKING DEVELOPMENTS AND MONEY

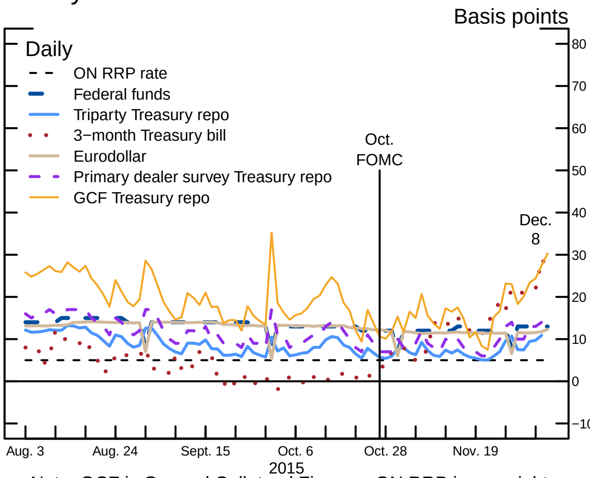
Growth of core loans at commercial banks stayed strong in October and November, while growth of high-quality liquid assets held by large banks declined further, likely as some banks have already acquired enough assets to meet their required liquidity coverage ratios and other banks took steps to reduce the need to hold such liquid assets. Within the category of liquid assets, domestic banks continued to build up their holdings of agency MBS while reducing their holdings of Treasury securities.

Net interest margins at bank holding companies (BHCs) remained about unchanged, on average, in the third quarter. Profitability increased slightly, mainly reflecting higher investment banking revenues and lower noninterest expenses at the largest BHCs, but remained below the levels observed in the decade prior to the financial crisis. Stock prices of large domestic BHCs outperformed the broader market over the intermeeting period, reportedly because higher expected interest rates may boost bank profitability in coming years. Similarly, CDS spreads for large U.S. dealers edged lower even as broad market CDS spreads increased.

M2 grew at an average annual rate of around 5 percent over October and November. Consistent with recent trends, liquid deposits grew moderately, currency growth remained strong, and small time deposits continued to contract.

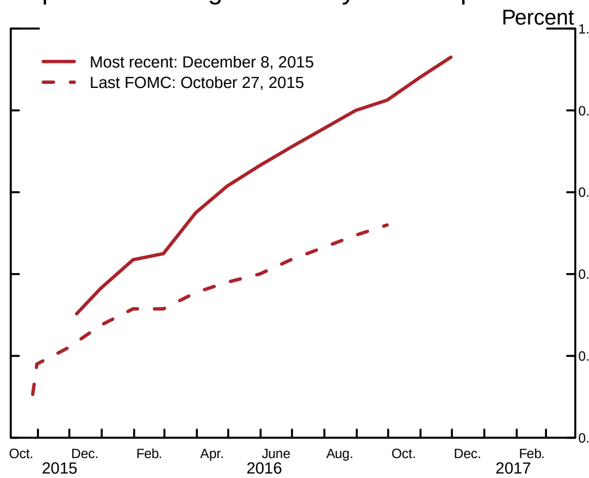
Federal Reserve Operations and Short-Term Funding Markets

Money Market Rates



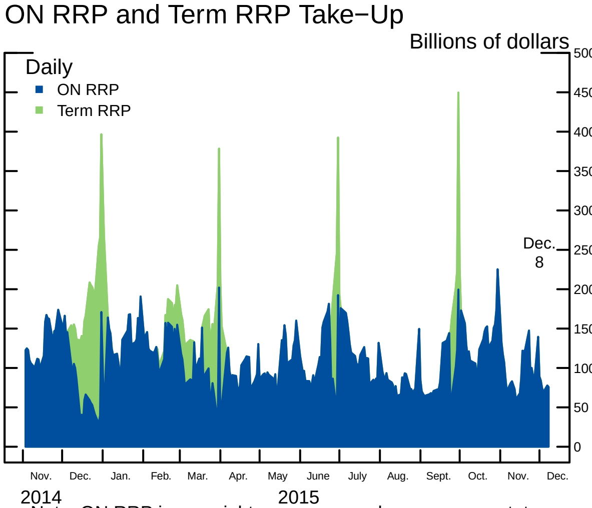
Note: GCF is General Collateral Finance; ON RRP is overnight reverse repurchase agreement; repo is repurchase agreement.
Source: Depository Trust & Clearing Corporation; Federal Reserve Bank of New York; Federal Reserve Board.

Expected Overnight Treasury GCF Repo



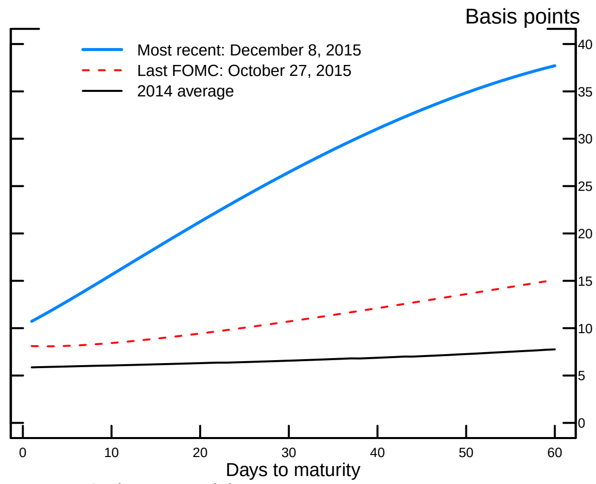
Source: Bloomberg; GCF futures quotes.

ON RRP and Term RRP Take−Up



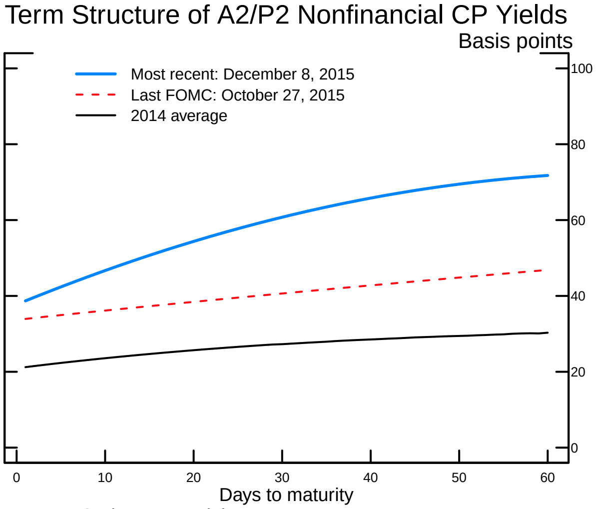
Note: ON RRP is overnight reverse repurchase agreement; term RRP is term reverse repurchase agreement.
Source: Federal Reserve Bank of New York.

Term Structure of AA Nonfinancial CP Yields



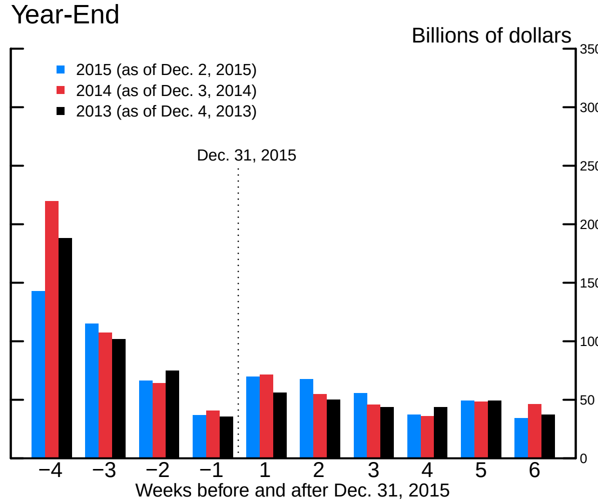
Note: CP is commercial paper.
Source: Depository Trust & Clearing Corporation.

Term Structure of A2/P2 Nonfinancial CP Yields



Note: CP is commercial paper.
Source: Depository Trust & Clearing Corporation.

Commercial Paper Volumes Maturing around Year-End



Source: Depository Trust & Clearing Corporation.

Financial Developments

FEDERAL RESERVE OPERATIONS AND SHORT-TERM FUNDING MARKETS

The effective federal funds rate stayed fairly stable within the target range over the intermeeting period, while some other short-term rates fluctuated with debt ceiling pressures and shifts in monetary policy expectations.[3] Yields on three-month Treasury bills rose from 8 basis points to 14 basis points after the release of the October employment report and have since risen to 27 basis points, largely reflecting increased expectations of a December liftoff as well as an increase in Treasury bill issuance. The path of implied GCF repo rates steepened, consistent with the rise in the expected path of the federal funds rate.

Testing of the Federal Reserve's policy tools continued over the intermeeting period. Take-up of the daily ON RRP operations averaged $104 billion, and money funds continued to account for the majority of participation. ON RRP usage continued to spike on month-ends, with October usage particularly high, likely due to the scarcity of Treasury bills associated with the debt ceiling impasse. Later in the intermeeting period, as the supply of Treasury bills increased, ON RRP take-up declined. The Federal Reserve conducted a seven-day floating-rate term deposit operation on December 3 with $44 billion in awards to 43 participants. The Desk announced plans to offer a total of $300 billion in three term RRP operations crossing year-end: Operations on December 18 and 23 will mature on January 4, and the December 30 operation will mature on January 5.[4] The Desk purchased about $25 billion of MBS under the reinvestment program and rolled $1.2 billion in expected settlements over the period, leaving Federal Reserve total assets roughly unchanged.[5]

[3] The effective federal funds rate averaged 12 basis points over the intermeeting period, with the intraday standard deviation averaging 4.4 basis points.

[4] Also, on December 2, the Desk conducted a small-value overnight repo operation that awarded $0.6 billion at rates ranging from 10 to 12 basis points.

[5] Due to the December 4, 2015, passage of the Fixing America's Surface Transportation Act, in 2016 the Federal Reserve's capital surplus account will be reduced from approximately $29 billion to $10 billion, with the difference remitted to the Treasury to help fund transportation infrastructure improvements. Going forward, the capital surplus account will be capped at $10 billion; all funds that would otherwise have been transferred from earnings to the capital surplus account to equate it with capital paid in by member banks will be remitted to the Treasury. In addition, the dividend on the stock of the Federal Reserve Banks held by member commercial banks with assets above $10 billion will be reduced from 6 percent to the lower of 6 percent or the prevailing rate on the 10-year Treasury bond.

Term structures of both double-A and A2/P2 nonfinancial CP yields steepened over the intermeeting period, consistent with the firmer expectation for a December liftoff. The amount of CP maturing around year-end, an indicator for potential refinancing pressure, is similar to that in the previous couple of years.

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). We have also maintained our assessment that the risks to our GDP projection are tilted somewhat to the downside, primarily reflecting our view that neither monetary nor fiscal policy is well positioned to offset large adverse shocks to the economy. We view the risks around our unemployment rate projection as aligned with those for GDP and, therefore, as tilted somewhat to the upside.

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. TIPS-based five-year-forward inflation compensation remains only slightly above its historic low, and there are hints of lower longer-term inflation expectations in some surveys. In addition, although the dollar already reflects expectations of monetary policy divergence, the dollar may be stronger than in the baseline, leading to continued downward pressure on U.S. inflation.

Our view of the risks to the economic outlook is informed by the staff's quarterly quantitative surveillance assessment, which judges the vulnerabilities of the U.S. financial system as moderate. This assessment reflects strong capital positions at banks and insurance companies, moderate leverage at other financial firms, and growth in household debt mostly driven by prime borrowers. That said, commercial real estate valuation pressures have continued to increase, with prices rising faster than rents and a weakening in underwriting standards for loans originated for CMBS. Despite a recent deceleration in the issuance of risky corporate debt, leverage at low-rated nonfinancial firms remains near record-high levels, suggesting a degree of fragility among these borrowers.

