

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.

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Class II FOMC – Restricted (FR)

Report to the FOMC on Economic Conditions and Monetary Policy



Book A Economic and Financial Conditions: Outlook, Risks, and Policy Strategies

October 20, 2017

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

Comparing the Staff Projection with Other Forecasts

The staff's projection for real GDP growth is above the projections from both the Survey of Professional Forecasters (SPF) and the Blue Chip consensus forecast in 2017 but is close to the Blue Chip forecast in 2018. The staff's unemployment rate forecast is below Blue Chip in 2017 and 2018 but matches the SPF forecast in 2017. The staff's projection for CPI inflation is above Blue Chip and SPF in 2017; for 2018, the staff's projection is in line with the Blue Chip and below the SPF. The staff's projections for overall and core PCE price inflation are somewhat line with the admittedly stale SPF forecasts in both 2017 and 2018. That is, the staff outlook for PCE inflation is lower for core in 2017, lower for total in 2018, and consistent elsewhere.

Comparison of Tealbook and Outside Forecasts

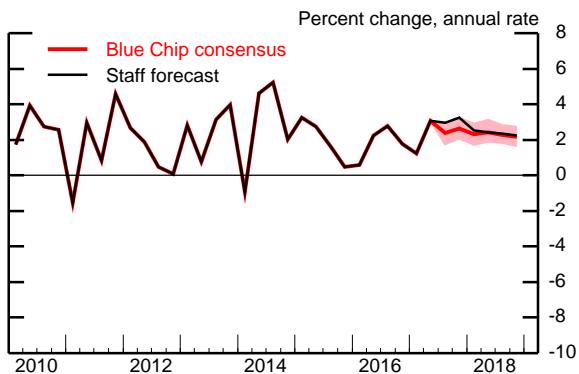
	2017	2018
GDP (Q4/Q4 percent change)		
October Tealbook	2.6	2.4
Blue Chip (10/10/17)	2.3	2.3
SPF median (8/11/17)	2.2	n.a.
Unemployment rate (Q4 level)		
October Tealbook	4.2	3.7
Blue Chip (10/10/17)	4.4	4.1
SPF median (8/11/17)	4.2	n.a.
CPI inflation (Q4/Q4 percent change)		
October Tealbook	1.9	2.0
Blue Chip (10/10/17)	1.8	2.0
SPF median (8/11/17)	1.7	2.2
PCE price inflation (Q4/Q4 percent change)		
October Tealbook	1.5	1.7
SPF median (8/11/17)	1.5	1.9
Core PCE price inflation (Q4/Q4 percent change)		
October Tealbook	1.4	1.8
SPF median (8/11/17)	1.5	1.8

Note: SPF is the Survey of Professional Forecasters, CPI is the consumer price index, and PCE is personal consumption expenditures. Blue Chip does not provide results for PCE price inflation. The Blue Chip consensus forecast includes input from about 50 panelists, and the SPF about 40. Roughly 20 panelists contribute to both surveys.

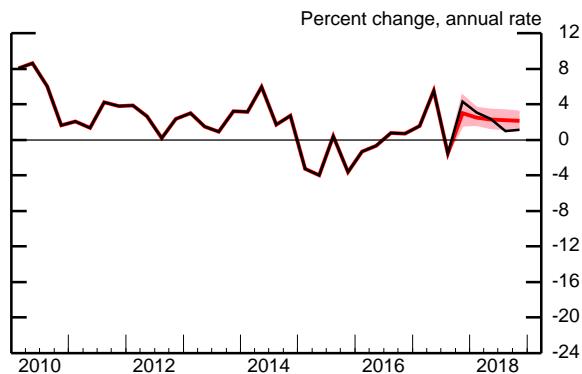
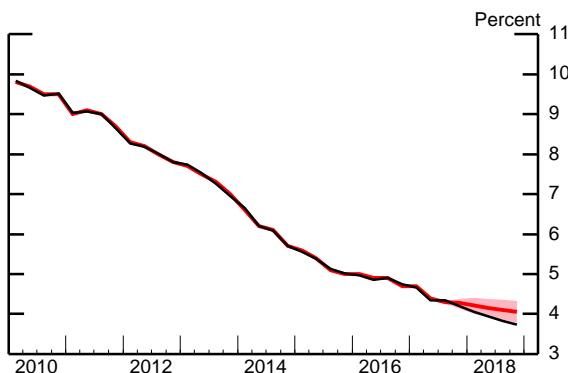
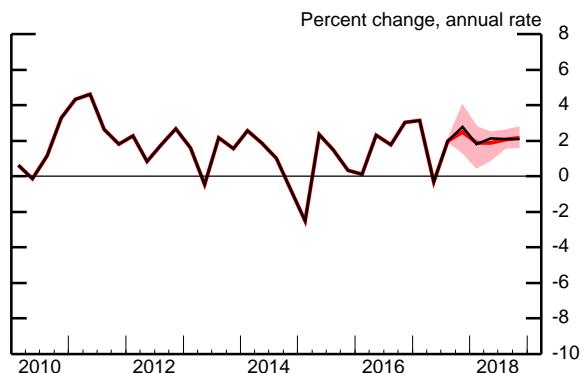
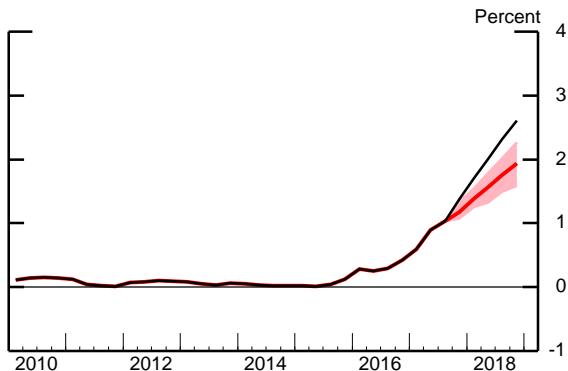
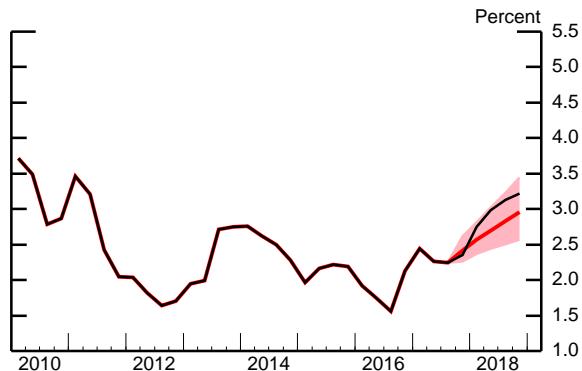
n.a. Not available.

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

Tealbook Forecast Compared with Blue Chip (Blue Chip survey released October 10, 2017)

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.

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

Monthly and Quarterly Hurricane Effects

	July	Aug.	Sept.	Oct.	Nov.	Dec.	2017:Q3	2017:Q4	2018:Q1
Real GDP growth ¹							-.5	.7	.1
September Tealbook							-.5	.7	.1
Total payroll employment ²	0	0	-200	150	50	0	-67	67	0
Unemployment rate	.0	.0	.0	.0	.0	.0	.0	.0	.0
Industrial production ¹	.0	-.7	-.2	.5	.4	.0	-2.1	1.6	.5
PCE price inflation ³									
Total		.0	.0	.3	.3	.0	.4	.1	.0
Core		.0	.0	.0	.0	.0	.0	.0	.0

Note: The hurricane effects are the cumulative effects of Harvey, Irma, and Nate.

1. In percentage points; quarterly columns are expressed at an annual rate.

2. Monthly change, in thousands; quarterly values are the average monthly change.

3. Monthly observations are 12-month percent changes, in percentage points; quarterly observations are annualized growth rates.

Source: Staff estimates.

we currently estimate that the hurricanes subtracted $\frac{1}{2}$ percentage point at an annual rate from real GDP growth in the third quarter, the same as in the previous Tealbook. We factored in the hit to economic activity from two more hurricanes, Irma and Nate, which made landfall on the U.S. mainland after the time of the September Tealbook projection; however, we revised down the estimated effect of Harvey.² As the level of production returns to its pre-hurricane path, rebuilding continues, and a small portion of lost spending is made up, we anticipate a boost to growth in the fourth quarter that is slightly larger than the third-quarter loss. Beyond the near term, the makeup of the lost spending and production, as well as the rebuilding of damaged property, will be gradual. Thus, the hurricanes do not leave a discernable imprint on the contour of growth in the medium-term projection.

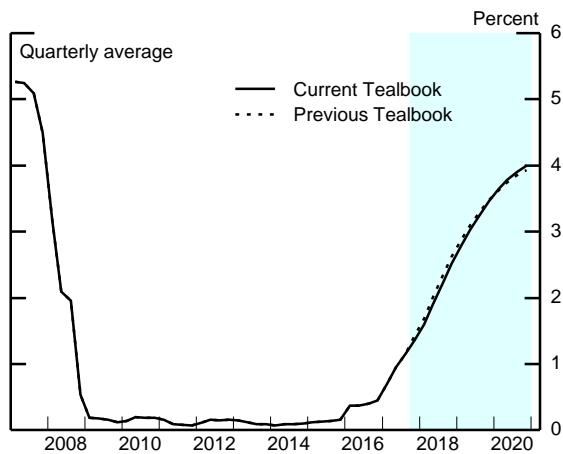
- We estimate that Hurricanes Harvey and Irma reduced payroll employment by 200,000 in September.³ That said, we anticipate employment will rebound in

² This information updates previous estimates of the economic effects of Hurricanes Harvey and Irma. For more details about those earlier estimates, see the staff memo to the FOMC from September 14, 2017, titled “Preliminary Assessment of Effects of Hurricane Irma on the U.S. Economy and Updated Assessment of Hurricane Harvey.”

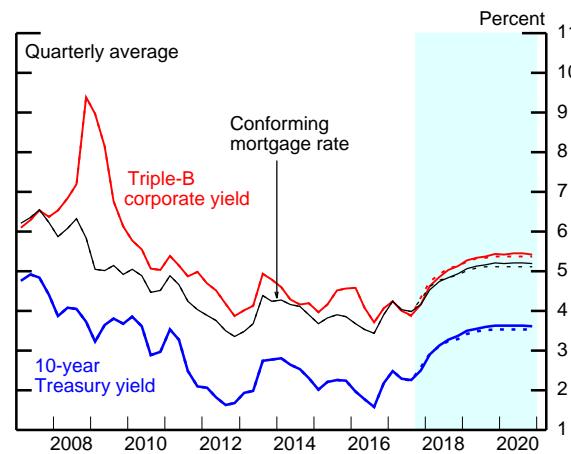
³ The uncertainty around this estimate is large, but it is consistent with data from the household survey showing an unusually large number of people (1.5 million) being absent from work due to bad weather during the third week of September, the reference week for the household and payroll surveys.