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

Alternative Scenarios

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

Measure and scenario	2015 H2	2016	2017	2018	2019-20
Real GDP					
Extended Tealbook baseline	1.9	2.5	2.0	1.9	1.6
Faster growth with higher inflation	1.9	3.9	1.7	1.5	1.5
Recession near the zero lower bound	1.9	-1.3	.9	3.0	2.3
Recession near the ZLB (not binding)	1.9	-.2	1.1	2.3	2.0
Weaker supply side	1.9	2.3	1.5	.9	1.3
Lower long-term inflation expectations	1.9	2.5	2.0	1.9	1.7
Stronger dollar	1.9	2.0	1.7	1.9	1.8
Faster foreign growth	1.9	2.9	2.4	1.8	1.4
Unemployment rate[1]					
Extended Tealbook baseline	5.0	4.7	4.6	4.5	4.7
Faster growth with higher inflation	5.0	4.2	4.3	4.3	4.5
Recession near the zero lower bound	5.0	6.6	6.5	5.4	4.7
Recession near the ZLB (not binding)	5.0	6.0	5.9	5.2	4.7
Weaker supply side	5.0	4.2	3.9	3.8	4.3
Lower long-term inflation expectations	5.0	4.7	4.6	4.4	4.5
Stronger dollar	5.0	4.9	5.0	4.9	4.9
Faster foreign growth	5.0	4.6	4.3	4.1	4.4
Total PCE prices					
Extended Tealbook baseline	.7	1.2	1.8	2.0	2.0
Faster growth with higher inflation	.7	1.8	2.3	2.4	2.4
Recession near the zero lower bound	.7	1.0	1.7	2.0	2.1
Recession near the ZLB (not binding)	.7	1.1	1.7	2.0	2.1
Weaker supply side	.7	1.3	2.1	2.3	2.1
Lower long-term inflation expectations	.7	1.0	1.3	1.4	1.7
Stronger dollar	.7	.5	1.5	1.8	1.9
Faster foreign growth	.7	1.7	2.1	2.1	2.0
Core PCE prices					
Extended Tealbook baseline	1.3	1.4	1.7	1.9	2.0
Faster growth with higher inflation	1.3	2.0	2.2	2.3	2.4
Recession near the zero lower bound	1.3	1.2	1.6	2.0	2.1
Recession near the ZLB (not binding)	1.3	1.3	1.6	2.0	2.1
Weaker supply side	1.3	1.5	2.0	2.2	2.1
Lower long-term inflation expectations	1.3	1.2	1.2	1.4	1.7
Stronger dollar	1.3	.9	1.4	1.8	1.9
Faster foreign growth	1.3	1.7	1.9	2.0	2.1
Federal funds rate[1]					
Extended Tealbook baseline	.2	1.4	2.5	3.4	4.1
Faster growth with higher inflation	.2	2.2	3.7	4.6	5.0
Recession near the zero lower bound	.2	.1	.2	1.2	3.3
Recession near the ZLB (not binding)	.2	-2.2	-.7	1.0	3.2
Weaker supply side	.2	2.1	3.7	4.8	5.1
Lower long-term inflation expectations	.2	1.4	2.2	3.0	3.7
Stronger dollar	.2	1.2	2.0	2.8	3.7
Faster foreign growth	.2	1.6	3.0	4.0	4.4

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

Risks & Uncertainty

scenario, the solid increases in consumption and E&I investment in recent quarters signal a stronger pace for the economic expansion and higher inflation over the projection period. The second scenario illustrates the effect a moderate recession could have, particularly when the federal funds rate remains near the zero lower bound (ZLB). In the third scenario, potential GDP growth is assumed to continue at a pace similar to that observed in the past few years and, thus, at a slower rate than in the baseline. The fourth scenario considers the implications of long-term inflation expectations that are lower than in the baseline. In the fifth scenario, the normalization of U.S. monetary policy leads to a large appreciation in the broad real dollar. The final scenario considers the possibility that foreign growth is faster than expected.

We generate the first and second scenarios using the EDO model, while the third and fourth are generated using the FRB/US model. The final two scenarios, which consider international risks, are illustrated using the multicountry SIGMA model. Once the federal funds rate has risen above its current target range, its movements are governed—as in the baseline forecast—by an inertial version of the Taylor (1999) rule.[1] In all cases, we assume that the size and composition of the SOMA portfolio follow their baseline paths.

Faster Growth with Higher Inflation

In this scenario, the solid increases in consumer spending and E&I investment in recent quarters are a harbinger of greater underlying strength in the economy. In addition, we assume that inflation is more sensitive to resource slack than in the standard version of the EDO model. This greater sensitivity is consistent with the estimates of some other DSGE models, such as Smets and Wouters (2007).[2] It is also consistent with the view that the Phillips curve is steeper at higher rates of resource utilization than when economic activity is relatively weak.[3]

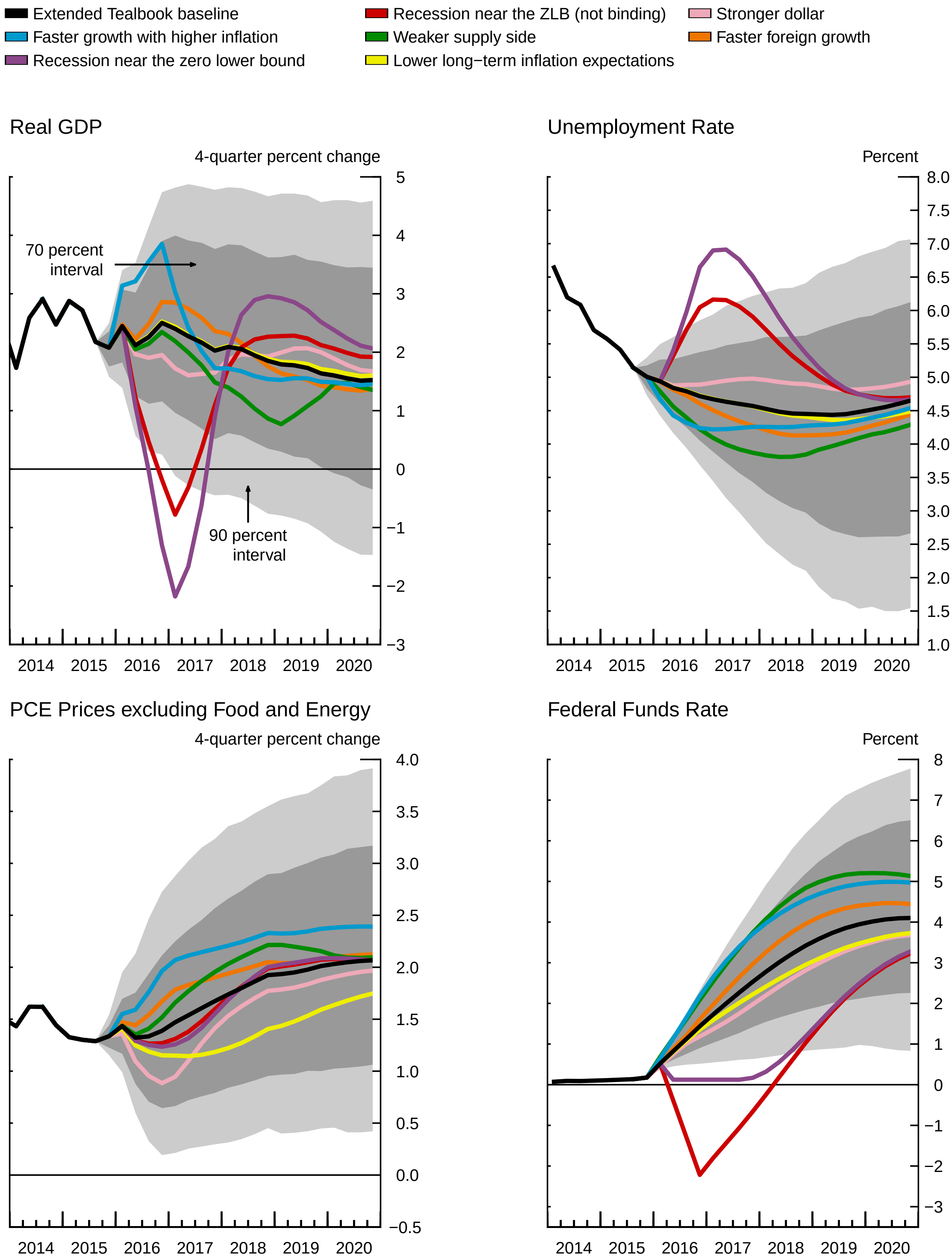
[1] For the scenarios run in SIGMA, we assume a policy rule broadly similar to the FRB/US and EDO simulations. One key difference relative to the FRB/US and EDO simulations is that the policy rule in SIGMA uses a measure of slack equal to the difference between actual output and the model's estimate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

[2] Frank Smets and Rafael Wouters (2007), "Shocks and Frictions in US Business Cycles: A Bayesian DSGE Approach," *American Economic Review*, vol. 97 (June), pp. 586–606.

[3] See, for example, Richard Fisher and Evan Koenig (2014), "Are We There Yet? Assessing Progress toward Full Employment and Price Stability," Federal Reserve Bank of Dallas, *Dallas Fed Economic Letter*, vol. 9 (13), www.dallasfed.org/assets/documents/research/eclett/2014/el1413.pdf.

Forecast Confidence Intervals and Alternative Scenarios

Confidence Intervals Based on FRB/US Stochastic Simulations



Real GDP rises 4 percent in 2016, compared with 2½ percent in the baseline projection. The unemployment rate falls rapidly, bottoming out at 4¼ percent by the beginning of 2017; it then edges up over the remainder of the forecast period but stays lower than in the baseline. With resource utilization running tighter and the Phillips curve assumed to be steeper than in the standard version of the model, inflation rises more than in the baseline, approaching 2½ percent in 2019.[4] The federal funds rate rises more steeply, passing 4 percent in 2018 and reaching 5 percent in 2020. Given enough time, this path for the federal funds rate would eventually drive the unemployment rate up to its assumed natural rate and bring inflation back down to 2 percent. Unemployment does not need to exceed the natural rate in order to bring inflation back down—simply returning to the natural rate is enough—because inflation expectations remain anchored throughout the scenario.

Recession Near the Zero Lower Bound

Over the postwar period, the average expansion has lasted about five years. The bulk of the statistical evidence suggests that expansions do not "die of old age."[5] However, some analysts have noted that six years have now passed since the 2009 trough and have suggested that the economy might therefore be at heightened risk of falling into recession over the next few years. In this scenario, we assume a recession, starting in 2016:Q2, of magnitude equal to the average peak-to-trough decline in GDP during the five most moderate recessions since 1960.[6] In the past, policymakers have reacted to recessions much more aggressively than the inertial Taylor rule would have prescribed. Accordingly, for the sake of illustration, the federal funds rate in our initial calibration is assumed to fall 275 basis points, the average decline seen over the same five recessions since 1960. Such a decline would push the funds rate well below the ZLB.

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[4] The larger rise in inflation depends importantly on the substantially smaller adjustment costs for wages and prices in this scenario; the smaller costs lead to a steeper Phillips curve. Had we used our standard coefficients in the wage and price equations, inflation would have peaked at only about 2 percent.

[5] See, for example, Francis Diebold and Glenn Rudebusch (1990), "A Nonparametric Investigation of Duration Dependence in the American Business Cycle," *Journal of Political Economy*, vol. 98 (June), pp. 596–616; and Francis Diebold, Glenn Rudebusch, and Daniel Sichel (1993), "Further Evidence on Business-Cycle Duration Dependence," in Mark Watson and James Stock, eds., *Business Cycles, Indicators, and Forecasting* (Chicago: University of Chicago Press for the National Bureau of Economic Research), pp. 255–80.

[6] Specifically, we took the average over the recessions that began in 1960, 1969, 1980, 1990, and 2001. All five of these recessions lasted less than one year, whereas the other three post-1960 recessions lasted more than one year.

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

Measure	2015	2016	2017	2018	2019	2020
Real GDP						
(percent change, Q4 to Q4)						
Projection	2.1	2.5	2.0	1.9	1.6	1.5
Confidence interval						
Tealbook forecast errors	1.3–3.1	.8–4.4	-.5–4.0	-.9–3.5	. . .	. . .
FRB/US stochastic simulations	1.8–2.4	1.2–3.9	.5–3.8	.3–3.6	.0–3.6	-.4–3.4
Civilian unemployment rate						
(percent, Q4)						
Projection	5.0	4.7	4.6	4.5	4.5	4.7
Confidence interval						
Tealbook forecast errors	4.8–5.1	3.9–5.2	3.5–5.7	3.1–6.1	. . .	. . .
FRB/US stochastic simulations	4.8–5.2	4.1–5.4	3.4–5.5	3.0–5.6	2.6–5.9	2.7–6.1
PCE prices, total						
(percent change, Q4 to Q4)						
Projection	.4	1.2	1.8	2.0	2.0	2.1
Confidence interval						
Tealbook forecast errors	.2–.7	.7–2.9	1.1–3.4	1.2–3.3	. . .	. . .
FRB/US stochastic simulations	.2–.5	.4–2.0	.8–2.8	.9–3.0	.9–3.1	1.0–3.3
PCE prices excluding						
food and energy						
(percent change, Q4 to Q4)						
Projection	1.3	1.4	1.7	1.9	2.0	2.1
Confidence interval						
Tealbook forecast errors	1.1–1.7	1.0–2.1	1.0–2.5	. . .	. . .	. . .
FRB/US stochastic simulations	1.2–1.4	.6–2.1	.8–2.6	1.0–2.9	1.0–3.1	1.1–3.2
Federal funds rate						
(percent, Q4)						
Projection	.2	1.4	2.5	3.4	3.9	4.1
Confidence interval						
FRB/US stochastic simulations	.2–.2	.9–2.0	1.4–3.8	1.8–5.2	2.1–6.1	2.3–6.5

Note: Shocks underlying FRB/US stochastic simulations are randomly drawn from the 1969–2014 set of model equation residuals. Intervals derived from Tealbook forecast errors are based on projections made from 1980 to 2014 for real GDP and unemployment and from 1998 to 2014 for PCE prices. The intervals for real GDP, unemployment, and total PCE prices are extended into 2018 using information from the Blue Chip survey and forecasts from the CBO and CEA.
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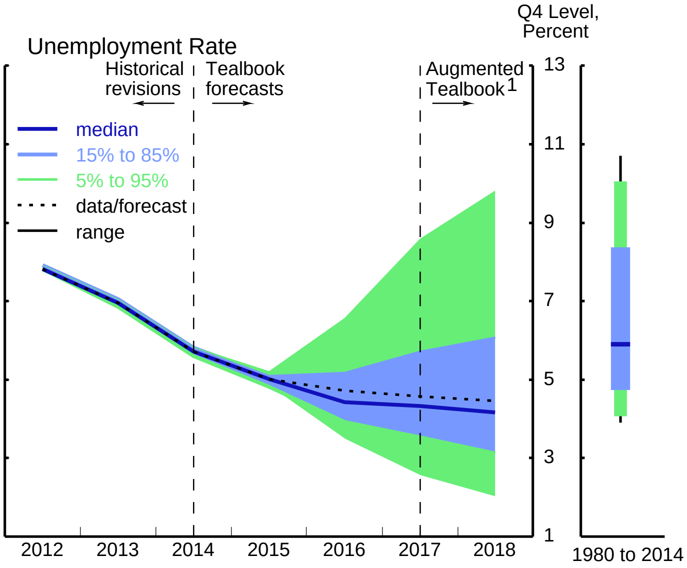
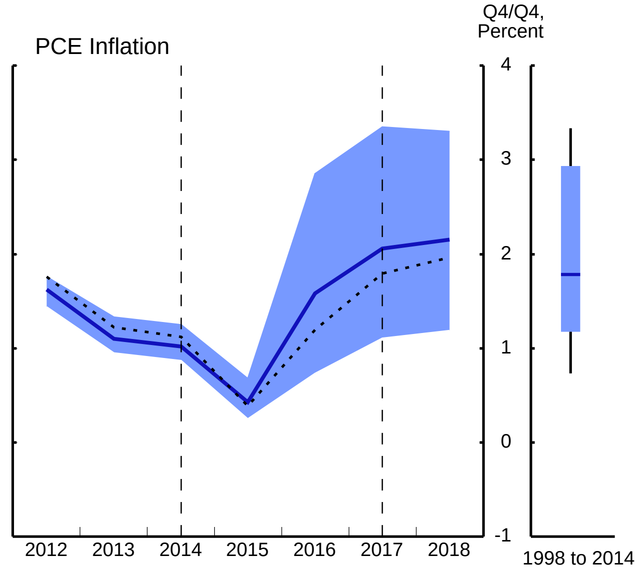
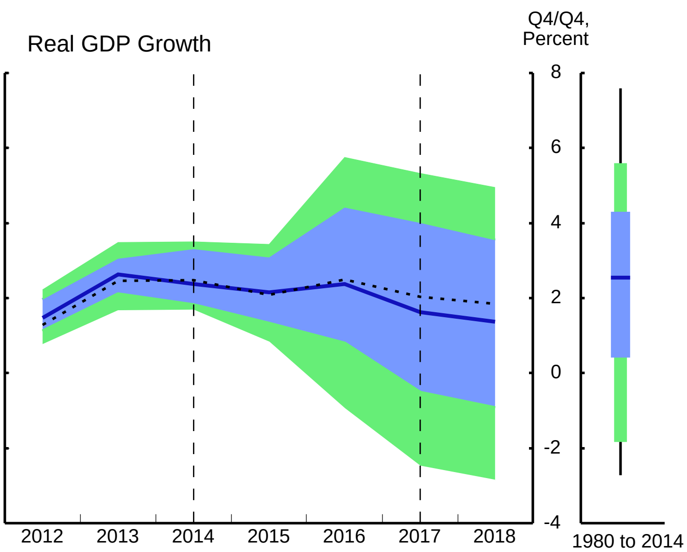
Prediction Intervals Derived from Historical Tealbook Forecast Errors

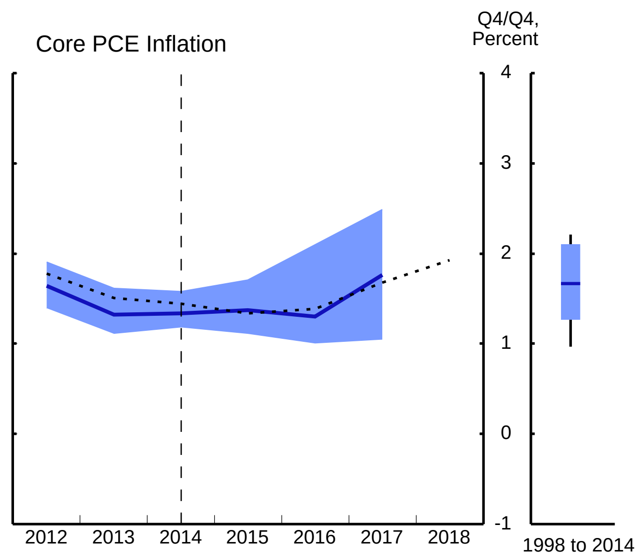
Forecast Error Percentiles

Historical Distributions

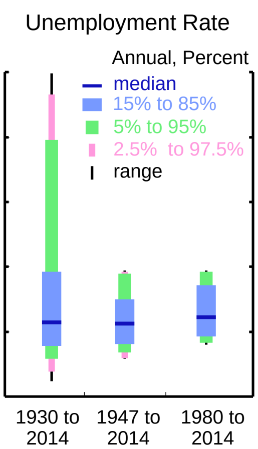


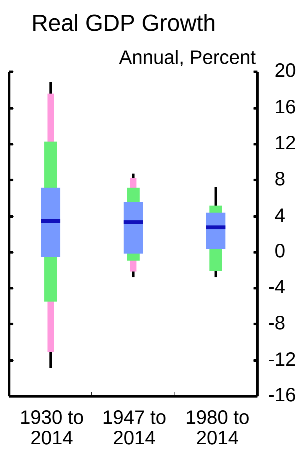


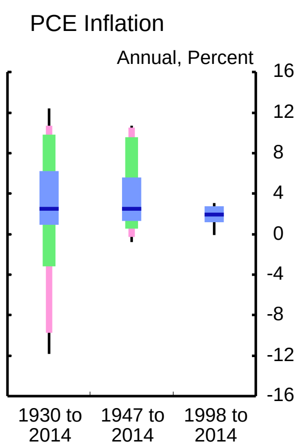


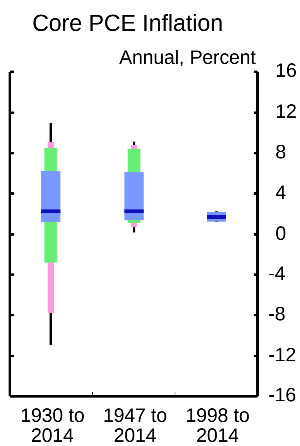


Historical Distributions









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

1. Augmented Tealbook prediction intervals use 2- and 3-year-ahead forecast errors from Blue Chip, CBO, and CEA to extend the Tealbook prediction intervals through 2018.

Risks & Uncertainty

To illustrate the effect of the ZLB on outcomes, results are shown with and without the ZLB imposed. In the case when the federal funds rate is allowed to be negative, output falls 3¼ percent below the baseline at its trough in the first quarter of 2017.[7] When the ZLB is imposed, the federal funds rate returns to the ZLB one quarter after the onset of recession and remains there until the end of 2017. In this case, output falls an estimated 4½ percent.[8] Of course, the fact that the size and composition of the SOMA portfolio are assumed to follow their baseline paths means that the effect of the ZLB is larger than would be the case if policymakers were to make use of their unconventional tools.

Weaker Supply Side

In the baseline projection, the staff assumes that potential GDP will rise 1½ percent next year and accelerate further in the following couple of years, a notable pickup from the staff's estimate of an average pace of potential output growth of about 1 percent per year over the past four years. In this scenario, we assume that potential GDP growth continues at a pace around 1 percent through the medium term, mostly reflecting slower trend productivity growth. We also assume that recent aggregate demand momentum persists for a while so that GDP growth continues at its baseline pace into next year. Thereafter, momentum gradually fades and the weaker supply-side conditions lead to weaker aggregate demand. Finally, we assume that these revisions to the supply side of the economy are fully recognized, including by policymakers.

The unemployment rate declines more steeply next year than in the baseline, in line with the pace of recent years, and dips below 4 percent by mid-2017. Both tighter resource utilization and weaker productivity gains—which push up unit labor costs—work to boost inflation in this scenario. Overall inflation rises above 2 percent in 2017; it peaks at 2¼ percent at the end of 2018 and edges back toward target thereafter. Reflecting higher inflation and tighter resource utilization than in the baseline, the federal funds rate rises above 5 percent in 2019 and 2020.

[7] The shocks generating the recession in this scenario cause the model's estimate of the natural rate of interest to decline almost 6½ percentage points relative to the baseline by the end of 2016—considerably more than the assumed decline in the federal funds rate.

[8] The same exercise in FRB/US under VAR-based expectations shows smaller but more prolonged adverse effects on output when the ZLB is imposed.