Key Background Factors underlying the Baseline Staff Projection

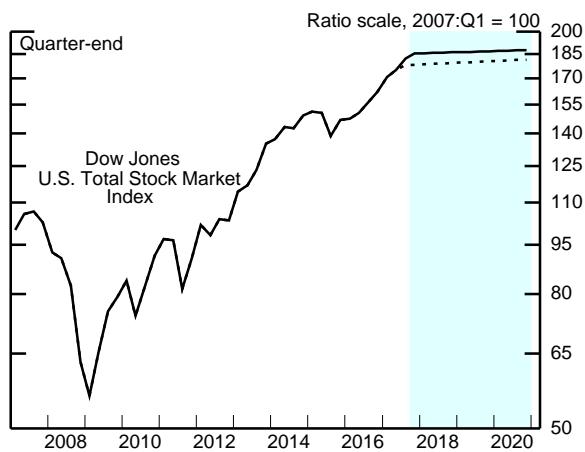
Federal Funds Rate



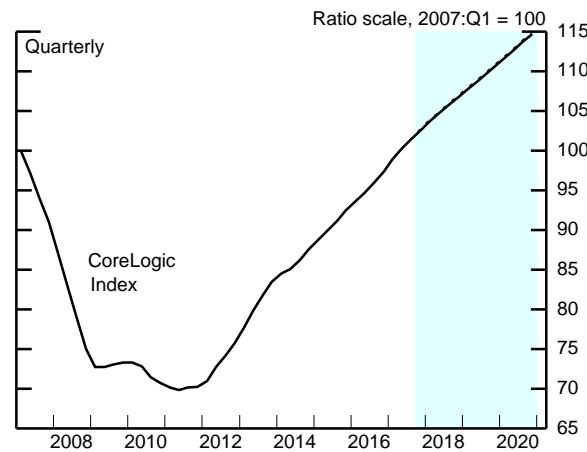
Long-Term Interest Rates



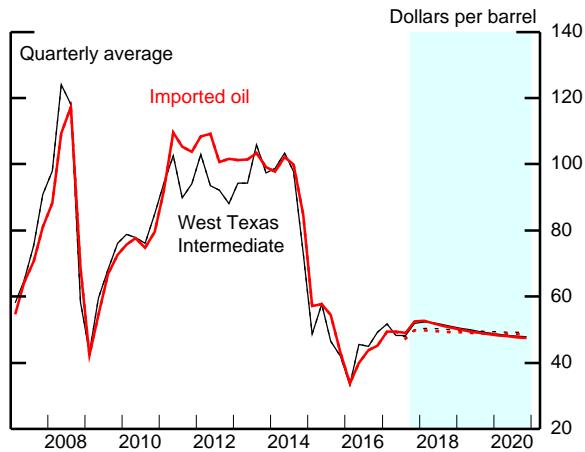
Equity Prices



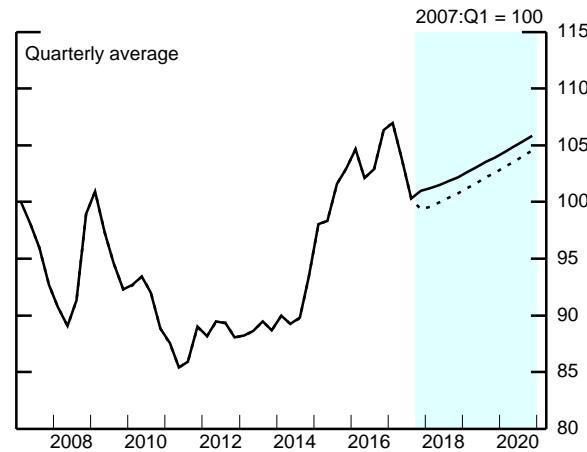
House Prices



Crude Oil Prices



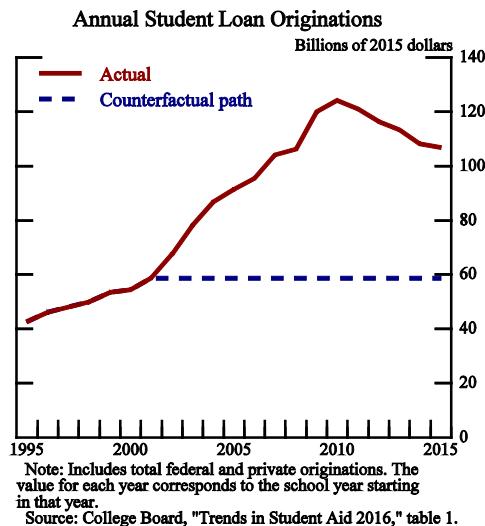
Broad Real Dollar



growth beyond the level estimated earlier. There is evidence that student loan borrowers in their mid-20s who are saddled with greater student debt delay their first home purchases, in part because of reduced access to mortgages.⁶ However, homeownership by itself does not boost consumption if a household simply converts from rental to ownership in the same size and quality unit. Moreover, even if a reduced homeownership rate is associated with reduced spending on housing services and home-related durables, the small number of affected households suggests that this effect is not large in the aggregate.⁷ Although access to auto loans also could be curtailed by student loan debt, higher student loan debt does not appear to lower the likelihood of purchasing a vehicle.⁸ Finally, reduced access to credit card loans might hold back consumption for some borrowers, although there is no available evidence that we can lean on to quantify this channel.

Second, borrowers may have psychological responses to debt that could affect consumption. In particular, if borrowers are especially averse to debt, they may choose to curtail consumption to repay their student loans more quickly. Available evidence points to the existence of debt aversion in different settings, suggesting this mechanism might play some role in reducing consumption.⁹

Finally, increases in student loan debt could be problematic for lenders, posing risks to financial stability. However, we currently view that outcome as unlikely. The federal government guarantees more than 90 percent of outstanding student loan debt, and, thus, financial institutions are not highly exposed to the associated direct credit risk. Moreover, the subpopulation of borrowers who have been struggling to meet their student debt obligations typically owe only small amounts on other debts. Consequently, lenders do not appear to face much indirect exposure through loans to borrowers currently having trouble paying their student loans.



⁶ Alvaro A. Mezza, Daniel R. Ringo, Shane M. Sherlund, and Kamila Sommer (2016), "Student Loans and Homeownership," Finance and Economics Discussion Series 2016-010 (Washington: Board of Governors of the Federal Reserve System, June), <https://doi.org/10.17016/FEDS.2016.010r1>.

⁷ Estimates from Mezza and others (2016) imply that roughly 20 percent of the decline in the homeownership rate for young adults since 2005 was due to increased student debt. This percentage accounts for less than 800,000 households. If renting has held back the total spending of each of these households by \$25,000 annually—the difference in average spending between homeowners and renters in the Consumer Expenditure Survey—the total effect on aggregate consumption would be less than \$20 billion.

⁸ Christopher Kurz and Geng Li (2015), "How Does Student Loan Debt Affect Light Vehicle Purchases?" FEDS Notes (Washington: Board of Governors of the Federal Reserve System, February 2), <https://www.federalreserve.gov/econresdata/notes/feds-notes/2015/how-does-student-loan-debt-affect-light-vehicle-purchases-20150202.html>.

⁹ For example, see Erica Field (2009), "Educational Debt Burden and Career Choice: Evidence from a Financial Aid Experiment at NYU Law School," *American Economic Journal: Applied Economics*, vol. 1 (January), pp. 1–21.

Federal Reserve System Nowcasts of 2017:Q3 Real GDP Growth
(Percent change at annual rate from previous quarter)

Federal Reserve entity	Type of model	Nowcast as of Oct. 18, 2017
Federal Reserve Bank		
Boston	• Mixed-frequency BVAR	2.9
New York	• Factor-augmented autoregressive model combination • Factor-augmented autoregressive model combination, financial factors only • Dynamic factor model	2.5 2.2 1.5
Cleveland	• Bayesian regressions with stochastic volatility • Tracking model	2.2 3.3
Atlanta	• Tracking model combined with Bayesian vector autoregressions (VARs), dynamic factor models, and factor-augmented autoregressions (known as GDPNow)	2.7
Chicago	• Dynamic factor models • Bayesian VARs	2.3 1.4
St. Louis	• Dynamic factor models • News index model • Let-the-data-decide regressions	2.3 3.0 2.1
Kansas City	• Accounting-based tracking estimate	2.4
Board of Governors	• Board staff's forecast (judgmental tracking model) • Monthly dynamic factor models (DFM-45) • Mixed-frequency dynamic factor model (DFM-BM)	2.9 2.9 1.9
Memo: Median of Federal Reserve System nowcasts		2.5

Summary of the Near-Term Outlook

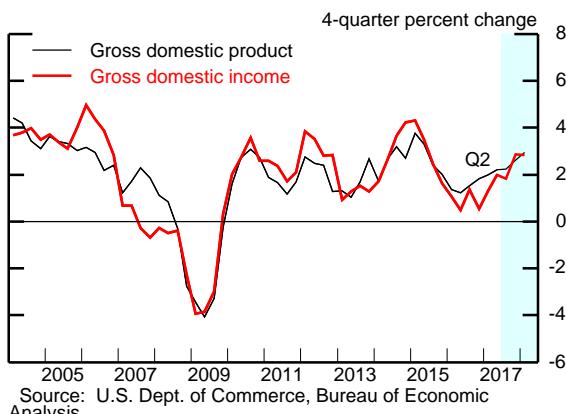
(Percent change at annual rate except as noted)

Measure	2017:Q3		2017:Q4		2017:H2	
	Previous Tealbook	Current Tealbook	Previous Tealbook	Current Tealbook	Previous Tealbook	Current Tealbook
Real GDP	2.3	2.9	3.6	3.2	3.0	3.1
Private domestic final purchases	2.0	2.4	3.8	3.3	2.9	2.9
Personal consumption expenditures	2.0	2.3	3.3	3.3	2.7	2.8
Residential investment	-4.2	-6.2	1.8	-.6	-1.2	-3.5
Nonres. private fixed investment	4.0	5.6	7.2	5.0	5.6	5.3
Government purchases	.6	-1.0	1.0	.8	.8	-.1
<i>Contributions to change in real GDP</i>						
Inventory investment ¹	.2	.4	.2	.1	.2	.3
Net exports ¹	.3	.6	.0	.2	.2	.4
Unemployment rate	4.4	4.3	4.2	4.2	4.2	4.2
PCE chain price index	1.8	1.5	1.9	2.0	1.9	1.7
Ex. food and energy	1.4	1.3	1.8	1.5	1.6	1.4

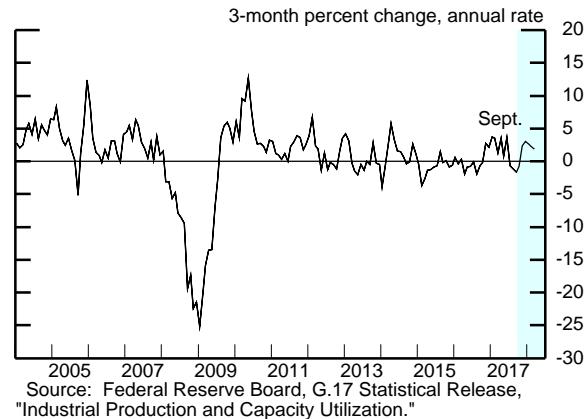
1. Percentage points.

Recent Nonfinancial Developments (1)

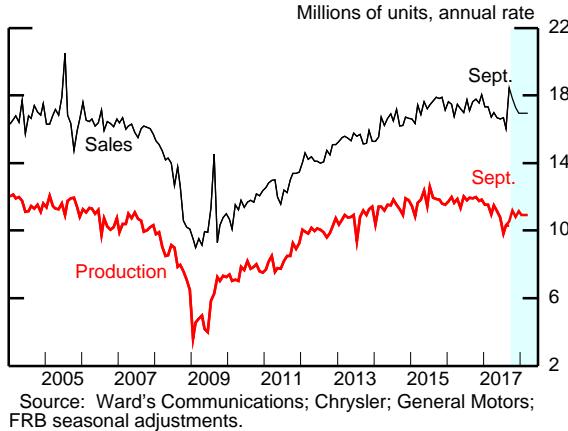
Real GDP and GDI



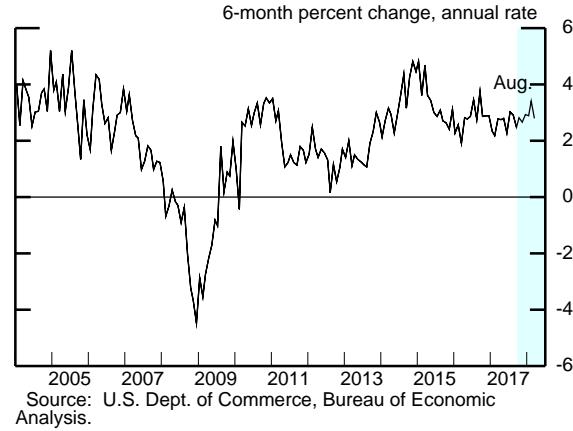
Manufacturing IP ex. Motor Vehicles and Parts



Sales and Production of Light Motor Vehicles

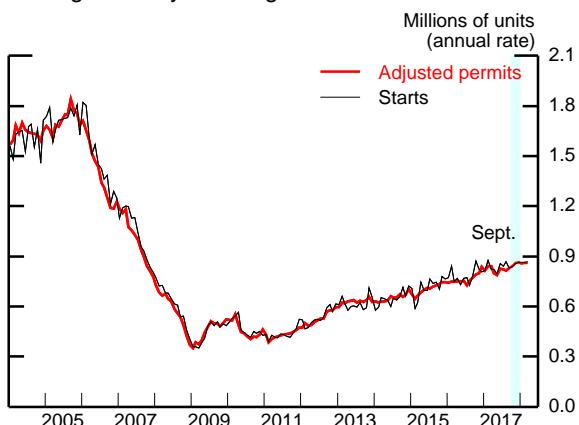


Real PCE Growth



Recent Nonfinancial Developments (2)

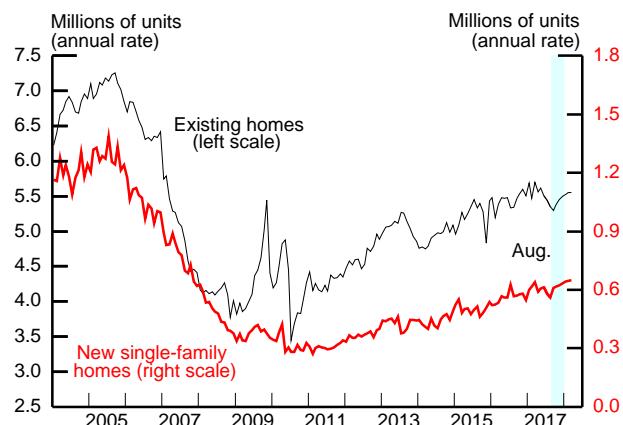
Single-Family Housing Starts and Permits



Note: Adjusted permits equal permit issuance plus total starts outside of permit-issuing areas.

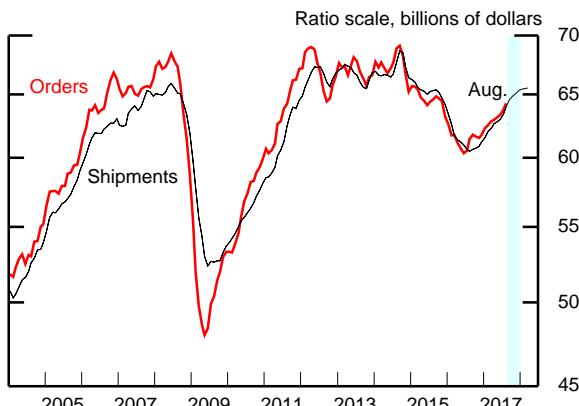
Source: U.S. Census Bureau.

Home Sales



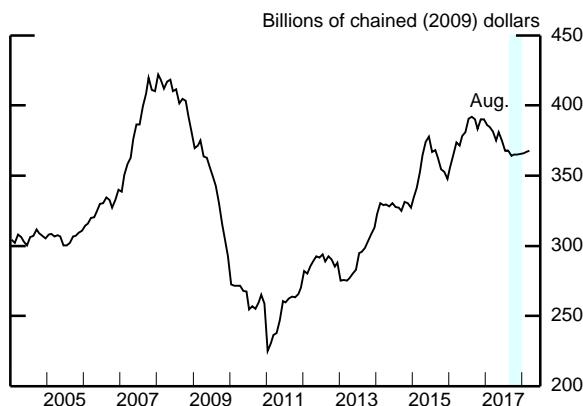
Source: For existing, National Association of Realtors; for new, U.S. Census Bureau.