Lower Long-Term Inflation Expectations

In the baseline projection, PCE 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 is currently consistent with PCE inflation of 1.8 percent, and that expectations will eventually rise to a level consistent with 2 percent inflation. However, a wide range of uncertainty surrounds this assumption, and some models that we consult suggest that expectations are currently consistent with lower inflation. In this scenario, we assume that long-term expectations currently stand at 1.5 percent and that, going forward, households and businesses form their expectations adaptively based on past inflation.

Overall inflation is near 1 percent next year and does not rise above 1½ percent until 2019, as subdued inflation expectations and low actual inflation are mutually reinforcing. The path of the federal funds rate is lower than in the baseline, while the paths of real GDP growth and the unemployment rate are roughly unchanged. However, the effect of low inflation on the real economy could be adverse if, for example, there were a pronounced debt-deflation dynamic.

Stronger Dollar

In the staff baseline, the gradual normalization of U.S. monetary policy is associated with only a modest appreciation of the dollar in 2016, and the dollar depreciates somewhat thereafter. However, it is possible that liftoff and ensuing policy normalization will induce a much larger and sustained appreciation of the dollar. In this scenario, we assume that liftoff of the federal funds rate triggers moderate financial turbulence in the EMEs and flight-to-safety flows toward dollar-denominated assets. Specifically, the broad real dollar appreciates about 10 percent next year, and EME corporate borrowing spreads increase 100 basis points.[9] All told, EME GDP growth falls ½ percentage point in 2016 relative to the baseline.

Weaker foreign activity and the stronger dollar cause U.S. real net exports to decline relative to the baseline. U.S. real GDP expands at an annual rate of only 2 percent in 2016, about ½ percentage point below the baseline, and the unemployment rate remains around 5 percent through most of 2017. The appreciation of the dollar and

[9] The increase in EME corporate spreads is similar to what occurred following the "taper tantrum" in the spring of 2013.

lower resource utilization reduce core PCE inflation to less than 1 percent in 2016. The federal funds rate follows a shallower path over the forecast horizon than in the baseline.

Faster Foreign Growth

After posting only tepid growth in the first half of this year, foreign real GDP growth picked up in the third quarter. Going forward, foreign growth is projected to move up gradually to about its potential rate of 3 percent by the second half of next year. But a number of factors—such as the substantial easing of monetary policy, the abatement of fiscal pressures, or responses to the large drop in oil prices—could spur a faster recovery abroad than we are currently projecting. In this scenario, we assume a stronger-than-expected pickup in foreign growth, which leads to a modest depreciation of the dollar. As a result, the level of foreign GDP is 1½ percent above the baseline by 2017. Diminished concerns about the prospects for the global economy, as well as less need for monetary accommodation abroad, reduce the demand for dollar-denominated assets, leading the broad real dollar to decline 5 percent relative to the baseline.

Stronger foreign growth and the weaker dollar boost U.S. real net exports. Consequently, U.S. real GDP expands nearly 3 percent in 2016, about ½ percentage point more than in the baseline, and the unemployment rate falls to almost 4 percent by the end of 2018. Higher import prices and somewhat greater resource pressures cause core PCE inflation to rise a little more quickly than in the baseline. The federal funds rate also rises more quickly than in the baseline, reaching 4 percent by the end of 2018.

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

Measure and projection	2015		2016		2017	
	September Tealbook	Current Tealbook	September Tealbook	Current Tealbook	September Tealbook	Current Tealbook
Real GDP						
Staff	2.0	2.1	2.1	2.5	2.0	2.0
FRB/US	2.2	2.1	2.2	2.5	2.0	1.7
EDO	2.2	2.1	2.6	2.7	2.7	2.6
Unemployment rate[1]						
Staff	5.0	5.0	4.9	4.7	4.8	4.6
FRB/US	5.1	5.0	5.1	4.8	5.2	5.1
EDO	5.5	5.0	5.6	4.9	5.6	5.0
Total PCE prices						
Staff	.3	.4	1.5	1.2	1.7	1.8
FRB/US	.3	.4	1.4	1.4	1.1	1.6
EDO	.7	.4	1.8	1.8	2.0	2.2
Core PCE prices						
Staff	1.3	1.3	1.4	1.4	1.7	1.7
FRB/US	1.4	1.3	1.4	1.6	1.0	1.5
EDO	1.4	1.3	1.8	1.8	2.0	2.2
Federal funds rate[1]						
Staff	.4	.2	1.4	1.4	2.3	2.5
FRB/US	.4	.2	.8	1.0	.6	1.0
EDO	.5	.2	1.7	1.7	2.4	2.8

1. Percent, average for Q4.

Risks & Uncertainty

Assessment of Key Macroeconomic Risks (1)

Probability of Inflation Events
(4 quarters ahead)

Probability that the 4-quarter change in total PCE prices will be ...	Staff	FRB/US	EDO	BVAR
Greater than 3 percent				
Current Tealbook	.02	.04	.03	.05
Previous Tealbook	.02	.02	.12	.04
Less than 1 percent				
Current Tealbook	.40	.29	.10	.20
Previous Tealbook	.46	.46	.26	.21

Probability of Unemployment Events
(4 quarters ahead)

Probability that the unemployment rate will ...	Staff	FRB/US	EDO	BVAR
Increase by 1 percentage point				
Current Tealbook	.02	.03	.15	.01
Previous Tealbook	.04	.04	.25	.01
Decrease by 1 percentage point				
Current Tealbook	.11	.07	.13	.24
Previous Tealbook	.13	.06	.02	.20

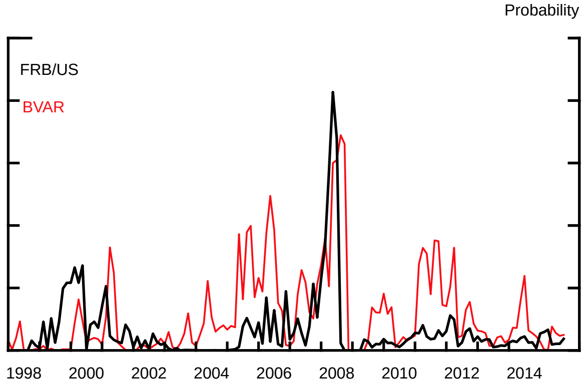
Probability of Near-Term Recession

Probability that real GDP declines in the next two quarters	Staff	FRB/US	EDO	BVAR	Factor Model
Current Tealbook	.02	.01	.04	.03	.17
Previous Tealbook	.05	.05	.02	.03	.18

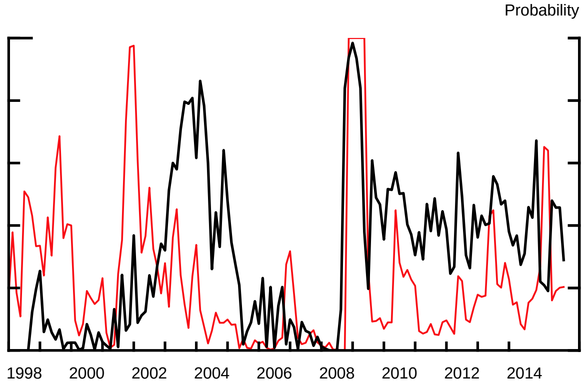
Note: “Staff” represents stochastic simulations in FRB/US around the staff baseline; baselines for FRB/US, BVAR, EDO, and the factor model are generated by those models themselves, up to the current-quarter estimate. Data for the current quarter are taken from the staff estimate for the second Tealbook 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. Revisions to EDO probabilities reflect model re-specification and re-estimation since the October round.

Assessment of Key Macroeconomic Risks (2)

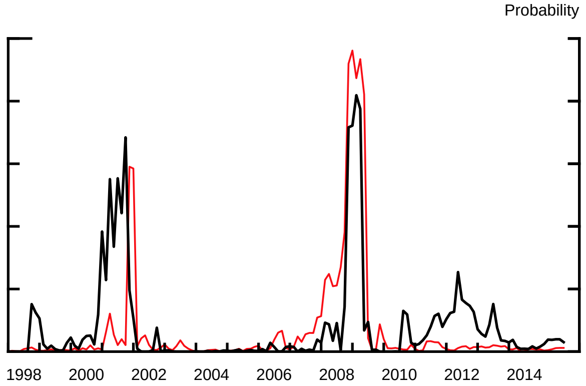
Probability that Total PCE Inflation Is above 3 Percent
(4 quarters ahead)



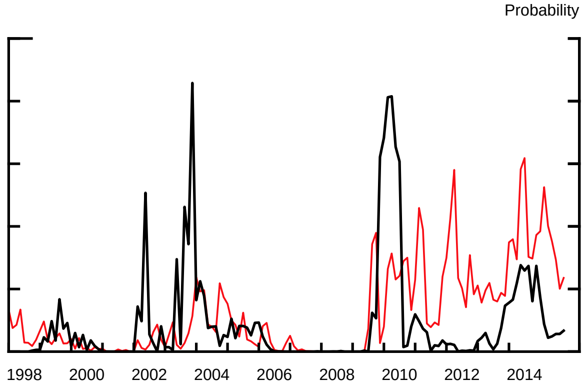
Probability that Total PCE Inflation Is below 1 Percent
(4 quarters ahead)



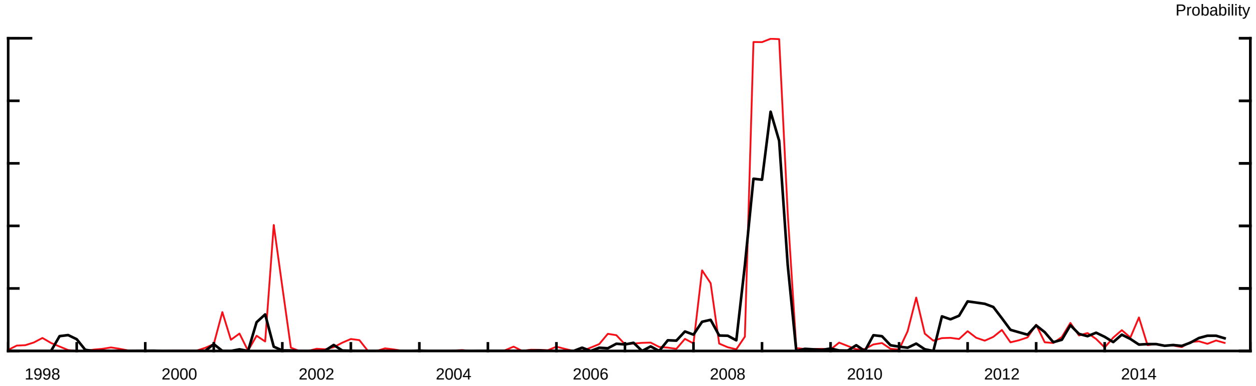
Probability that the Unemployment Rate Increases 1 ppt
(4 quarters ahead)