Nondefense Capital Goods ex. Aircraft



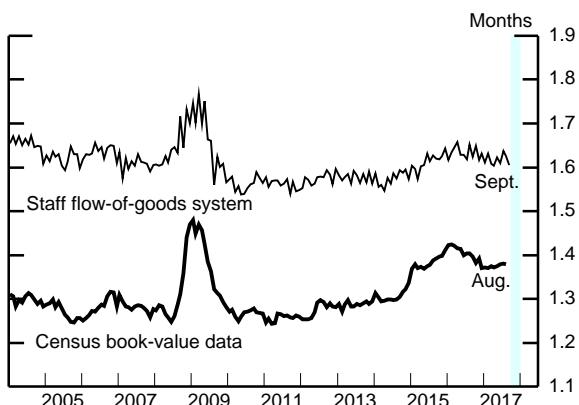
Note: Data are 3-month moving averages.
Source: U.S. Census Bureau.

Nonresidential Construction Put in Place



Note: Nominal CPIP deflated by BEA prices through 2017:Q2 and by the staff's estimated deflator thereafter.
Source: U.S. Census Bureau.

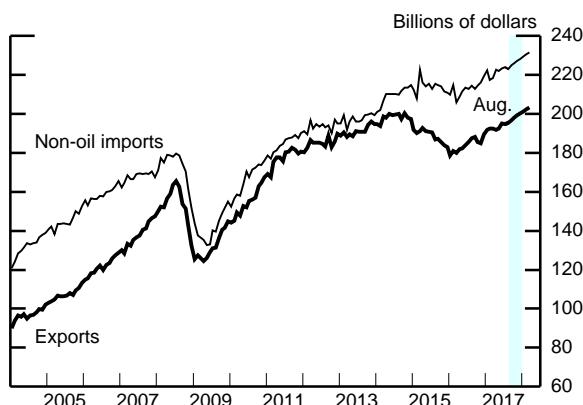
Inventory Ratios



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.

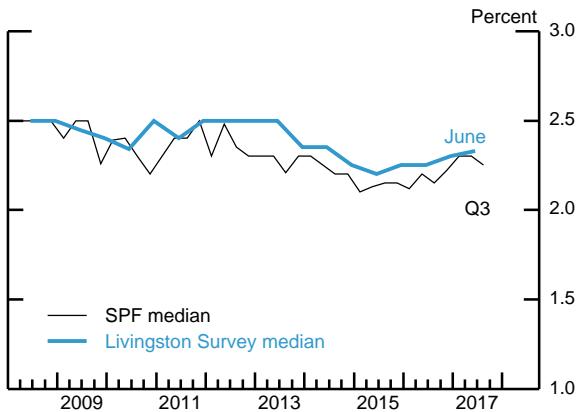
Exports and Non-oil Imports



Note: Forecasts are linear interpolations of quarterly values.
Source: U.S. Dept. of Commerce, Bureau of Economic Analysis; U.S. Census Bureau.

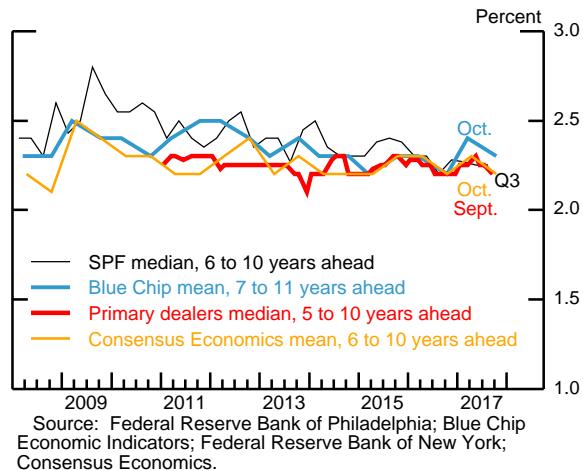
Survey Measures of Longer-Term Inflation Expectations

CPI Next 10 Years

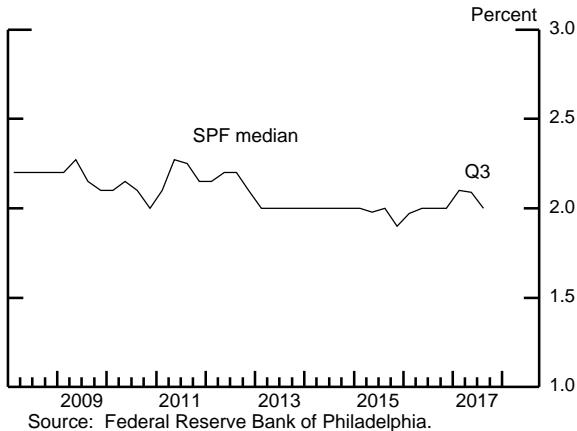


Note: SPF is Survey of Professional Forecasters.
Source: Federal Reserve Bank of Philadelphia.

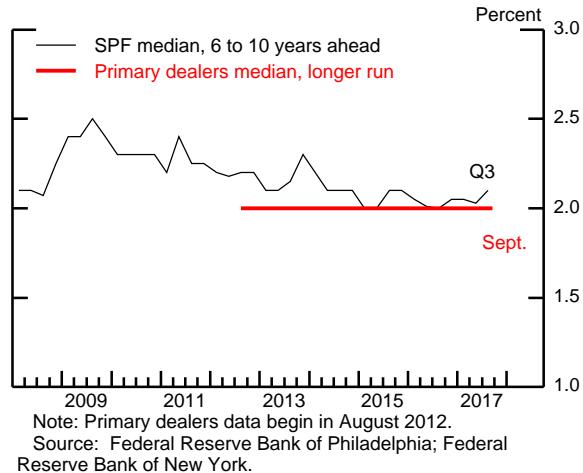
CPI Forward Expectations



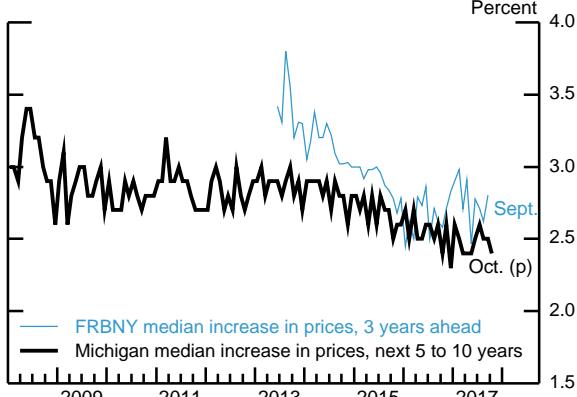
PCE Next 10 Years



PCE Forward Expectations



Surveys of Consumers

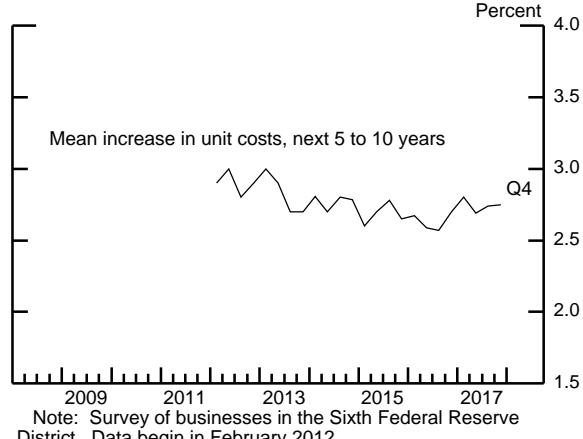


Note: Federal Reserve Bank of New York (FRBNY) Survey of Consumer Expectations reports expected 12-month inflation rate 3 years from the current survey date. FRBNY data begin in June 2013.

(p) Preliminary.

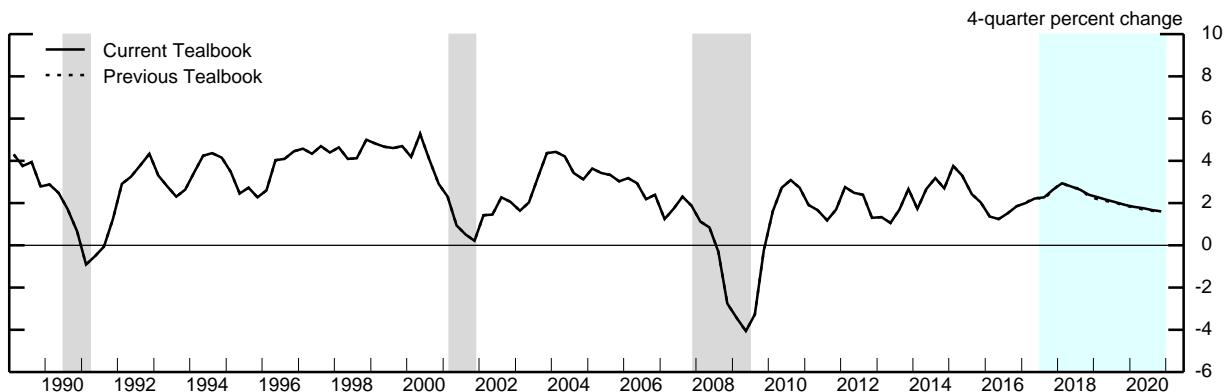
Source: University of Michigan Surveys of Consumers; Federal Reserve Bank of New York Survey of Consumer Expectations.

Survey of Business Inflation Expectations



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

Measure	2016	2017		2017	2018	2019	2020
		H1	H2				
Real GDP	1.8	2.1	3.1	2.6	2.4	1.9	1.6
Previous Tealbook	1.8	2.3	3.0	2.6	2.3	1.9	1.6
Final sales	1.9	2.8	2.8	2.8	2.4	1.9	1.6
Previous Tealbook	1.9	2.9	2.8	2.9	2.4	1.9	1.6
Personal consumption expenditures	2.8	2.6	2.8	2.7	2.6	2.3	2.1
Previous Tealbook	2.8	2.7	2.7	2.7	2.6	2.3	2.1
Residential investment	2.5	1.5	-3.5	-1.0	3.9	2.3	2.7
Previous Tealbook	2.5	2.0	-1.2	.4	3.4	2.5	3.7
Nonresidential structures	3.5	10.8	-3.6	3.4	2.0	.1	-1.2
Previous Tealbook	3.5	11.0	-1.9	4.3	1.6	-.3	-1.2
Equipment and intangibles	-.1	5.8	8.1	7.0	3.4	1.9	1.2
Previous Tealbook	-.1	6.2	7.9	7.0	3.6	1.7	1.1
Federal purchases	-.3	-.3	.1	-.1	-.6	.7	.6
Previous Tealbook	-.3	-.3	.9	.3	-.4	.4	.2
State and local purchases	.8	-.5	-.2	-.3	1.1	.9	.9
Previous Tealbook	.8	-.3	.7	.2	.9	.9	.9
Exports	.6	5.4	3.4	4.4	4.8	4.0	2.9
Previous Tealbook	.6	5.4	3.9	4.6	4.6	4.2	2.9
Imports	2.7	2.9	.2	1.5	4.1	4.1	3.7
Previous Tealbook	2.7	3.0	2.1	2.6	3.8	3.8	3.7
Contributions to change in real GDP (percentage points)							
Inventory change	.0	-.7	.3	-.2	.0	.0	.0
Previous Tealbook	.0	-.7	.2	-.2	-.1	.0	.0
Net exports	-.3	.2	.4	.3	.0	-.1	-.2
Previous Tealbook	-.3	.2	.2	.2	.0	-.1	-.2

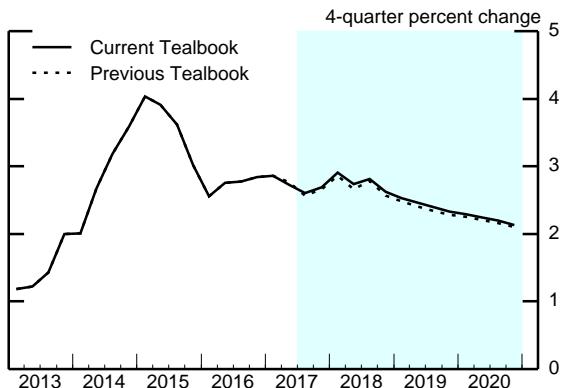
Real GDP

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

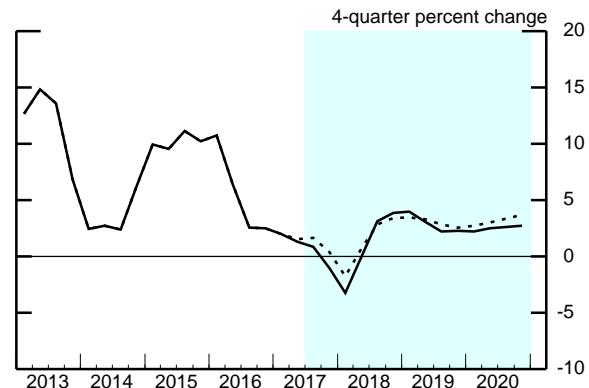
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Components of Final Demand

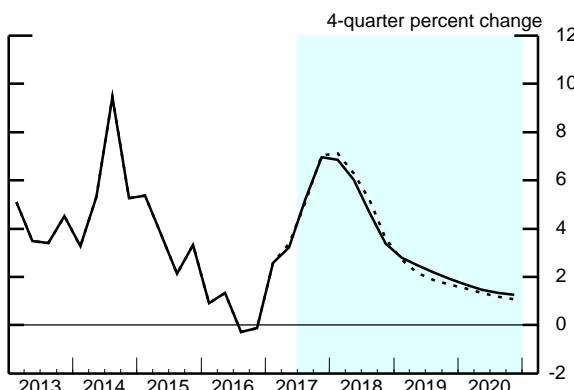
Personal Consumption Expenditures



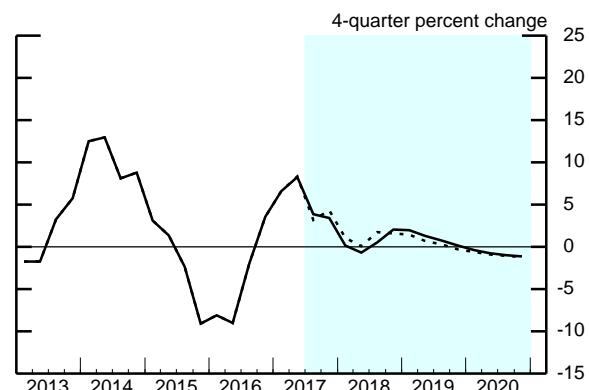
Residential Investment



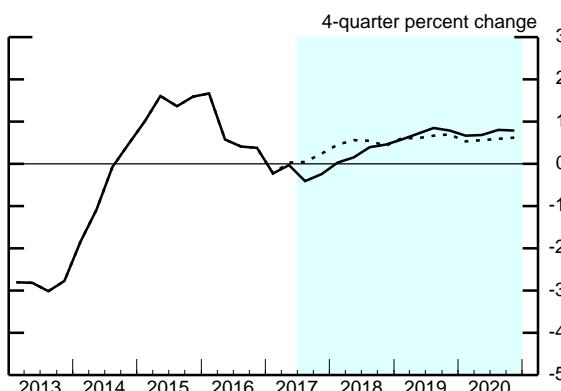
Equipment and Intangibles



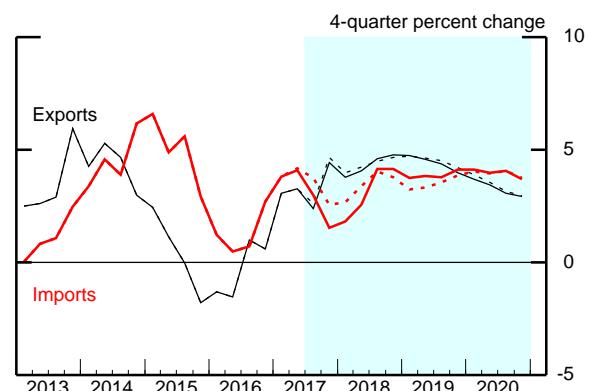
Nonresidential Structures



Government Consumption and Investment

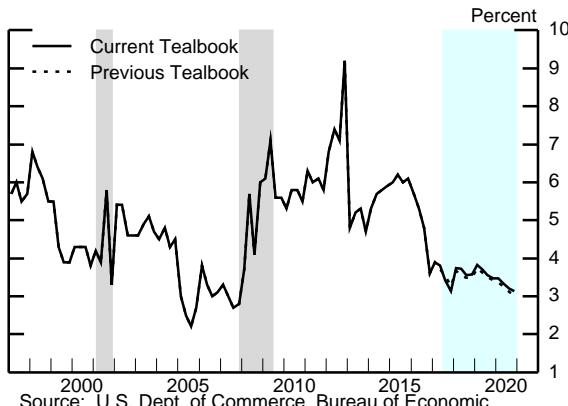
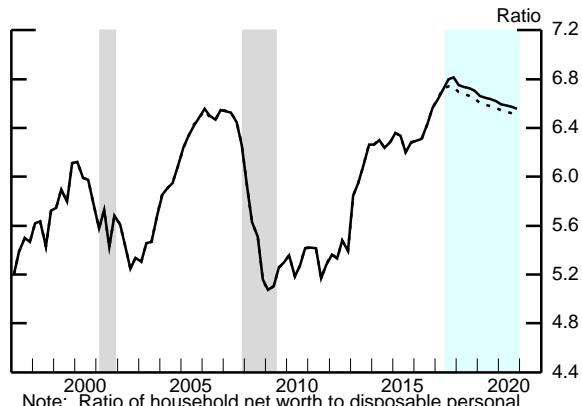
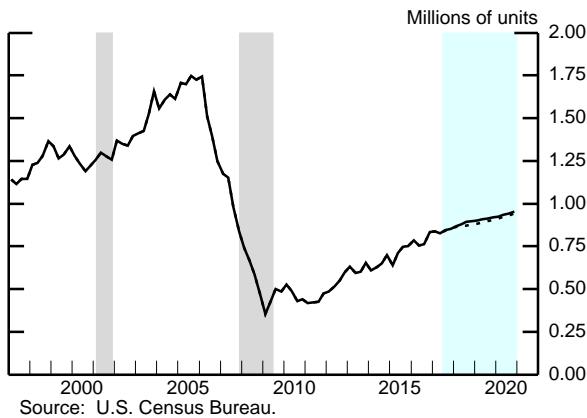
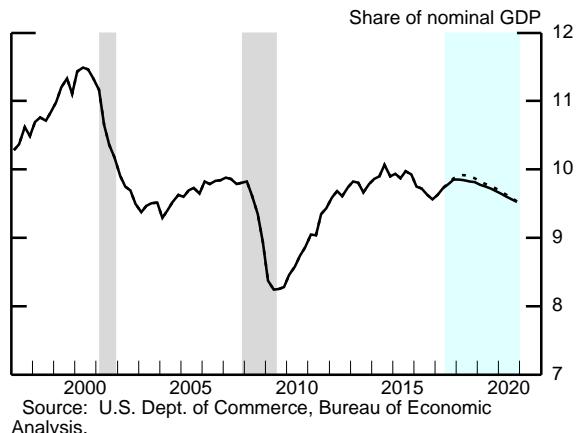
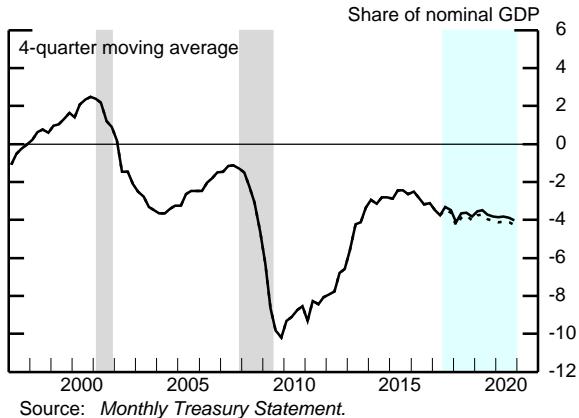
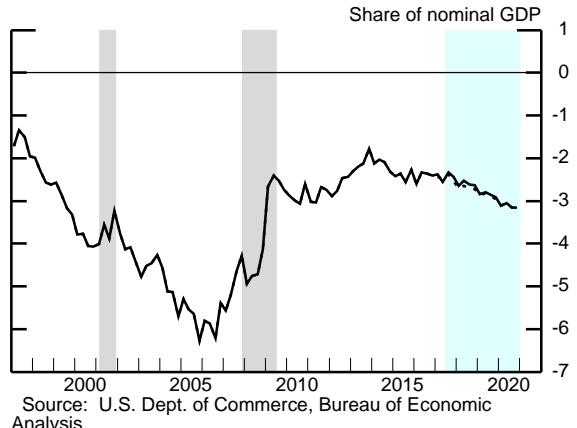


Exports and Imports



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

Aspects of the Medium-Term Projection

Personal Saving Rate**Wealth-to-Income Ratio****Single-Family Housing Starts****Equipment and Intangibles Spending****Federal Surplus/Deficit****Current Account Surplus/Deficit**

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	2011-15	2016	2017	2018	2019	2020
Potential real GDP	3.1	3.4	2.6	1.6	1.2	1.4	1.5	1.6	1.7	1.7
Previous Tealbook	3.1	3.4	2.6	1.6	1.2	1.4	1.5	1.6	1.7	1.7
<i>Selected contributions</i> ¹										
Structural labor productivity ²	1.6	2.9	2.8	1.4	.8	.8	1.1	1.2	1.3	1.3
Previous Tealbook	1.6	2.9	2.8	1.4	.8	.8	1.1	1.2	1.3	1.3
Capital deepening	.6	1.5	1.0	.3	.5	.5	.5	.5	.5	.4
Multifactor productivity	.7	1.0	1.5	.9	.1	.1	.4	.4	.6	.7
Structural hours	1.6	1.2	.8	.0	.6	.8	.1	.5	.5	.5
Previous Tealbook	1.6	1.2	.8	.0	.6	.8	.1	.5	.5	.5
Labor force participation	.4	-.1	-.2	-.5	-.6	-.3	-.3	-.4	-.4	-.4
Previous Tealbook	.4	-.1	-.2	-.5	-.6	-.3	-.3	-.4	-.4	-.4
Memo:										
Output gap ³	-1.9	2.4	.8	-4.2	-.1	.3	1.4	2.1	2.3	2.1
Previous Tealbook	-1.9	2.4	.8	-4.2	-.1	.3	1.4	2.1	2.2	2.0

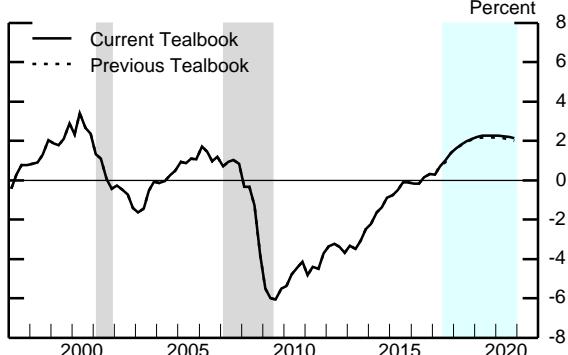
Note: For multiyear periods, the percent change is the annual average from Q4 of the year preceding the first year shown to Q4 of the last year shown.

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.

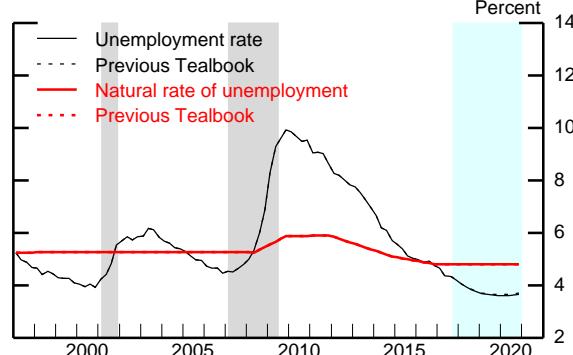
Output Gap



Note: The Output gap is the percent difference between actual and potential GDP; a negative number indicates that the economy is operating below potential.

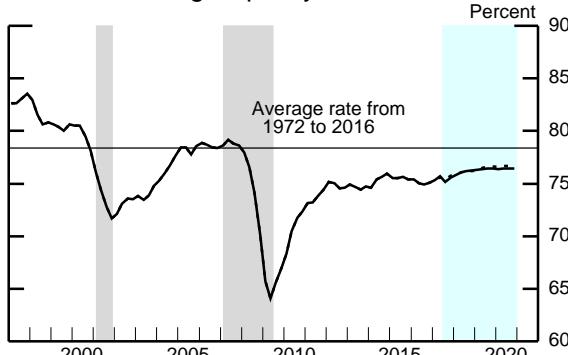
Source: U.S. Department of Commerce, Bureau of Economic Analysis; staff assumptions.

Unemployment Rate



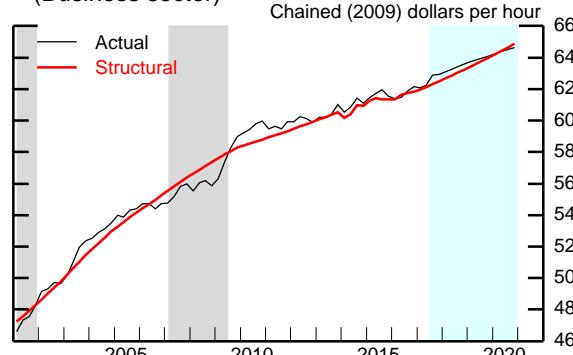
Source: U.S. Department of Labor, Bureau of Labor Statistics; staff assumptions.