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



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



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

Risks & Uncertainty

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Appendix

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

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

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

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

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

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

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

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

Interval	Nominal GDP		Real GDP		PCE price index		Core PCE price index		Unemployment rate[1]	
	10/21/15	12/09/15	10/21/15	12/09/15	10/21/15	12/09/15	10/21/15	12/09/15	10/21/15	12/09/15
Quarterly										
2015:Q1	.8	.8	.6	.6	-1.9	-1.9	1.0	1.0	5.6	5.6
Q2	6.1	6.1	3.9	3.9	2.2	2.2	1.9	1.9	5.4	5.4
Q3	2.9	3.4	1.4	2.1	1.3	1.3	1.4	1.3	5.1	5.1
Q4	3.0	2.5	2.1	1.7	.4	.0	1.4	1.2	5.0	5.0
2016:Q1	2.8	2.5	2.0	2.1	.8	.0	1.5	1.4	5.0	4.9
Q2	4.3	4.2	2.5	2.6	1.6	1.5	1.5	1.4	4.9	4.8
Q3	3.8	4.4	2.2	2.7	1.6	1.6	1.4	1.4	4.9	4.8
Q4	3.9	4.4	2.2	2.7	1.5	1.6	1.4	1.4	4.9	4.7
2017:Q1	3.9	3.8	1.8	1.7	1.8	1.8	1.7	1.7	4.8	4.7
Q2	4.1	4.0	2.2	2.1	1.8	1.8	1.7	1.7	4.8	4.6
Q3	3.7	4.1	1.9	2.2	1.7	1.8	1.6	1.7	4.8	4.6
Q4	3.9	4.0	2.1	2.1	1.7	1.8	1.6	1.7	4.7	4.6
Two-quarter[2]										
2015:Q2	3.4	3.4	2.3	2.3	.1	.1	1.4	1.4	-.3	-.3
Q4	2.9	2.9	1.7	1.9	.9	.7	1.4	1.3	-.4	-.4
2016:Q2	3.5	3.3	2.2	2.4	1.2	.8	1.5	1.4	-.1	-.2
Q4	3.9	4.4	2.2	2.7	1.5	1.6	1.4	1.4	.0	-.1
2017:Q2	4.0	3.9	2.0	1.9	1.8	1.8	1.7	1.7	-.1	-.1
Q4	3.8	4.0	2.0	2.2	1.7	1.8	1.6	1.7	-.1	.0
Four-quarter[3]										
2014:Q4	3.9	3.9	2.5	2.5	1.1	1.1	1.4	1.4	-1.3	-1.3
2015:Q4	3.2	3.2	2.0	2.1	.5	.4	1.4	1.3	-.7	-.7
2016:Q4	3.7	3.8	2.2	2.5	1.4	1.2	1.4	1.4	-.1	-.3
2017:Q4	3.9	4.0	2.0	2.0	1.7	1.8	1.7	1.7	-.2	-.1
2018:Q4	3.8	3.9	1.8	1.9	1.9	2.0	1.9	1.9	.0	-.1
Annual										
2014	4.1	4.1	2.4	2.4	1.4	1.4	1.5	1.5	6.2	6.2
2015	3.4	3.5	2.4	2.5	.3	.3	1.3	1.3	5.3	5.3
2016	3.5	3.5	2.2	2.3	1.2	.9	1.5	1.4	4.9	4.8
2017	3.9	4.1	2.1	2.2	1.7	1.7	1.6	1.6	4.8	4.6
2018	3.8	4.0	1.8	2.0	1.8	1.9	1.8	1.8	4.7	4.5

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

Greensheets

Greensheets

Changes in Real Gross Domestic Product and Related Items

(Percent, annual rate except as noted)

Item	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3	2017 Q4	2015[1]	2016[1]	2017[1]	2018[1]
Real GDP	3.9	2.1	1.7	2.1	2.6	2.7	2.7	1.7	2.1	2.2	2.1	2.1	2.5	2.0	1.9
Previous Tealbook	3.9	1.4	2.1	2.0	2.5	2.2	2.2	1.8	2.2	1.9	2.1	2.0	2.2	2.0	1.8
Final sales	3.9	2.9	1.9	1.9	2.8	2.3	2.9	2.1	2.5	2.2	2.2	2.1	2.5	2.2	2.2
Previous Tealbook	3.9	2.8	1.7	1.8	2.6	2.2	2.7	1.8	2.4	2.1	2.3	2.0	2.3	2.1	2.0
Priv. dom. final purch.	3.9	3.3	2.8	3.2	3.9	3.9	3.8	3.4	3.1	2.9	2.8	3.0	3.7	3.0	2.5
Previous Tealbook	3.9	3.8	2.9	3.6	3.9	3.7	3.5	3.0	2.8	2.6	2.6	3.2	3.7	2.7	2.1
Personal cons. expend.	3.6	3.0	2.4	3.4	3.6	3.6	3.5	3.2	2.9	2.7	2.6	2.7	3.5	2.8	2.3
Previous Tealbook	3.6	3.2	2.8	3.2	3.2	3.2	3.2	2.8	2.6	2.4	2.6	2.8	3.2	2.6	2.1
Durables	8.0	6.5	3.9	4.4	6.3	6.6	5.8	4.9	4.4	4.0	3.8	5.1	5.8	4.3	3.8
Nondurables	4.3	4.0	2.4	3.7	3.1	3.1	3.2	2.9	2.6	2.3	2.6	2.8	3.3	2.6	2.6
Services	2.7	2.2	2.1	3.1	3.4	3.3	3.3	3.0	2.7	2.6	2.4	2.3	3.3	2.6	2.1
Residential investment	9.3	8.5	5.0	5.7	8.4	5.8	6.8	8.3	8.1	7.8	7.0	8.2	6.7	7.8	5.4
Previous Tealbook	9.3	7.4	.9	11.5	14.5	10.2	8.5	8.5	6.0	5.0	2.1	6.9	11.2	5.3	3.9
Nonres. priv. fixed invest.	4.1	3.3	4.6	1.6	4.2	5.0	4.4	3.0	2.9	2.6	2.5	3.4	3.8	2.8	2.5
Previous Tealbook	4.1	6.4	4.0	3.6	4.7	4.9	3.7	2.4	2.8	2.6	2.7	4.0	4.2	2.6	2.0
Equipment & intangibles	3.5	6.4	5.4	3.0	5.0	5.8	4.8	2.9	2.7	2.6	2.5	4.9	4.6	2.7	2.8
Previous Tealbook	3.5	7.6	4.7	5.5	5.0	5.6	3.9	2.2	2.7	2.6	2.8	5.0	5.0	2.6	2.2
Nonres. structures	6.2	-7.3	1.5	-3.6	1.1	1.8	3.1	3.6	3.9	2.9	2.7	-1.9	.6	3.3	1.4
Previous Tealbook	6.2	2.1	1.8	-3.0	3.7	2.3	3.0	3.1	3.0	2.4	2.2	.5	1.5	2.7	1.2
Net exports[2]	-535	-543	-566	-624	-669	-723	-749	-791	-815	-837	-846	-546	-691	-822	-873
Previous Tealbook[2]	-535	-559	-591	-646	-687	-733	-751	-788	-805	-819	-822	-556	-704	-808	-832
Exports	5.1	.7	.4	-2.4	1.2	.8	2.6	-1.5	1.9	2.0	4.5	.0	.5	1.7	3.8
Imports	3.0	1.9	3.7	7.0	7.6	8.7	5.6	4.9	4.7	4.4	4.5	3.9	7.2	4.6	3.6
Gov't. cons. & invest.	2.6	1.8	.5	3.0	2.4	1.1	.9	.8	1.8	.9	.2	1.2	1.9	.9	.7
Previous Tealbook	2.6	.7	.2	.0	1.3	.2	.6	.3	1.6	.7	.7	.8	.5	.8	.9
Federal	.0	.1	.4	6.9	1.8	.6	.4	.4	-.2	-.3	-1.8	.4	2.4	-.5	-1.2
Defense	.3	-1.5	-.5	4.4	.6	-1.4	-.6	1.5	-1.3	-1.5	-2.4	-.2	.7	-.9	-1.2
Nondefense	-.5	2.6	1.7	10.8	3.6	3.8	1.8	-1.2	1.5	1.4	-1.0	1.3	4.9	.2	-1.2
State & local	4.3	2.9	.5	.7	2.8	1.4	1.3	1.1	3.0	1.7	1.4	1.7	1.5	1.8	1.8
Change in priv. inventories[2]	114	81	71	79	73	87	79	64	49	51	46	95	79	52	20
Previous Tealbook[2]	114	57	73	80	76	74	55	56	52	45	38	89	71	48	15

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	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Real GDP	-.2	2.7	1.7	1.3	2.5	2.5	2.1	2.5	2.0	1.9
Previous Tealbook	-.2	2.7	1.7	1.3	2.5	2.5	2.0	2.2	2.0	1.8
Final sales	-.4	2.0	1.5	1.7	1.9	2.6	2.1	2.5	2.2	2.2
Previous Tealbook	-.4	2.0	1.5	1.7	1.9	2.6	2.0	2.3	2.1	2.0
Priv. dom. final purch.	-2.4	3.5	2.6	2.3	2.6	3.6	3.0	3.7	3.0	2.5
Previous Tealbook	-2.4	3.5	2.6	2.3	2.6	3.6	3.2	3.7	2.7	2.1
Personal cons. expend.	-.2	3.1	1.5	1.3	2.3	3.2	2.7	3.5	2.8	2.3
Previous Tealbook	-.2	3.1	1.5	1.3	2.3	3.2	2.8	3.2	2.6	2.1
Durables	2.5	9.3	4.8	7.2	4.6	7.5	5.1	5.8	4.3	3.8
Nondurables	.2	3.3	.4	.8	2.6	2.3	2.8	3.3	2.6	2.6
Services	-.8	2.0	1.4	.6	1.8	2.8	2.3	3.3	2.6	2.1
Residential investment	-10.8	-5.2	6.0	15.7	3.5	5.1	8.2	6.7	7.8	5.4
Previous Tealbook	-10.8	-5.2	6.0	15.7	3.5	5.1	6.9	11.2	5.3	3.9
Nonres. priv. fixed invest.	-12.2	8.1	9.0	5.2	4.2	5.5	3.4	3.8	2.8	2.5
Previous Tealbook	-12.2	8.1	9.0	5.2	4.2	5.5	4.0	4.2	2.6	2.0
Equipment & intangibles	-6.0	12.0	9.2	5.5	3.6	5.7	4.9	4.6	2.7	2.8
Previous Tealbook	-6.0	12.0	9.2	5.5	3.6	5.7	5.0	5.0	2.6	2.2
Nonres. structures	-27.1	-4.0	8.0	4.1	6.5	5.0	-1.9	.6	3.3	1.4
Previous Tealbook	-27.1	-4.0	8.0	4.1	6.5	5.0	.5	1.5	2.7	1.2
Net exports[1]	-395	-459	-459	-447	-417	-443	-546	-691	-822	-873
Previous Tealbook[1]	-395	-459	-459	-447	-417	-443	-556	-704	-808	-832
Exports	.8	10.1	4.2	2.2	5.2	2.4	.0	.5	1.7	3.8
Imports	-6.2	12.0	3.5	.3	2.4	5.4	3.9	7.2	4.6	3.6
Gov't. cons. & invest.	2.3	-1.1	-3.0	-2.2	-2.9	.4	1.2	1.9	.9	.7
Previous Tealbook	2.3	-1.1	-3.0	-2.2	-2.9	.4	.8	.5	.8	.9
Federal	3.9	3.2	-4.0	-2.1	-6.8	-.8	.4	2.4	-.5	-1.2
Defense	3.6	2.0	-4.1	-3.9	-7.4	-2.9	-.2	.7	-.9	-1.2
Nondefense	4.6	5.5	-3.9	1.0	-5.9	2.7	1.3	4.9	.2	-1.2
State & local	1.3	-4.0	-2.3	-2.3	-.2	1.1	1.7	1.5	1.8	1.8
Change in priv. inventories[1]	-148	58	38	55	61	68	95	79	52	20
Previous Tealbook[1]	-148	58	38	55	61	68	89	71	48	15