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	2016	2017		2017	2018	2019	2020
		H1	H2				
Output per hour, business ¹ Previous Tealbook	1.0 1.0	.2 .4	2.1 1.7	1.2 1.0	1.0 .9	.8 .9	.9 1.0
Nonfarm payroll employment ² Previous Tealbook	187 187	177 177	167 186	172 181	179 179	138 122	109 109
Private employment ² Previous Tealbook	170 170	174 173	162 185	168 179	170 170	129 113	100 100
Labor force participation rate ³ Previous Tealbook	62.7 62.7	62.8 62.8	62.8 62.8	62.8 62.8	62.6 62.6	62.5 62.5	62.4 62.4
Civilian unemployment rate ³ Previous Tealbook	4.7 4.7	4.4 4.4	4.2 4.2	4.2 4.2	3.7 3.8	3.6 3.7	3.6 3.7

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

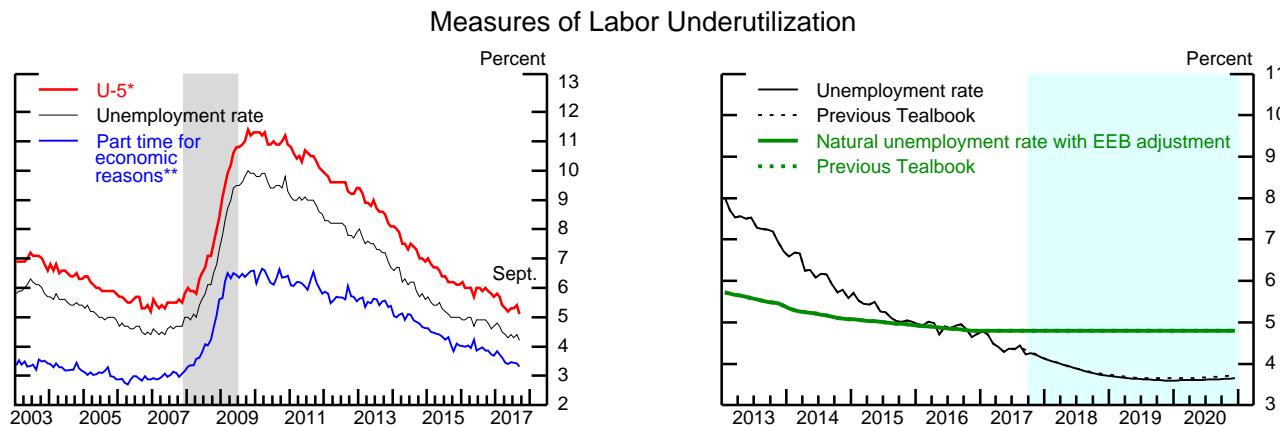
Measure	2016	2017		2017	2018	2019	2020
		H1	H2				
<i>Percent change at annual rate from final quarter of preceding period</i>							
PCE chain-weighted price index Previous Tealbook	1.6 1.6	1.2 1.2	1.7 1.9	1.5 1.5	1.7 1.9	2.0 2.0	2.0 2.0
Food and beverages Previous Tealbook	-1.7 -1.7	1.2 1.2	.9 1.4	1.0 1.3	2.1 2.2	2.3 2.3	2.2 2.2
Energy Previous Tealbook	2.2 2.2	-1.5 -1.5	11.2 8.4	4.6 3.4	-1.6 -.8	.2 .9	.7 1.2
Excluding food and energy Previous Tealbook	1.9 1.9	1.4 1.4	1.4 1.6	1.4 1.5	1.8 1.9	2.0 2.0	2.0 2.0
Prices of core goods imports ¹ Previous Tealbook	-.2 -.2	1.2 1.2	2.4 3.8	1.8 2.5	.9 1.1	.7 .7	.7 .7
<i>12-month percent change</i>							
PCE chain-weighted price index Previous Tealbook	1.6 1.9	1.5 1.7	1.5 1.5	1.4 1.5	1.2 1.2	1.2 1.2	1.6 1.6
Excluding food and energy Previous Tealbook	1.3 1.4	1.3 1.4	1.4 1.5	1.4 1.5	1.3 1.3	1.3 1.3	1.6 1.6

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

2. Staff forecast.

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

Labor Market Developments and Outlook (1)

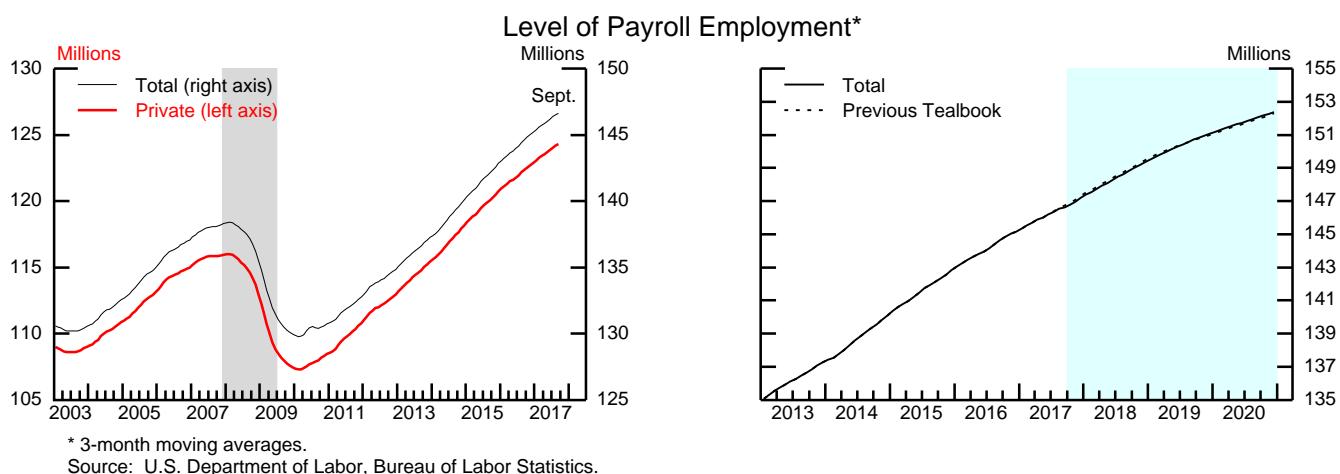


* U-5 measures total unemployed persons plus all marginally attached to the labor force, as a percent of the labor force plus persons marginally attached to the labor force.

** Percent of Current Population Survey employment.

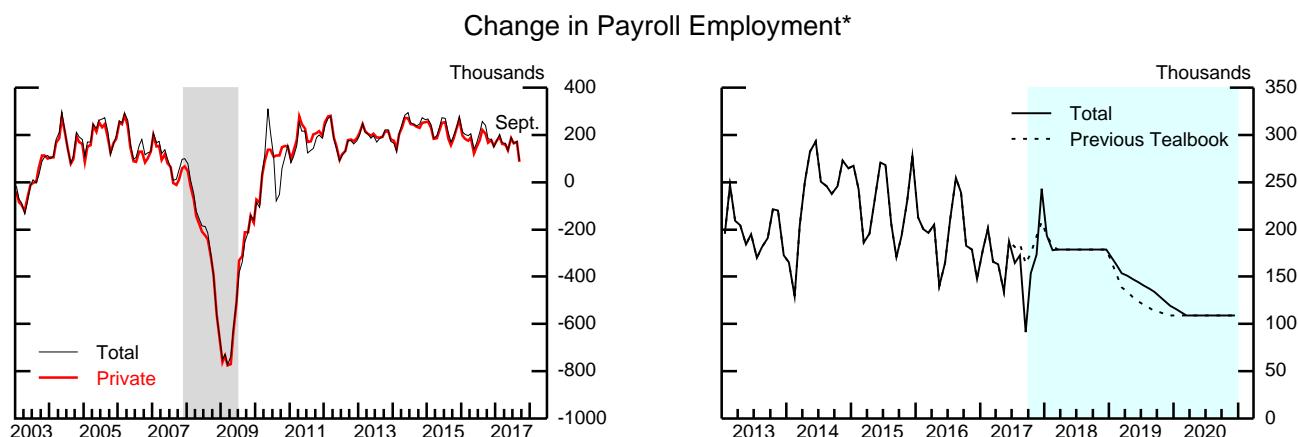
EEB Extended and emergency unemployment benefits.

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



* 3-month moving averages.

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



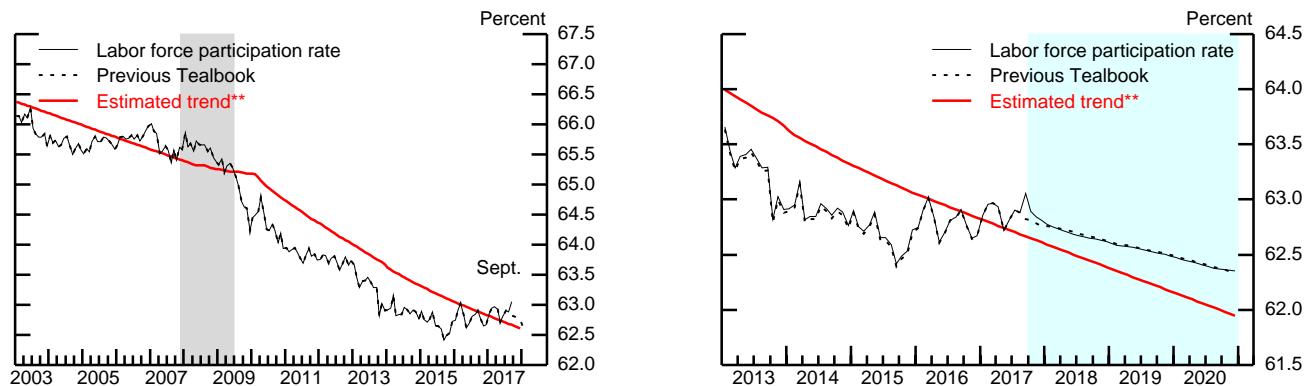
* 3-month moving averages.

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*

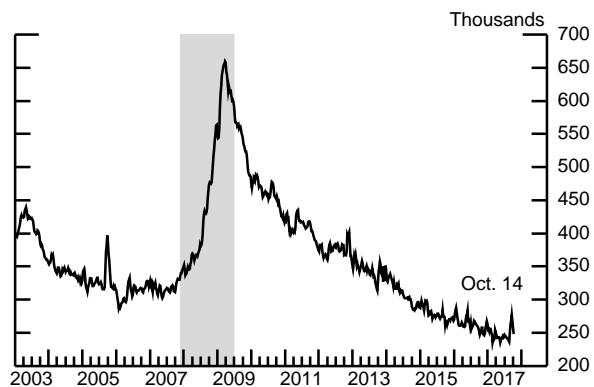


* Published data adjusted by staff to account for changes in population weights.

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

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

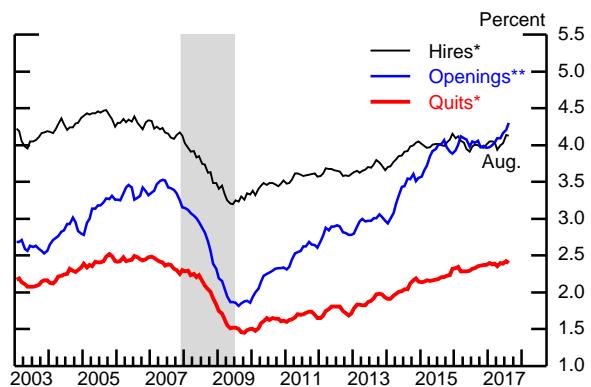
Initial Unemployment Insurance Claims*



* 4-week moving average.

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

Hires, Quits, and Job Openings

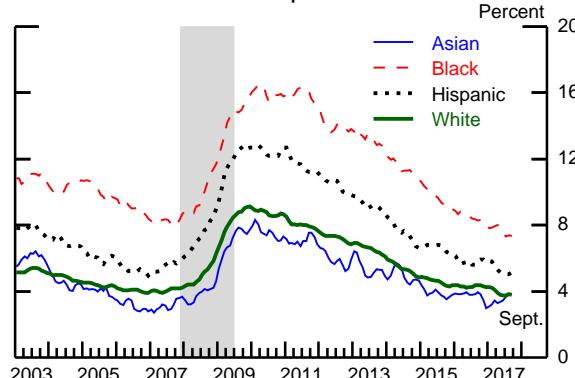


* Percent of private nonfarm payroll employment, 3-month moving average.

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

Source: Job Openings and Labor Turnover Survey.

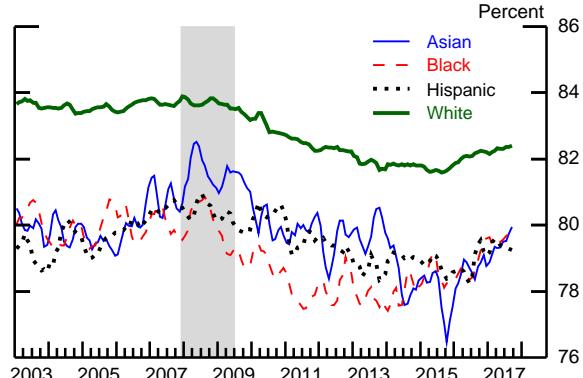
Unemployment Rate by Racial/Ethnic Group



Note: These categories are not mutually exclusive, as the ethnicity Hispanic may include people of any race. The Current Population Survey defines Hispanic ethnicity as those who report their origin is Mexican, Puerto Rican, Cuban, Central American, or South American (and some others). 3-month moving averages.

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

Labor Force Participation Rate by Racial/Ethnic Group, 25 to 54 years olds



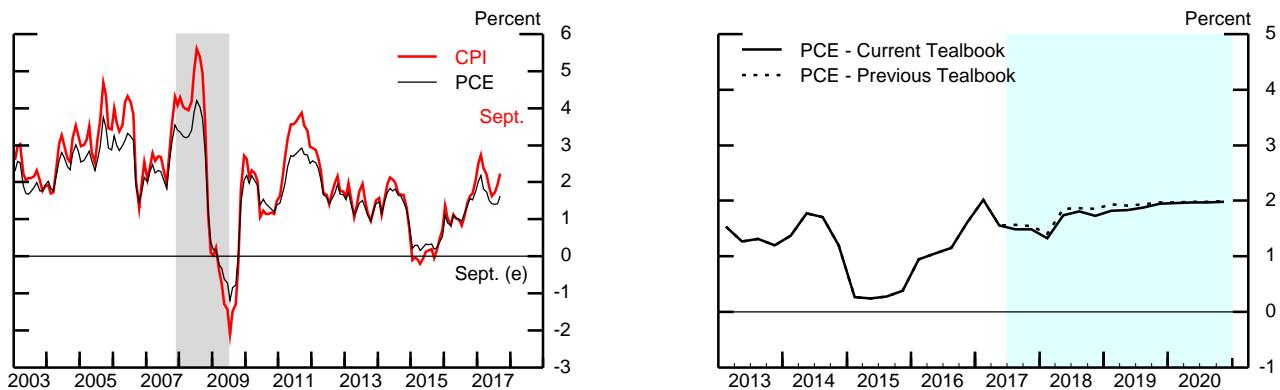
Note: These categories are not mutually exclusive, as the ethnicity Hispanic may include people of any race. The Current Population Survey defines Hispanic ethnicity as those who report their origin is Mexican, Puerto Rican, Cuban, Central American, or South American (and some others). 3-month moving averages.

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

Inflation Developments and Outlook (1)

(Percent change from year-earlier period)

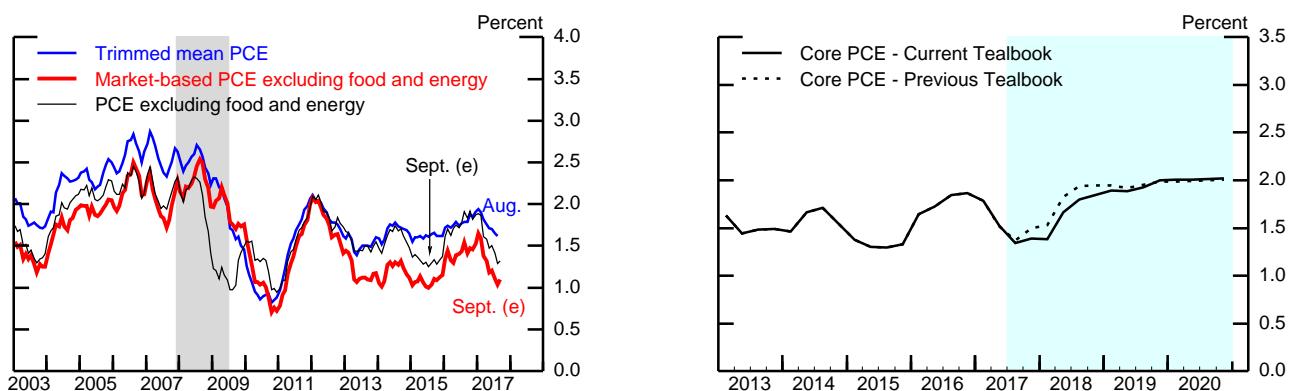
Headline Consumer Price Inflation



Note: PCE prices from July to September 2017 are staff estimates (e).

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

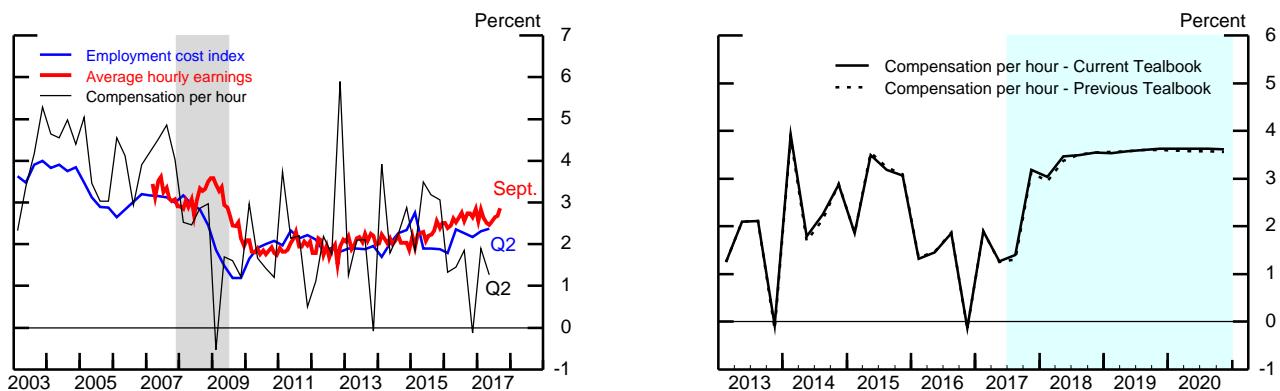
Measures of Underlying PCE Price Inflation



Note: Core PCE prices from July to September 2017 are staff estimates (e).

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

Labor Cost Growth



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

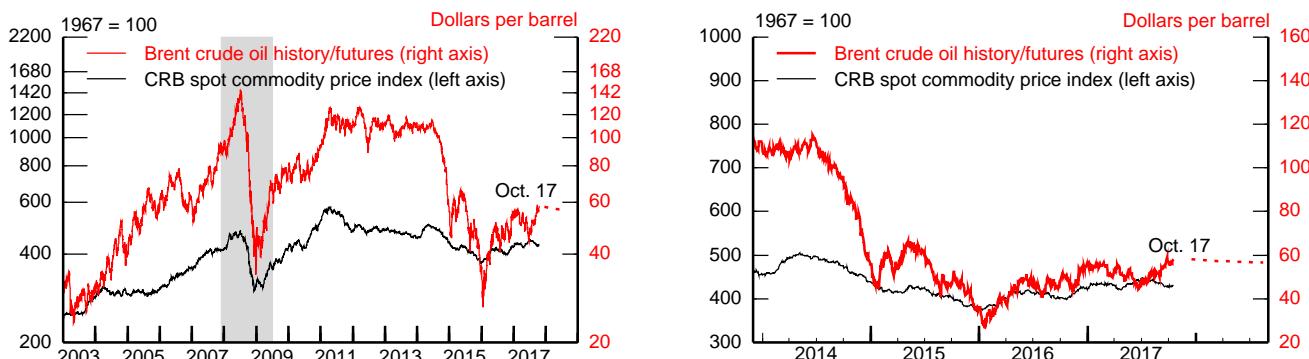
Source: U.S. Department of Labor, Bureau of Labor Statistics.

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

Inflation Developments and Outlook (2)

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

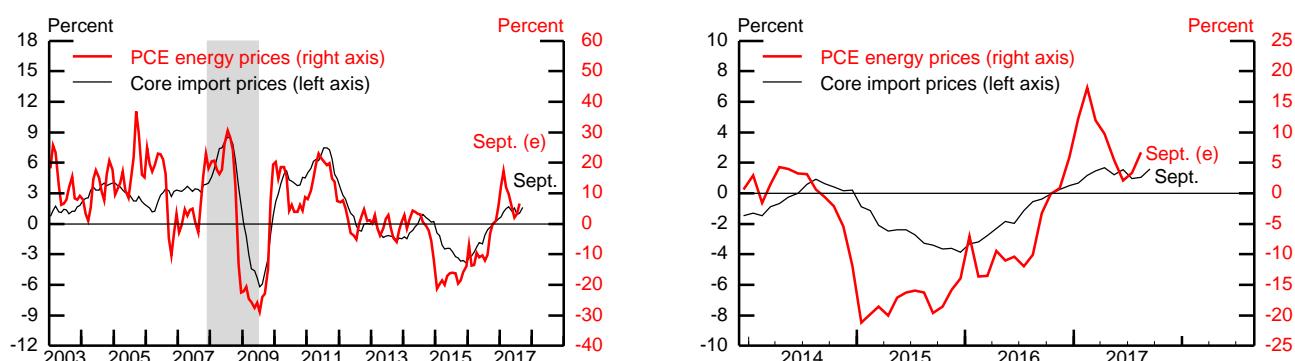
Commodity and Oil Price Levels



Note: Futures prices (dotted lines) are the latest observations on monthly futures contracts.

Source: For oil prices, U.S. Department of Energy, Energy Information Agency; for commodity prices, Commodity Research Bureau (CRB).

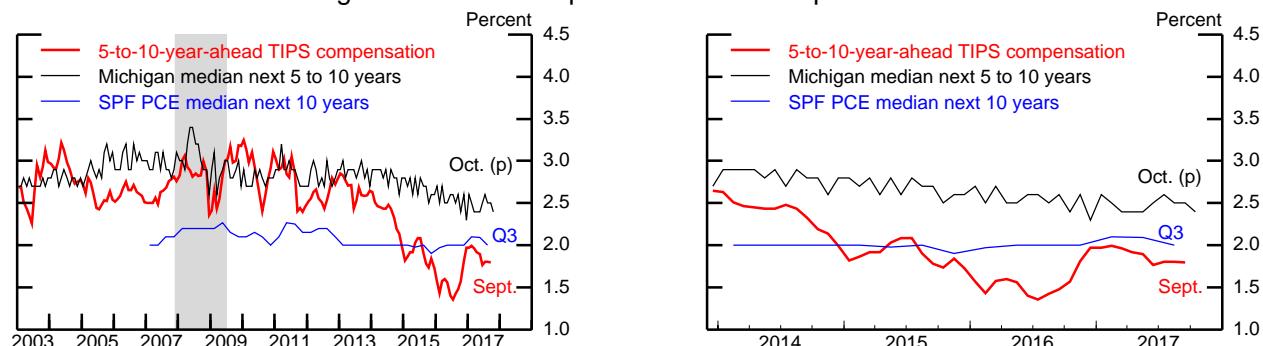
Energy and Import Price Inflation



(e) Estimate.

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 and Compensation



Note: Based on a comparison of an estimated TIPS (Treasury Inflation-Protected Securities) yield curve with an estimated nominal off-the-run Treasury yield curve, with an adjustment for the indexation-lag effect.

(p) Preliminary.

SPF Survey of Professional Forecasters.

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

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

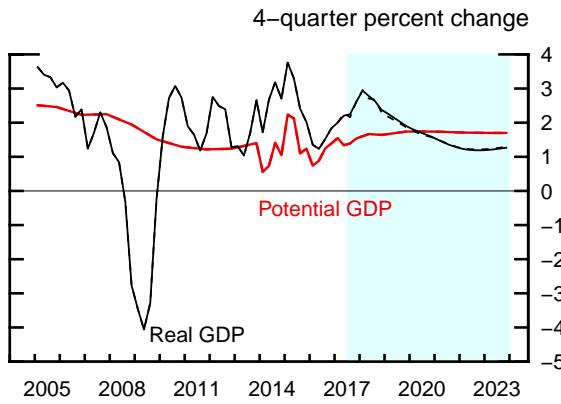
The Long-Term Outlook

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

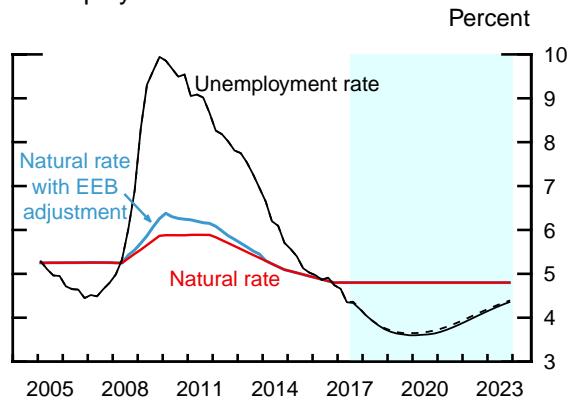
Measure	2017	2018	2019	2020	2021	2022	2023	Longer run
Real GDP Previous Tealbook	2.6	2.4	1.9	1.6	1.3	1.2	1.3	1.7
2.6	2.3	1.9	1.6	1.3	1.2	1.3	1.7	
Civilian unemployment rate ¹ Previous Tealbook	4.2	3.7	3.6	3.6	3.8	4.1	4.4	4.8
4.2	3.8	3.7	3.7	3.9	4.2	4.4	4.8	
PCE prices, total Previous Tealbook	1.5	1.7	2.0	2.0	2.1	2.1	2.1	2.0
1.5	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.0
Core PCE prices Previous Tealbook	1.4	1.8	2.0	2.0	2.1	2.1	2.1	2.0
1.5	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.0
Federal funds rate ¹ Previous Tealbook	1.35	2.52	3.46	4.00	4.13	4.02	3.77	2.50
1.42	2.62	3.47	3.93	4.05	3.93	3.69	2.50	
10-year Treasury yield ¹ Previous Tealbook	2.5	3.4	3.6	3.6	3.5	3.4	3.3	2.9
2.6	3.3	3.5	3.5	3.4	3.3	3.2	2.9	