1. Billions of chained (2009) dollars.

Greensheets

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

Item	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3	2017 Q4	2015[1]	2016[1]	2017[1]	2018[1]
Real GDP	3.9	2.1	1.7	2.1	2.6	2.7	2.7	1.7	2.1	2.2	2.1	2.1	2.5	2.0	1.9
Previous Tealbook	3.9	1.4	2.1	2.0	2.5	2.2	2.2	1.8	2.2	1.9	2.1	2.0	2.2	2.0	1.8
Final sales	3.9	2.9	1.9	1.9	2.7	2.3	2.8	2.1	2.5	2.2	2.2	2.1	2.5	2.2	2.2
Previous Tealbook	3.9	2.7	1.7	1.8	2.6	2.2	2.7	1.8	2.3	2.1	2.3	2.0	2.3	2.1	2.0
Priv. dom. final purch.	3.3	2.8	2.4	2.7	3.3	3.3	3.2	2.8	2.6	2.5	2.4	2.5	3.1	2.6	2.2
Previous Tealbook	3.3	3.2	2.4	3.0	3.3	3.2	3.0	2.6	2.4	2.2	2.2	2.7	3.1	2.4	1.8
Personal cons. expend.	2.4	2.1	1.6	2.3	2.5	2.5	2.4	2.2	2.0	1.8	1.8	1.8	2.4	1.9	1.6
Previous Tealbook	2.4	2.1	1.9	2.2	2.2	2.2	2.2	1.9	1.8	1.7	1.8	1.9	2.2	1.8	1.4
Durables	.6	.5	.3	.3	.5	.5	.4	.4	.3	.3	.3	.4	.4	.3	.3
Nondurables	.6	.6	.4	.5	.4	.4	.5	.4	.4	.3	.4	.4	.5	.4	.4
Services	1.2	1.0	1.0	1.4	1.6	1.6	1.5	1.4	1.3	1.2	1.1	1.0	1.5	1.2	1.0
Residential investment	.3	.3	.2	.2	.3	.2	.2	.3	.3	.3	.3	.3	.2	.3	.2
Previous Tealbook	.3	.2	.0	.4	.5	.4	.3	.3	.2	.2	.1	.2	.4	.2	.2
Nonres. priv. fixed invest.	.5	.4	.6	.2	.5	.6	.6	.4	.4	.3	.3	.4	.5	.4	.3
Previous Tealbook	.5	.8	.5	.5	.6	.6	.5	.3	.4	.3	.4	.5	.5	.3	.3
Equipment & intangibles	.4	.6	.5	.3	.5	.6	.5	.3	.3	.3	.3	.5	.5	.3	.3
Previous Tealbook	.4	.7	.5	.5	.5	.6	.4	.2	.3	.3	.3	.5	.5	.3	.2
Nonres. structures	.2	-.2	.0	-.1	.0	.0	.1	.1	.1	.1	.1	-.1	.0	.1	.0
Previous Tealbook	.2	.1	.0	-.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.1	.0
Net exports	.2	-.2	-.5	-1.3	-1.0	-1.2	-.5	-.9	-.5	-.5	-.2	-.6	-1.0	-.5	-.1
Previous Tealbook	.2	-.6	-.7	-1.3	-.9	-1.0	-.4	-.8	-.4	-.3	.0	-.8	-.9	-.4	.0
Exports	.6	.1	.1	-.3	.1	.1	.3	-.2	.2	.2	.5	.0	.1	.2	.4
Imports	-.5	-.3	-.6	-1.0	-1.1	-1.3	-.9	-.7	-.7	-.7	-.7	-.6	-1.1	-.7	-.6
Gov't. cons. & invest.	.5	.3	.1	.5	.4	.2	.2	.1	.3	.2	.0	.2	.3	.2	.1
Previous Tealbook	.5	.1	.0	.0	.2	.0	.1	.1	.3	.1	.1	.2	.1	.1	.2
Federal	.0	.0	.0	.5	.1	.0	.0	.0	.0	.0	-.1	.0	.2	.0	-.1
Defense	.0	-.1	.0	.2	.0	-.1	.0	.1	-.1	-.1	-.1	.0	.0	.0	.0
Nondefense	.0	.1	.0	.3	.1	.1	.0	.0	.0	.0	.0	.0	.1	.0	.0
State & local	.5	.3	.1	.1	.3	.2	.1	.1	.3	.2	.2	.2	.2	.2	.2
Change in priv. inventories	.0	-.8	-.3	.2	-.1	.3	-.2	-.4	-.4	.0	-.1	.0	.1	-.2	-.3
Previous Tealbook	.0	-1.4	.4	.2	-.1	.0	-.5	.0	-.1	-.2	-.2	.0	-.1	-.1	-.2

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	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3	2017 Q4	2015[1]	2016[1]	2017[1]	2018[1]
GDP chain-wt. price index	2.1	1.3	.8	.4	1.5	1.7	1.7	2.0	1.9	1.8	1.8	1.1	1.3	1.9	2.0
Previous Tealbook	2.1	1.6	.9	.8	1.7	1.7	1.6	2.0	1.8	1.8	1.8	1.2	1.4	1.9	2.0
PCE chain-wt. price index	2.2	1.3	.0	.0	1.5	1.6	1.6	1.8	1.8	1.8	1.8	.4	1.2	1.8	2.0
Previous Tealbook	2.2	1.3	.4	.8	1.6	1.6	1.5	1.8	1.8	1.7	1.7	.5	1.4	1.7	1.9
Energy	15.1	-1.8	-23.5	-28.2	3.6	7.0	6.0	5.4	4.4	3.8	3.6	-16.8	-4.1	4.3	2.8
Previous Tealbook	15.1	-1.9	-19.6	-14.3	4.2	4.2	3.8	3.4	2.8	2.3	2.1	-15.7	-.9	2.7	1.8
Food	-1.1	2.2	2.0	1.7	1.6	1.7	1.9	1.9	1.9	2.0	2.0	.7	1.7	2.0	2.0
Previous Tealbook	-1.1	2.2	2.0	1.7	1.7	1.8	1.9	1.9	1.9	2.0	2.0	.7	1.8	2.0	2.0
Ex. food & energy	1.9	1.3	1.2	1.4	1.4	1.4	1.4	1.7	1.7	1.7	1.7	1.3	1.4	1.7	1.9
Previous Tealbook	1.9	1.4	1.4	1.5	1.5	1.4	1.4	1.7	1.7	1.6	1.6	1.4	1.4	1.7	1.9
Ex. food & energy, market based	1.8	1.2	1.3	1.3	1.4	1.4	1.4	1.7	1.7	1.6	1.6	1.2	1.4	1.7	1.9
Previous Tealbook	1.8	1.1	1.3	1.5	1.5	1.4	1.3	1.7	1.7	1.6	1.6	1.2	1.4	1.7	1.9
CPI	3.0	1.6	.2	-.1	2.1	2.3	2.3	2.4	2.3	2.3	2.3	.4	1.6	2.3	2.4
Previous Tealbook	3.0	1.6	.2	.9	2.1	2.1	2.1	2.2	2.2	2.1	2.1	.4	1.8	2.1	2.1
Ex. food & energy	2.5	1.7	2.1	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.0	2.0	2.2	2.3
Previous Tealbook	2.5	1.7	1.7	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	1.9	2.0	2.1	2.1
ECI, hourly compensation[2]	.0	2.6	2.4	2.4	2.4	2.4	2.4	2.6	2.6	2.6	2.6	2.0	2.4	2.6	2.6
Previous Tealbook[2]	.0	2.5	2.5	2.6	2.6	2.6	2.6	2.8	2.8	2.8	2.8	2.0	2.6	2.8	2.8
Business sector															
Output per hour	3.7	2.7	.5	1.5	2.1	1.3	1.3	1.1	1.8	1.6	1.5	1.4	1.6	1.5	1.5
Previous Tealbook	3.8	.5	2.6	1.7	1.7	1.4	1.3	1.1	1.7	1.4	1.4	1.4	1.5	1.4	1.5
Compensation per hour	5.9	4.1	3.3	3.4	3.1	3.1	3.1	3.3	3.1	3.1	3.1	3.6	3.2	3.2	3.4
Previous Tealbook	2.1	2.5	2.3	3.2	2.9	2.9	2.9	3.4	3.1	3.1	3.1	2.0	3.0	3.2	3.4
Unit labor costs	2.1	1.3	2.8	1.9	.9	1.8	1.8	2.2	1.3	1.5	1.6	2.2	1.6	1.7	1.8
Previous Tealbook	-1.6	2.0	-.3	1.5	1.2	1.6	1.6	2.2	1.3	1.6	1.6	.6	1.5	1.7	1.8
Core goods imports chain-wt. price index[3]	-3.1	-2.0	-3.0	-2.3	-.9	.5	1.0	1.2	1.2	1.2	1.2	-3.2	-.4	1.2	1.2
Previous Tealbook[3]	-3.1	-2.5	-2.2	-.3	.0	.8	1.1	1.2	1.2	1.2	1.2	-3.1	.4	1.2	1.2

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

Greensheets

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

Item	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
GDP chain-wt. price index	.4	1.8	1.9	1.9	1.6	1.3	1.1	1.3	1.9	2.0
Previous Tealbook	.4	1.8	1.9	1.9	1.6	1.3	1.2	1.4	1.9	2.0
PCE chain-wt. price index	1.2	1.3	2.7	1.8	1.2	1.1	.4	1.2	1.8	2.0
Previous Tealbook	1.2	1.3	2.7	1.8	1.2	1.1	.5	1.4	1.7	1.9
Energy	2.3	6.4	12.0	2.3	-2.5	-6.4	-16.8	-4.1	4.3	2.8
Previous Tealbook	2.3	6.4	12.0	2.3	-2.5	-6.4	-15.7	-.9	2.7	1.8
Food	-1.8	1.3	5.1	1.2	.8	2.8	.7	1.7	2.0	2.0
Previous Tealbook	-1.8	1.3	5.1	1.2	.8	2.8	.7	1.8	2.0	2.0
Ex. food & energy	1.4	1.0	1.9	1.8	1.5	1.4	1.3	1.4	1.7	1.9
Previous Tealbook	1.4	1.0	1.9	1.8	1.5	1.4	1.4	1.4	1.7	1.9
Ex. food & energy, market based	1.8	.7	1.9	1.5	1.2	1.2	1.2	1.4	1.7	1.9
Previous Tealbook	1.8	.7	1.9	1.5	1.2	1.2	1.2	1.4	1.7	1.9
CPI	1.5	1.2	3.3	1.9	1.2	1.2	.4	1.6	2.3	2.4
Previous Tealbook	1.5	1.2	3.3	1.9	1.2	1.2	.4	1.8	2.1	2.1
Ex. food & energy	1.8	.6	2.2	1.9	1.7	1.7	2.0	2.0	2.2	2.3
Previous Tealbook	1.8	.6	2.2	1.9	1.7	1.7	1.9	2.0	2.1	2.1
ECI, hourly compensation[1]	1.2	2.1	2.2	1.8	2.0	2.3	2.0	2.4	2.6	2.6
Previous Tealbook[1]	1.2	2.1	2.2	1.8	2.0	2.3	2.0	2.6	2.8	2.8
Business sector										
Output per hour	5.6	1.7	.0	-.2	1.6	-.2	1.4	1.6	1.5	1.5
Previous Tealbook	5.6	1.7	.0	-.2	1.6	-.2	1.4	1.5	1.4	1.5
Compensation per hour	1.3	1.2	.6	5.8	-.1	2.6	3.6	3.2	3.2	3.4
Previous Tealbook	1.3	1.2	.6	5.8	-.1	2.6	2.0	3.0	3.2	3.4
Unit labor costs	-4.2	-.4	.6	6.0	-1.7	2.8	2.2	1.6	1.7	1.8
Previous Tealbook	-4.2	-.4	.6	6.0	-1.7	2.8	.6	1.5	1.7	1.8
Core goods imports chain-wt. price index[2]	-1.9	2.3	4.3	.1	-1.1	.5	-3.2	-.4	1.2	1.2
Previous Tealbook[2]	-1.9	2.3	4.3	.1	-1.1	.5	-3.1	.4	1.2	1.2