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

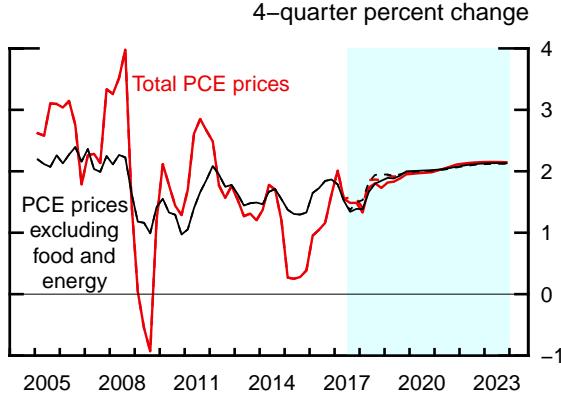
Real GDP



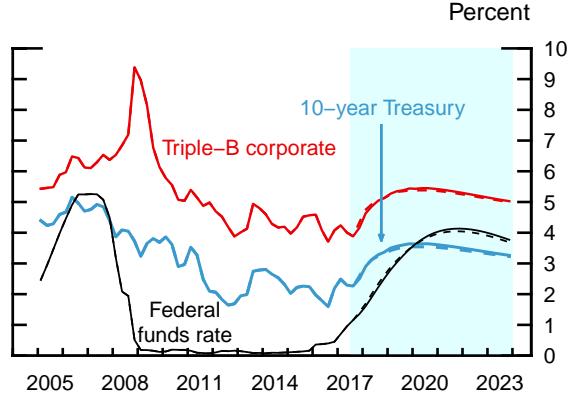
Unemployment Rate



PCE Prices



Interest Rates



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

The Foreign GDP Outlook

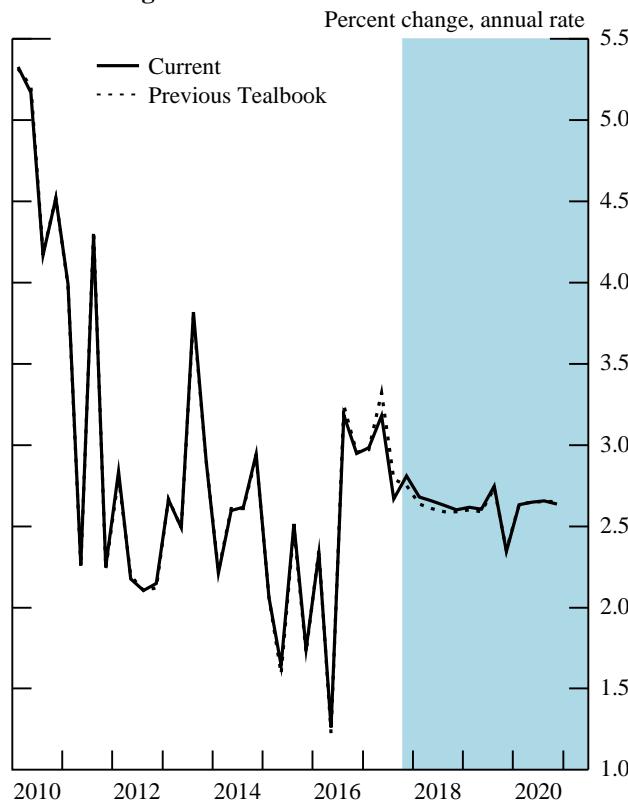
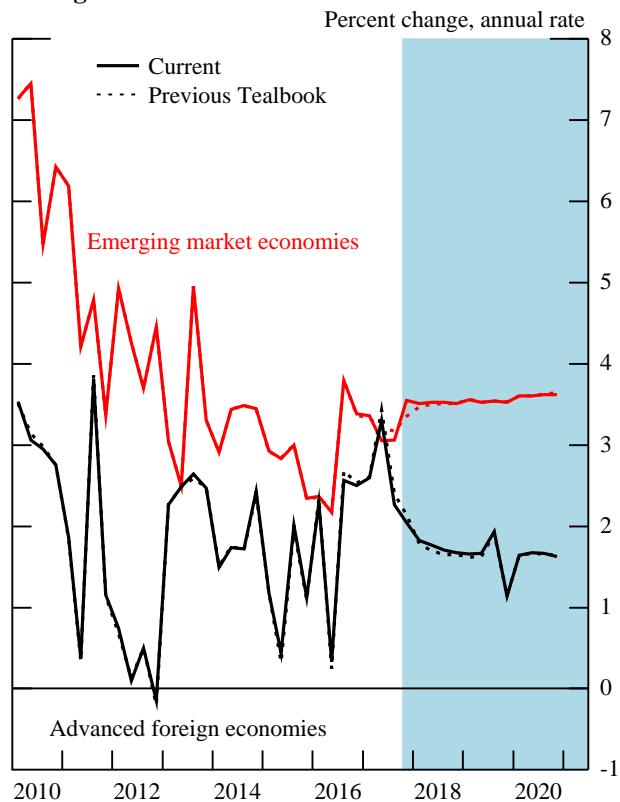
Real GDP*

Percent change, annual rate

	2016	2017				2018	2019	2020
		Q1	Q2	Q3	Q4			
1. Total Foreign	2.4	3.0	3.2	2.7	2.8	2.6	2.6	2.6
Previous Tealbook	2.4	3.0	3.3	2.8	2.8	2.6	2.6	2.6
2. Advanced Foreign Economies	1.9	2.6	3.3	2.3	2.0	1.7	1.6	1.7
Previous Tealbook	1.9	2.6	3.4	2.4	2.1	1.7	1.6	1.7
3. Canada	2.0	3.7	4.5	2.4	2.2	1.8	1.7	1.7
4. Euro Area	1.9	2.2	2.6	2.4	2.0	1.8	1.7	1.7
5. Japan	1.7	1.2	2.5	1.6	1.5	1.0	.1	.6
6. United Kingdom	1.6	1.0	1.2	1.3	1.4	1.5	1.5	1.7
7. Emerging Market Economies	2.9	3.4	3.1	3.1	3.6	3.5	3.5	3.6
Previous Tealbook	2.9	3.3	3.2	3.2	3.4	3.5	3.5	3.6
8. China	6.8	7.1	6.8	6.6	6.6	6.2	6.0	5.8
9. Emerging Asia ex. China	3.5	4.4	3.5	3.7	4.0	3.7	3.6	3.5
10. Mexico	2.3	2.7	2.3	1.5	2.6	2.6	2.7	2.9
11. Brazil	-2.4	4.2	1.0	1.6	1.9	2.0	2.2	2.2

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

Int'l Econ Devel & Outlook

Total Foreign GDP**Foreign GDP**

The Foreign Inflation Outlook

Consumer Prices*

Percent change, annual rate

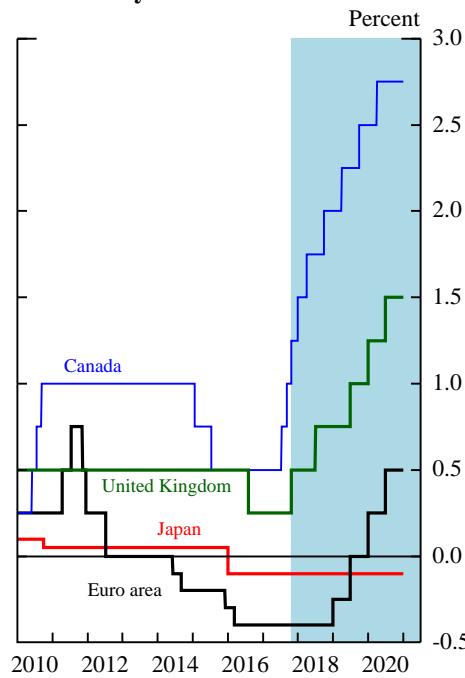
	2016	2017				2018	2019	2020
		Q1	Q2	Q3	Q4			
1. Total Foreign Previous Tealbook	1.9 1.9	2.8 2.9	2.0 2.0	2.2 1.8	2.4 2.4	2.5 2.4	2.5 2.5	2.4 2.5
2. Advanced Foreign Economies Previous Tealbook	.9 .9	2.3 2.3	.3 .3	1.1 .9	1.6 1.5	1.6 1.5	1.9 1.9	1.7 1.7
3. Canada	1.4	2.6	.1	1.2	1.9	2.2	2.1	2.0
4. Euro Area	.7	2.8	.1	1.0	1.5	1.4	1.6	1.7
5. Japan	.3	-.1	-.3	.5	1.1	.8	2.3	1.0
6. United Kingdom	1.2	3.8	3.0	2.2	2.6	2.2	2.1	2.0
7. Emerging Market Economies Previous Tealbook	2.7 2.7	3.2 3.3	3.3 3.2	2.9 2.5	3.0 3.0	3.1 3.1	3.0 3.0	3.0 3.0
8. China	2.2	-.6	2.3	2.0	2.3	2.5	2.5	2.5
9. Emerging Asia ex. China	1.8	3.3	.7	2.1	3.2	3.1	3.1	3.1
10. Mexico	3.2	9.9	6.9	5.1	3.4	3.2	3.2	3.2
11. Brazil	7.1	3.2	2.3	2.3	3.8	4.3	4.3	4.3

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

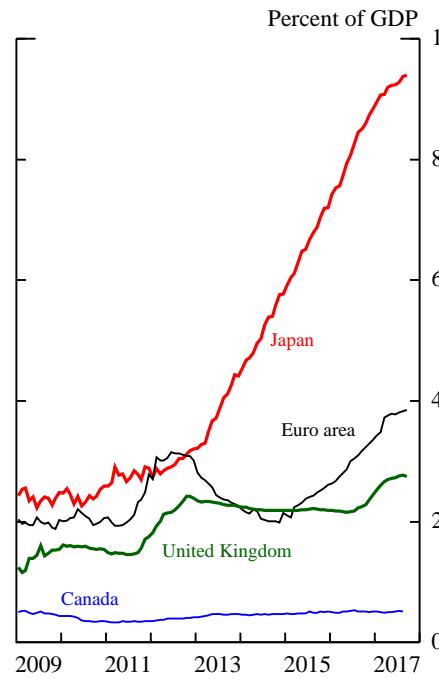
Int'l Econ Devel & Outlook

Foreign Monetary Policy

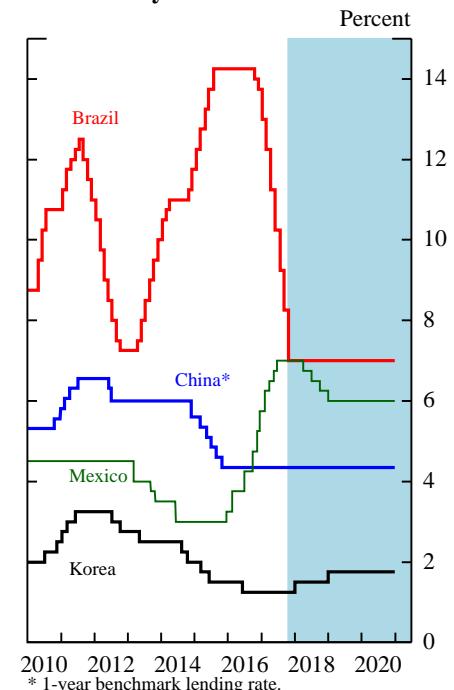
AFE Policy Rates



AFE Central Bank Balance Sheets

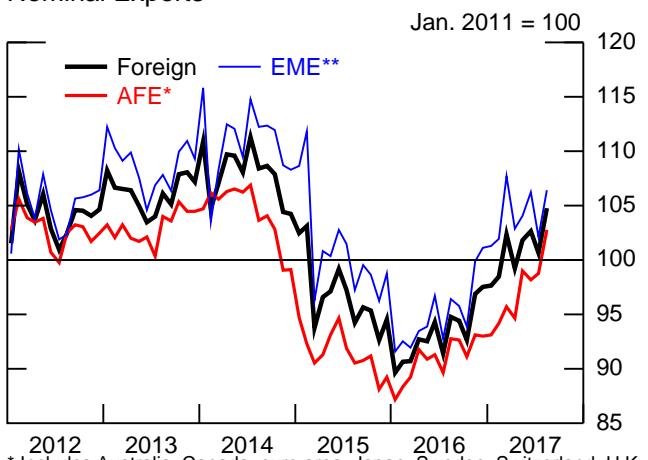


EME Policy Rates



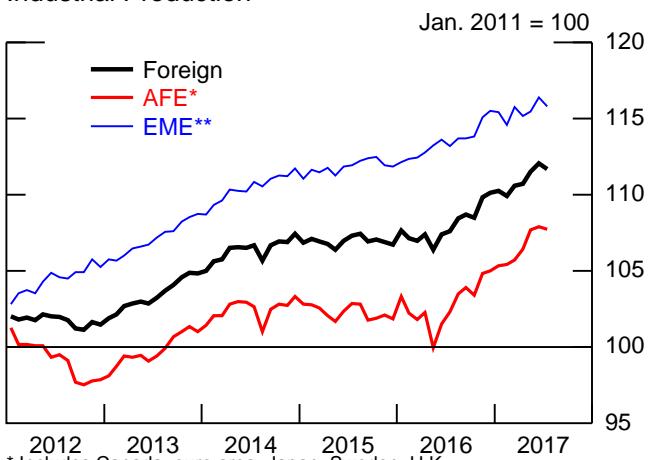
Recent Foreign Indicators

Nominal Exports



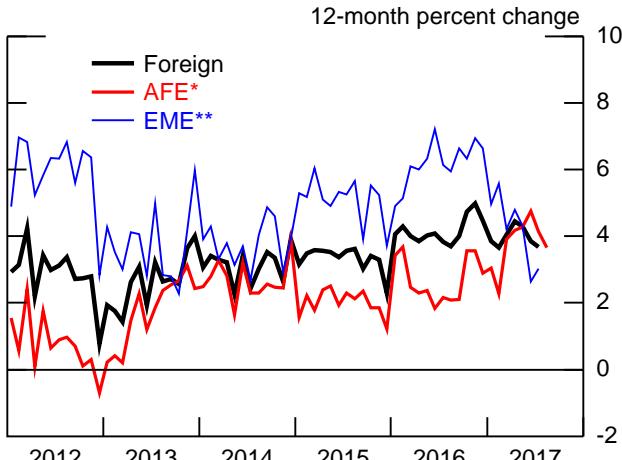
* Includes Australia, Canada, euro area, Japan, Sweden, Switzerland, U.K.
** Includes Argentina, Brazil, Chile, China, Colombia, Hong Kong, India, Indonesia, Israel, Korea, Malaysia, Mexico, Singapore, Taiwan, Thailand.

Industrial Production



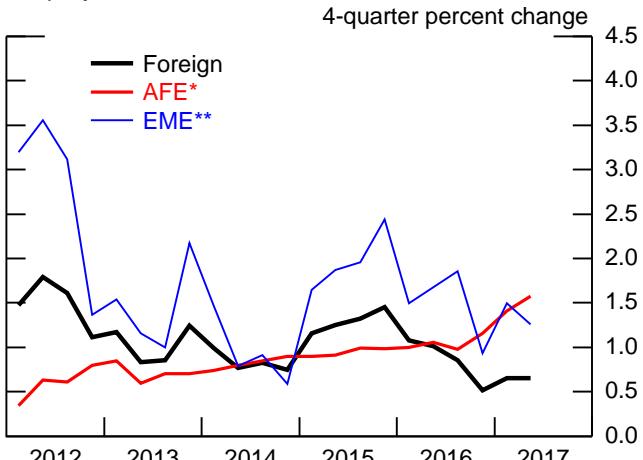
* Includes Canada, euro area, Japan, Sweden, U.K.
** Includes Argentina, Brazil, Chile, China, Colombia, India, Indonesia, Israel, Korea, Malaysia, Mexico, Philippines, Russia, Singapore, Taiwan, Thailand.