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

Other Macroeconomic Indicators

Item	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3	2017 Q4	2015[1]	2016[1]	2017[1]	2018[1]
Employment and production															
Nonfarm payroll employment[2]	.6	.6	.7	.6	.6	.6	.6	.5	.5	.5	.4	2.7	2.4	1.9	1.4
Unemployment rate[3]	5.4	5.1	5.0	4.9	4.8	4.8	4.7	4.7	4.6	4.6	4.6	5.0	4.7	4.6	4.5
Previous Tealbook[3]	5.4	5.1	5.0	5.0	4.9	4.9	4.9	4.8	4.8	4.8	4.7	5.0	4.9	4.7	4.7
Natural rate of unemployment[3]	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Previous Tealbook[3]	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Employment-to-Population Ratio[3]	59.4	59.3	59.3	59.4	59.4	59.4	59.5	59.5	59.5	59.5	59.4	59.3	59.5	59.4	59.2
Employment-to-Population Trend[3]	59.8	59.7	59.6	59.5	59.4	59.4	59.3	59.2	59.1	59.1	59.0	59.6	59.3	59.0	58.7
GDP gap[4]	-.5	-.2	-.1	.0	.3	.6	.8	.9	1.0	1.2	1.3	-.1	.8	1.3	1.5
Previous Tealbook[4]	-.5	-.4	-.2	-.1	.1	.3	.5	.6	.7	.8	.9	-.2	.5	.9	1.0
Industrial production[5]	-2.3	2.7	-2.0	1.8	2.1	1.8	2.4	2.5	2.2	1.9	2.2	-.5	2.0	2.2	1.9
Previous Tealbook[5]	-2.4	1.8	-2.2	1.6	2.4	2.3	2.6	2.8	2.5	2.1	1.9	-.8	2.2	2.3	1.8
Manufacturing industr. prod.[5]	1.5	3.4	1.5	1.2	2.4	2.3	2.3	1.9	2.2	1.9	2.2	1.4	2.0	2.1	1.8
Previous Tealbook[5]	1.4	2.5	-1.4	1.7	3.2	3.0	2.6	2.4	2.6	2.2	1.9	.5	2.6	2.3	1.8
Capacity utilization rate - mfg.[3]	75.9	76.3	76.4	76.4	76.6	76.8	77.0	77.1	77.3	77.4	77.6	76.4	77.0	77.6	78.1
Previous Tealbook[3]	75.9	76.1	75.6	75.7	76.1	76.4	76.7	76.9	77.2	77.4	77.5	75.6	76.7	77.5	78.0
Housing starts[6]	1.2	1.2	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.4	1.5	1.1	1.3	1.4	1.5
Light motor vehicle sales[6]	17.1	17.8	17.9	17.6	17.4	17.2	17.1	17.0	17.0	16.9	16.8	17.4	17.3	16.9	16.7
Income and saving															
Nominal GDP[5]	6.1	3.4	2.5	2.5	4.2	4.4	4.4	3.8	4.0	4.1	4.0	3.2	3.8	4.0	3.9
Real disposable pers. income[5]	2.6	4.0	4.7	4.3	2.9	2.8	2.0	3.5	2.0	2.5	2.3	3.8	3.0	2.6	2.3
Previous Tealbook[5]	1.2	3.5	2.3	3.4	2.5	2.3	1.9	3.4	1.8	2.4	2.3	2.7	2.5	2.5	2.2
Personal saving rate[3]	5.0	5.2	5.7	5.9	5.8	5.6	5.3	5.3	5.1	5.1	5.0	5.7	5.3	5.0	5.0
Previous Tealbook[3]	4.6	4.7	4.6	4.6	4.5	4.3	4.0	4.1	3.9	3.9	3.9	4.6	4.0	3.9	4.0
Corporate profits[7]	14.7	-4.1	-14.1	-14.9	-.4	5.7	6.3	-4.3	-2.5	2.0	1.7	-7.1	-1.2	-.8	2.0
Profit share of GNP[3]	11.5	11.3	10.8	10.3	10.2	10.2	10.3	10.1	9.9	9.9	9.8	10.8	10.3	9.8	9.7
Gross national saving rate[3]	18.7	18.5	18.9	18.6	18.5	18.4	18.2	17.9	17.9	17.8	17.8	18.9	18.2	17.8	17.5
Net national saving rate[3]	3.8	3.8	4.0	3.5	3.4	3.2	3.0	2.6	2.5	2.4	2.3	4.0	3.0	2.3	1.8

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

Greensheets

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

Item	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Employment and production										
Nonfarm payroll employment[1]	-5.6	.8	2.0	2.2	2.5	2.9	2.7	2.4	1.9	1.4
Unemployment rate[2]	9.9	9.5	8.7	7.8	7.0	5.7	5.0	4.7	4.6	4.5
Previous Tealbook[2]	9.9	9.5	8.7	7.8	7.0	5.7	5.0	4.9	4.7	4.7
Natural rate of unemployment[2]	6.2	6.2	6.0	5.8	5.4	5.1	5.1	5.1	5.1	5.1
Previous Tealbook[2]	6.2	6.2	6.0	5.8	5.4	5.1	5.1	5.1	5.1	5.1
Employment-to-Population Ratio[2]	58.4	58.3	58.5	58.7	58.5	59.2	59.3	59.5	59.4	59.2
Employment-to-Population Trend[2]	61.3	60.9	60.6	60.2	60.1	59.9	59.6	59.3	59.0	58.7
GDP gap[3]	-5.5	-4.4	-4.2	-4.2	-2.8	-.9	-.1	.8	1.3	1.5
Previous Tealbook[3]	-5.5	-4.4	-4.2	-4.2	-2.8	-.9	-.2	.5	.9	1.0
Industrial production[4]	-5.4	5.9	2.8	2.1	2.3	4.5	-.5	2.0	2.2	1.9
Previous Tealbook[4]	-5.4	5.9	2.8	2.1	2.3	4.5	-.8	2.2	2.3	1.8
Manufacturing industr. prod.[4]	-6.1	6.0	2.7	1.5	1.3	3.4	1.4	2.0	2.1	1.8
Previous Tealbook[4]	-6.1	6.0	2.7	1.5	1.3	3.4	.5	2.6	2.3	1.8
Capacity utilization rate - mfg.[2]	67.1	72.5	74.4	74.1	74.2	76.2	76.4	77.0	77.6	78.1
Previous Tealbook[2]	67.1	72.5	74.4	74.1	74.2	76.2	75.6	76.7	77.5	78.0
Housing starts[5]	.6	.6	.6	.8	.9	1.0	1.1	1.3	1.4	1.5
Light motor vehicle sales[5]	10.4	11.5	12.7	14.4	15.5	16.4	17.4	17.3	16.9	16.7
Income and saving										
Nominal GDP[4]	.1	4.6	3.6	3.2	4.1	3.9	3.2	3.8	4.0	3.9
Real disposable pers. income[4]	-.7	2.6	1.7	5.1	-2.9	3.6	3.8	3.0	2.6	2.3
Previous Tealbook[4]	-.7	2.6	1.7	5.1	-2.9	3.6	2.7	2.5	2.5	2.2
Personal saving rate[2]	5.6	5.5	5.8	9.2	4.4	4.7	5.7	5.3	5.0	5.0
Previous Tealbook[2]	5.6	5.5	5.8	9.2	4.4	4.7	4.6	4.0	3.9	4.0
Corporate profits[6]	53.7	18.0	6.8	.6	4.1	3.4	-7.1	-1.2	-.8	2.0
Profit share of GNP[2]	10.6	12.0	12.3	12.0	12.0	11.9	10.8	10.3	9.8	9.7
Gross national saving rate[2]	14.6	15.2	16.1	18.0	18.1	18.8	18.9	18.2	17.8	17.5
Net national saving rate[2]	-1.7	-.3	.8	2.9	3.1	3.9	4.0	3.0	2.3	1.8

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

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

Item	Fiscal year 2015	Fiscal year 2016	Fiscal year 2017	Fiscal year 2018	2015 Q1[a]	2015 Q2[a]	2015 Q3[a]	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3	2017 Q4
Unified budget					Not seasonally adjusted											
Receipts	3,249	3,458	3,579	3,703	680	1,027	802	750	741	1,094	873	805	758	1,127	888	832
Outlays	3,688	3,880	4,048	4,228	943	904	924	993	944	958	984	988	1,065	1,004	991	1,034
Surplus/deficit	-439	-422	-469	-524	-263	123	-123	-244	-203	136	-112	-183	-307	123	-104	-202
Previous Tealbook	*-439*	*-455*	*-463*	*-515*	*-263*	*123*	*-123*	*-255*	*-219*	*129*	*-110*	*-179*	*-305*	*121*	*-100*	*-198*
Means of financing:																
Borrowing	337	757	595	645	67	-16	46	559	163	-108	143	228	325	-92	135	234
Cash decrease	-40	-62	-6	-0	123	-154	56	-125	63	2	-1	-16	12	-1	-1	-1
Other[1]	142	-273	-120	-120	73	47	21	-190	-23	-30	-30	-30	-30	-30	-30	-30
Cash operating balance, end of period	199	261	267	267	100	254	199	324	261	260	261	276	265	265	267	268
NIPA federal sector					Seasonally adjusted annual rates											
Receipts	3,393	3,530	3,676	3,822	3,356	3,440	3,481	3,491	3,503	3,539	3,587	3,635	3,654	3,687	3,727	3,765
Expenditures	3,988	4,141	4,367	4,595	3,936	4,015	4,080	4,055	4,127	4,155	4,226	4,281	4,372	4,375	4,440	4,492
Consumption expenditures	956	988	1,016	1,028	957	957	961	964	990	997	1,001	1,005	1,017	1,020	1,023	1,022
Defense	594	602	610	615	595	595	595	595	604	606	605	605	613	612	611	610
Nondefense	362	386	406	414	362	362	367	369	386	391	396	400	404	408	411	413
Other spending	3,032	3,153	3,351	3,567	2,979	3,057	3,119	3,091	3,137	3,158	3,225	3,275	3,355	3,355	3,417	3,469
Current account surplus	-595	-611	-691	-773	-579	-574	-599	-564	-624	-616	-639	-645	-717	-688	-712	-727
Gross investment	263	268	274	275	262	264	263	263	268	270	271	271	274	274	275	273
Gross saving less gross investment[2]	-586	-605	-688	-768	-569	-567	-590	-553	-618	-612	-635	-642	-715	-686	-710	-722
Fiscal indicators																
High-employment (HEB) surplus/deficit[3]	-543.0	-626.1	-763.2	-875.5	-506.1	-537.4	-580.5	-555.0	-631.0	-638.7	-679.7	-706.1	-783.0	-764.2	-799.6	-821.2
Change in HEB, percent of potential GDP	.5	.4	.6	.4	-.2	.1	.2	-.2	.4	.0	.2	.1	.4	-.1	.2	.1
Fiscal impetus (FI), percent of GDP[4]	.4	.4	.2	.2	.0	.7	.6	.3	.6	.5	.3	.3	.2	.4	.2	.1
Previous Tealbook	*.3*	*.2*	*.2*	*.2*	*.0*	*.6*	*.3*	*.3*	*.1*	*.3*	*.1*	*.2*	*.1*	*.3*	*.2*	*.2*
Federal purchases	.0	.2	.0	-.1	.1	.0	.0	.0	.5	.1	.0	.0	.0	.0	.0	-.1
State and local purchases	.2	.2	.2	.2	-.1	.5	.3	.1	.1	.3	.1	.1	.1	.3	.2	.1
Taxes and transfers	.2	.1	.1	.0	.0	.2	.2	.3	.1	.1	.1	.1	.1	.1	.1	.1

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

Greensheets

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

Measure and country	2015 Q1	2015 Q2	2015 Q3	2015 Q4	2016 Q1	2016 Q2	2016 Q3	2016 Q4	2017 Q1	2017 Q2	2017 Q3	2017 Q4
				Projected								
Real GDP[1]												
Total foreign	1.8	1.3	2.4	2.3	2.6	2.8	2.8	2.8	3.0	2.6	2.8	2.9
Previous Tealbook	*1.7*	*1.1*	*2.3*	*2.4*	*2.7*	*2.9*	*2.9*	*2.9*	*3.0*	*2.6*	*2.8*	*2.9*
Advanced foreign economies	1.0	.6	1.8	1.7	1.9	2.0	2.1	2.1	2.2	1.4	1.8	2.0
Canada	-.7	-.3	2.3	2.0	2.1	2.2	2.2	2.1	2.0	1.9	1.9	1.9
Japan	4.4	-.5	1.0	1.0	1.1	1.1	1.2	1.2	3.2	-4.9	-.3	1.1
United Kingdom	1.5	2.6	1.9	2.3	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.3
Euro area	2.2	1.6	1.2	1.4	1.7	2.0	2.1	2.2	2.1	2.1	2.0	2.2
Germany	1.4	1.8	1.3	1.5	1.7	1.9	2.1	2.1	2.0	2.0	2.0	2.0
Emerging market economies	2.5	2.0	3.0	2.8	3.3	3.5	3.5	3.6	3.7	3.8	3.8	3.9
Asia	4.3	4.0	5.0	4.7	5.0	5.0	5.0	5.0	4.9	4.9	4.9	4.9
Korea	3.3	1.3	5.3	4.1	4.0	4.0	4.0	4.0	3.8	3.8	3.8	3.8
China	5.7	7.2	7.2	6.5	6.4	6.3	6.3	6.2	6.1	6.1	6.1	6.1
Latin America	1.2	.5	1.2	1.3	1.9	2.1	2.3	2.4	2.8	2.8	2.9	3.0
Mexico	2.1	2.5	3.0	2.5	2.8	2.8	2.8	2.9	3.0	3.0	3.1	3.2
Brazil	-3.3	-8.0	-6.7	-4.2	-2.2	-.8	-.1	.5	1.1	1.5	1.8	2.0
Consumer prices[2]												
Total foreign	.2	2.5	2.0	1.0	1.8	2.2	2.3	2.4	2.4	2.8	2.4	2.5
Previous Tealbook	*.2*	*2.6*	*2.0*	*1.7*	*2.3*	*2.4*	*2.4*	*2.4*	*2.5*	*2.8*	*2.5*	*2.5*
Advanced foreign economies	-.7	2.0	.7	.2	.8	1.3	1.5	1.5	1.6	2.6	1.7	1.7
Canada	-.2	2.5	2.3	1.3	1.3	1.5	1.7	1.8	1.9	2.0	2.0	2.0
Japan	-.3	1.7	.0	-.6	.2	.7	.9	1.1	1.2	6.5	1.2	1.2
United Kingdom	-1.3	.9	.9	-.2	1.2	1.8	1.9	1.9	2.0	2.1	2.1	2.0
Euro area	-1.2	2.2	-.2	-.2	.7	1.4	1.5	1.5	1.6	1.6	1.6	1.6
Germany	-1.5	2.2	-.3	.0	.8	1.5	1.6	1.7	1.7	1.7	1.7	1.7
Emerging market economies	.9	3.0	2.9	1.6	2.5	2.8	2.9	3.0	3.0	3.0	3.0	3.0
Asia	.2	2.7	2.5	.5	1.9	2.4	2.6	2.7	2.7	2.8	2.8	2.8
Korea	.1	1.5	.9	1.9	2.5	2.8	3.0	3.0	3.0	3.0	3.1	3.2
China	.3	2.6	3.1	-.5	1.4	2.1	2.3	2.5	2.5	2.5	2.5	2.5
Latin America	2.1	3.7	4.0	4.1	3.9	3.8	3.7	3.7	3.6	3.6	3.6	3.6
Mexico	1.0	2.7	3.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Brazil	10.9	10.2	10.1	8.8	6.6	6.2	6.2	6.2	5.7	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	2010	2011	2012	2013	2014	2015 (Projected)	2016 (Projected)	2017 (Projected)	2018 (Projected)
Real GDP [1]									
Total foreign	4.8	3.3	2.3	2.8	2.5	1.9	2.8	2.8	2.9
Previous Tealbook	*4.8*	*3.2*	*2.4*	*2.7*	*2.5*	*1.8*	*2.8*	*2.8*	*2.9*
Advanced foreign economies	3.1	1.9	.2	2.2	1.7	1.3	2.0	1.8	1.9
Canada	3.6	3.1	.7	3.1	2.4	.8	2.1	1.9	1.8
Japan	3.6	.3	.0	2.1	-.9	1.5	1.1	-.3	1.0
United Kingdom	1.8	2.1	1.0	2.8	3.0	2.1	2.5	2.4	2.3
Euro area	2.4	.5	-1.1	.6	.9	1.6	2.0	2.1	2.1
Germany	4.5	2.4	.1	1.3	1.5	1.5	1.9	2.0	1.9
Emerging market economies	6.6	4.7	4.3	3.4	3.2	2.6	3.5	3.8	3.9
Asia	8.2	5.1	5.6	5.3	4.9	4.5	5.0	4.9	4.8
Korea	6.1	2.9	2.1	3.4	2.7	3.5	4.0	3.8	3.8
China	10.0	8.6	7.9	7.6	7.2	6.7	6.3	6.1	6.0
Latin America	4.7	4.2	3.4	1.6	1.9	1.0	2.2	2.9	3.1
Mexico	4.4	4.2	3.4	1.1	2.6	2.5	2.8	3.1	3.2
Brazil	5.7	2.5	2.6	2.4	-.7	-5.5	-.7	1.6	2.1
Consumer prices [2]									
Total foreign	3.2	3.4	2.3	2.3	2.0	1.4	2.2	2.5	2.5
Previous Tealbook	*3.2*	*3.4*	*2.3*	*2.3*	*2.0*	*1.6*	*2.4*	*2.6*	*2.5*
Advanced foreign economies	1.7	2.2	1.3	1.0	1.1	.5	1.3	1.9	1.7
Canada	2.2	2.7	1.0	1.0	1.9	1.5	1.6	2.0	2.0
Japan	-.3	-.3	-.2	1.4	2.5	.2	.7	2.5	1.3
United Kingdom	3.4	4.6	2.6	2.1	.9	.1	1.7	2.0	2.0
Euro area	2.0	2.9	2.3	.8	.2	.2	1.3	1.6	1.6
Germany	1.6	2.6	2.0	1.3	.4	.1	1.4	1.7	1.8
Emerging market economies	4.3	4.3	3.1	3.3	2.6	2.1	2.8	3.0	3.0
Asia	4.3	4.5	2.6	3.1	1.8	1.5	2.4	2.8	2.8
Korea	3.2	3.9	1.7	1.1	1.0	1.1	2.8	3.1	3.2
China	4.6	4.6	2.0	2.9	1.5	1.4	2.1	2.5	2.5
Latin America	4.4	4.0	4.3	4.0	4.7	3.5	3.8	3.6	3.6
Mexico	4.3	3.5	4.1	3.6	4.2	2.5	3.2	3.2	3.2
Brazil	5.6	6.7	5.6	5.9	6.6	10.0	6.3	5.5	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

	2015 Q1	2015 Q2	2015 Q3	2015 Q4 (Projected)	2016 Q1 (Projected)	2016 Q2 (Projected)	2016 Q3 (Projected)	2016 Q4 (Projected)	2017 Q1 (Projected)	2017 Q2 (Projected)	2017 Q3 (Projected)	2017 Q4 (Projected)
	Billions of dollars, s.a.a.r.											
U.S. current account balance	**-473.2**	**-451.0**	**-493.9**	**-506.1**	**-587.2**	**-611.9**	**-672.8**	**-720.5**	**-783.3**	**-790.3**	**-827.7**	**-856.7**
Previous Tealbook	*-473.2*	*-438.7*	*-454.9*	*-491.3*	*-578.7*	*-595.7*	*-647.4*	*-688.5*	*-748.7*	*-752.6*	*-783.5*	*-809.5*
Current account as percent of GDP	-2.7	-2.5	-2.7	-2.8	-3.2	-3.3	-3.6	-3.8	-4.1	-4.1	-4.3	-4.4
Previous Tealbook	*-2.7*	*-2.4*	*-2.5*	*-2.7*	*-3.2*	*-3.2*	*-3.5*	*-3.7*	*-3.9*	*-3.9*	*-4.0*	*-4.1*
Net goods & services	-537.2	-532.3	-534.8	-536.9	-598.4	-635.2	-690.8	-723.0	-769.8	-785.9	-810.5	-828.1
Investment income, net	208.8	212.7	183.0	168.6	162.0	156.0	150.6	140.4	137.3	128.3	115.3	109.2
Direct, net	278.8	280.6	241.5	234.7	243.3	253.6	265.2	273.7	290.0	302.4	312.7	330.5
Portfolio, net	-70.0	-67.9	-58.5	-66.2	-81.3	-97.6	-114.6	-133.3	-152.7	-174.1	-197.4	-221.3
Other income and transfers, net	-144.8	-131.4	-142.1	-137.9	-150.9	-132.7	-132.6	-137.9	-150.9	-132.7	-132.6	-137.9

Annual Data

	2010	2011	2012	2013	2014	2015 (Projected)	2016 (Projected)	2017 (Projected)	2018 (Projected)
	Billions of dollars								
U.S. current account balance	**-442.0**	**-460.4**	**-449.7**	**-376.8**	**-389.5**	**-481.1**	**-648.1**	**-814.5**	**-906.3**
Previous Tealbook	*-442.0*	*-460.4*	*-449.7*	*-376.8*	*-389.5*	*-464.5*	*-627.6*	*-773.6*	*-839.8*
Current account as percent of GDP	-3.0	-3.0	-2.8	-2.3	-2.2	-2.7	-3.5	-4.2	-4.5
Previous Tealbook	*-3.0*	*-3.0*	*-2.8*	*-2.3*	*-2.2*	*-2.6*	*-3.4*	*-4.0*	*-4.2*
Net goods & services	-494.7	-548.6	-536.8	-478.4	-508.3	-535.3	-661.9	-798.6	-855.4
Investment income, net	185.7	229.0	220.8	233.6	247.4	193.2	152.2	122.5	87.6
Direct, net	288.0	298.6	290.2	301.7	300.5	258.9	259.0	308.9	367.8
Portfolio, net	-102.3	-69.5	-69.4	-68.1	-53.1	-65.6	-106.7	-186.4	-280.2
Other income and transfers, net	-133.0	-140.8	-133.7	-132.0	-128.6	-139.0	-138.5	-138.5	-138.5

Abbreviations

ABS	asset-backed securities
AFE	advanced foreign economy
BHC	bank holding company
BOC	Bank of Canada
BOE	Bank of England
BOJ	Bank of Japan
CDS	credit default swaps
C&I	commercial and industrial
CMBS	commercial mortgage-backed securities
CP	commercial paper
Desk	Open Market Desk
DSGE	dynamic stochastic general equilibrium
ECB	European Central Bank
ECI	employment cost index
E&I	equipment and intangibles
EME	emerging market economy
FOMC	Federal Open Market Committee; also, the Committee
GCF	General Collateral Finance
GDP	gross domestic product
IP	industrial production
LMCI	labor market conditions index
M&A	mergers and acquisitions
MBS	mortgage-backed securities
MERS	Middle East Respiratory Syndrome
OIS	overnight index swap
ON RRP	overnight reverse repurchase agreement
OPEC	Organization of the Petroleum Exporting Countries
PBOC	People’s Bank of China

PCE	personal consumption expenditures
PMI	purchasing managers index
RRP	reverse repurchase agreement
SOMA	System Open Market Account
S&P	Standard & Poor's
TIPS	Treasury Inflation-Protected Securities
ZLB	zero lower bound