Retail Sales



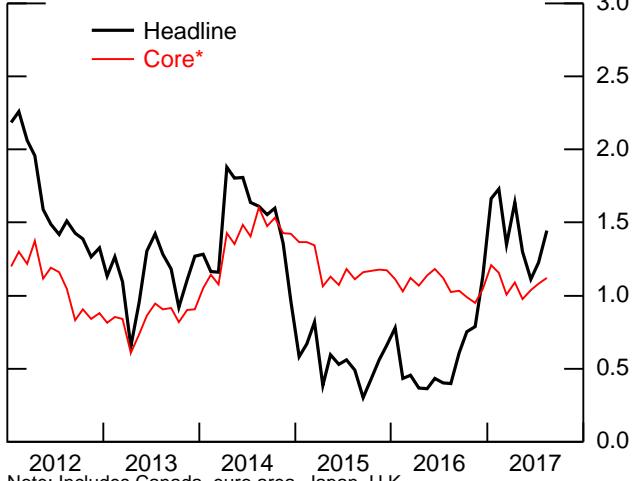
* Includes Canada, euro area, Japan, Sweden, Switzerland, U.K.
** Includes Brazil, Chile, China, Korea, Mexico, Taiwan.

Employment



* Includes Australia, Canada, euro area, Japan, Sweden, Switzerland, U.K.
** Includes Chile, Colombia, Hong Kong, Israel, Korea, Mexico, Philippines, Russia, Singapore, Taiwan, Thailand, Turkey.

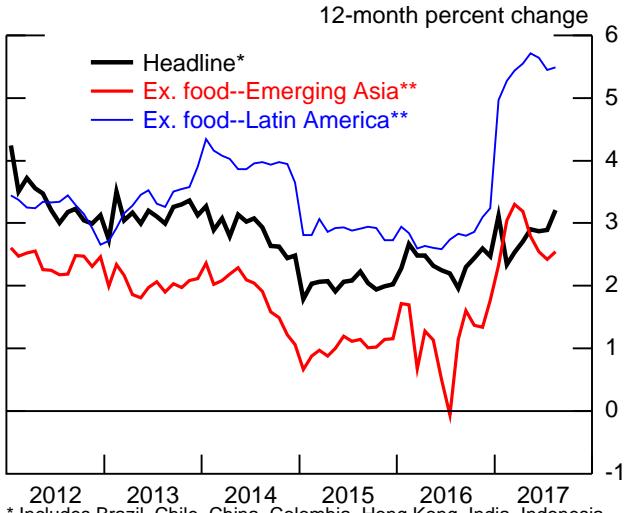
Consumer Prices: Advanced Foreign Economies



Note: Includes Canada, euro area, Japan, U.K.
* Excludes all food and energy; staff calculation.

Source: Haver Analytics.

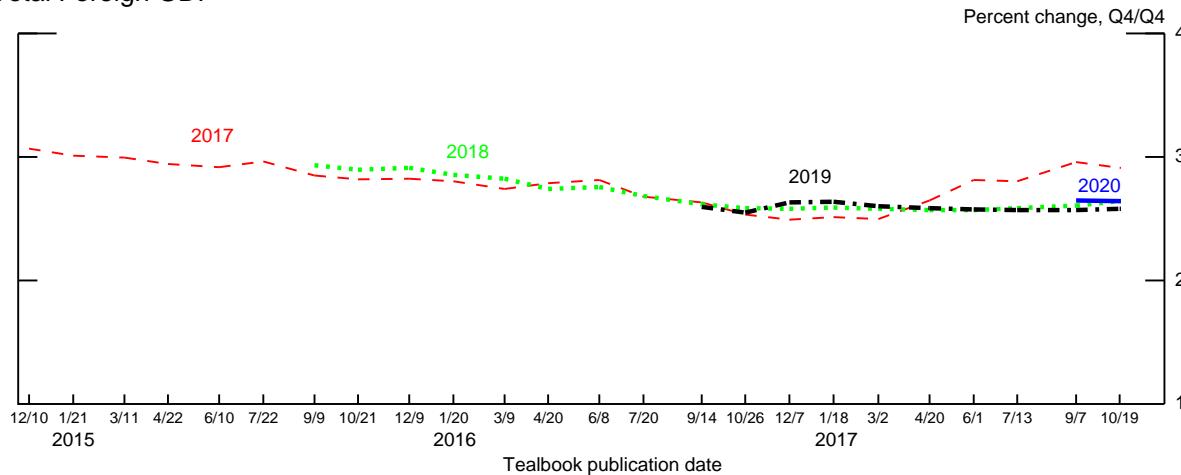
Consumer Prices: Emerging Market Economies



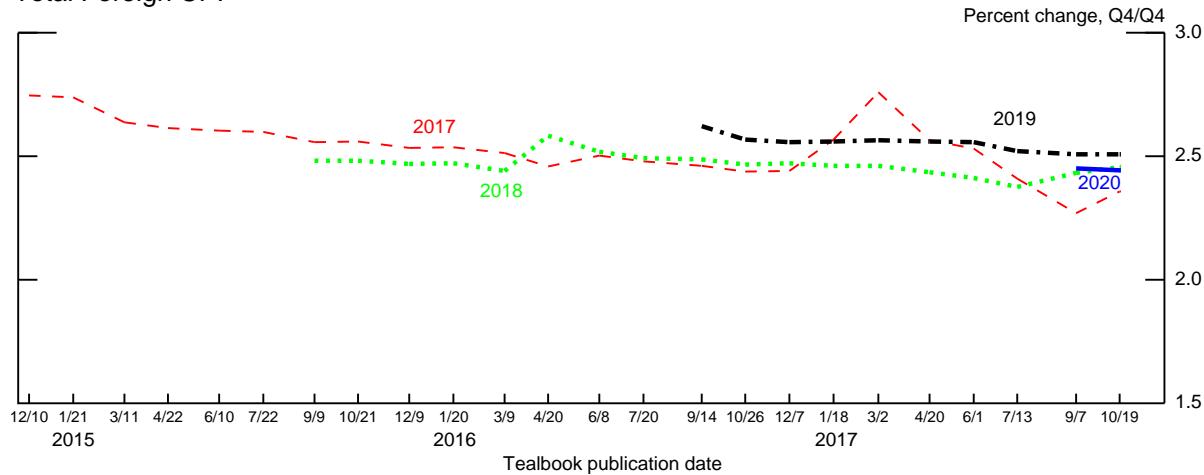
* Includes Brazil, Chile, China, Colombia, Hong Kong, India, Indonesia, Korea, Malaysia, Mexico, Philippines, Singapore, Taiwan, Thailand.
** Excludes all food; staff calculation. Excludes Argentina and Venezuela.

Evolution of Staff's International Forecast

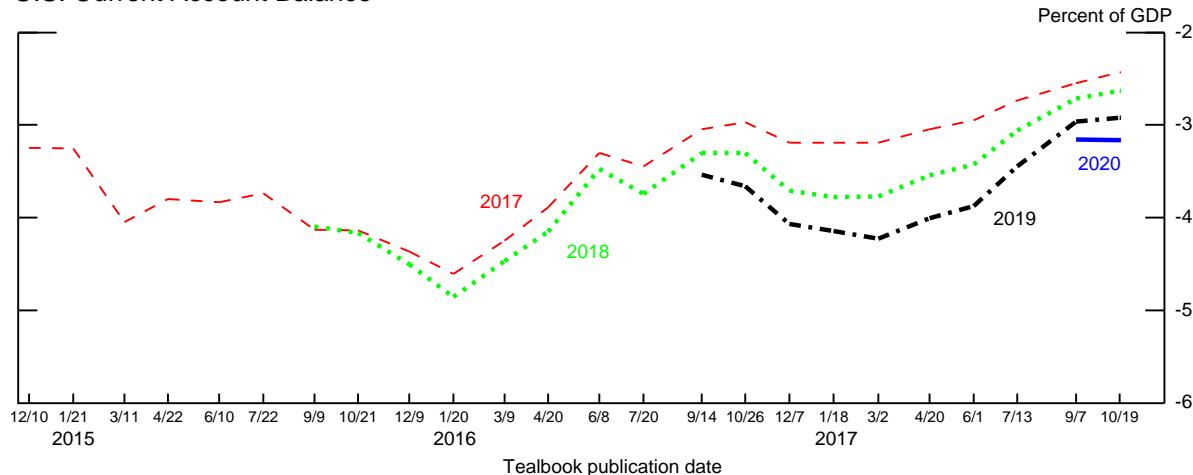
Total Foreign GDP



Total Foreign CPI

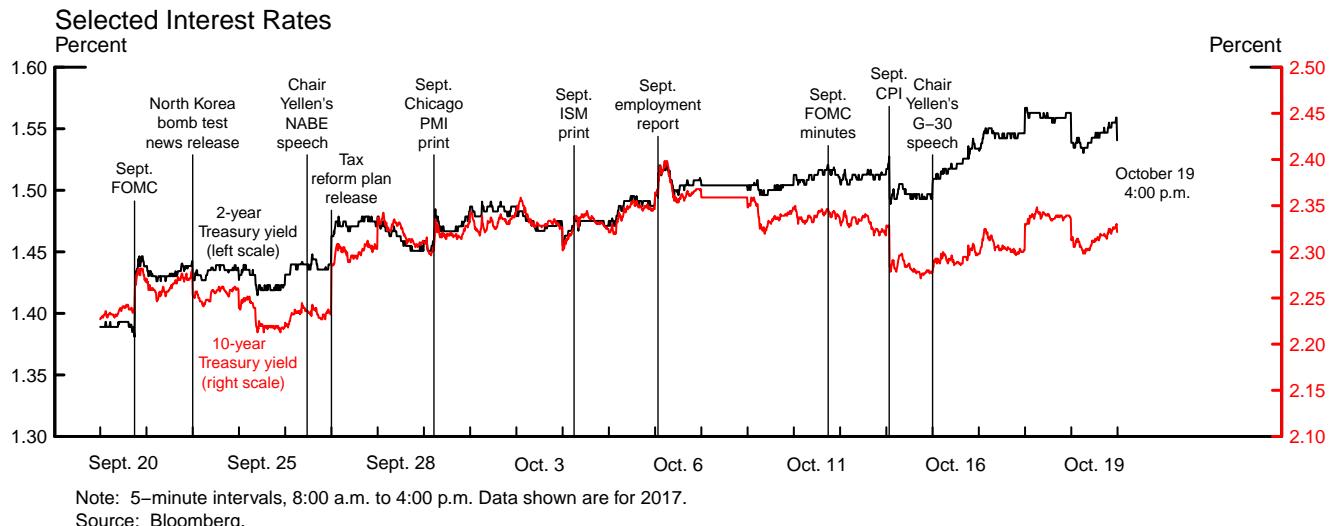


U.S. Current Account Balance

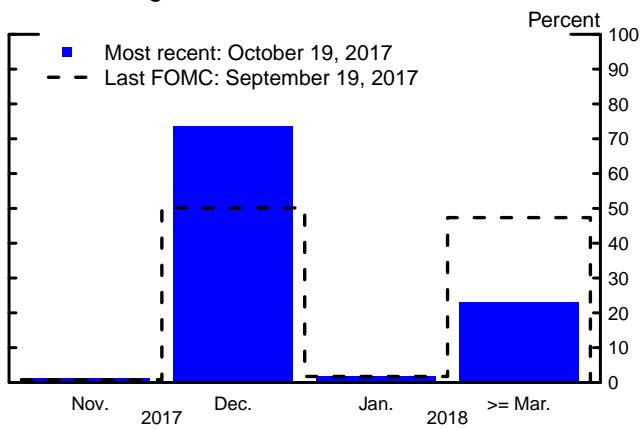


Int'l Econ Devel & Outlook

Policy Expectations and Treasury Yields



Market-Implied Probability Distribution of the Timing of Next Rate Increase



Note: Probabilities implied by a binomial tree fitted to settlement prices on fed funds futures contracts, assuming the next policy action is either no change or a 25 basis point increase in rates and no intervening moves. The effective federal funds rate until the next FOMC meeting is assumed to be equal to the observed rate on the previous non-month-end business day.

Source: CME Group; Federal Reserve Board staff estimates.

Inflation Compensation

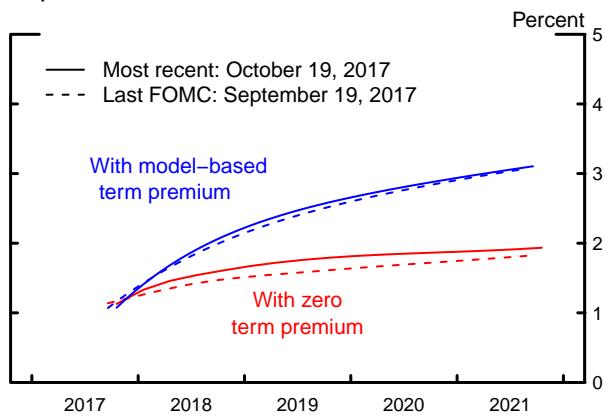


Note: Estimates based on smoothed nominal and inflation-indexed Treasury yield curves.

* Adjusted for lagged indexation of Treasury Inflation-Protected Securities (carry effect)

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

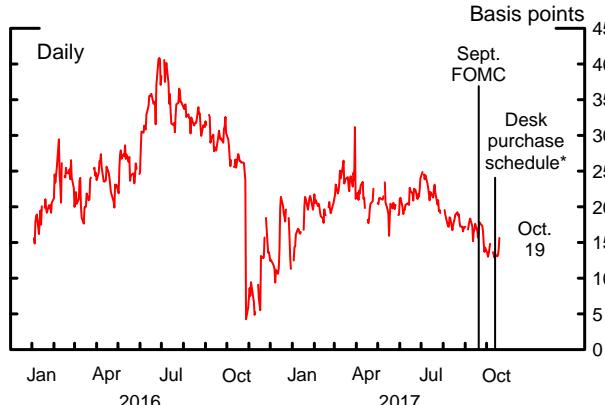
Implied Federal Funds Rate



Note: Zero term premium path is estimated using overnight index swap quotes with a spline approach and a term premium of zero basis points. Model-based term premium path is estimated using a term structure model maintained by Board staff and corrects for term premium.

Source: Bloomberg; Federal Reserve Board staff estimates.

30-year Fannie Mae MBS Current-Coupon Option-Adjusted Spread

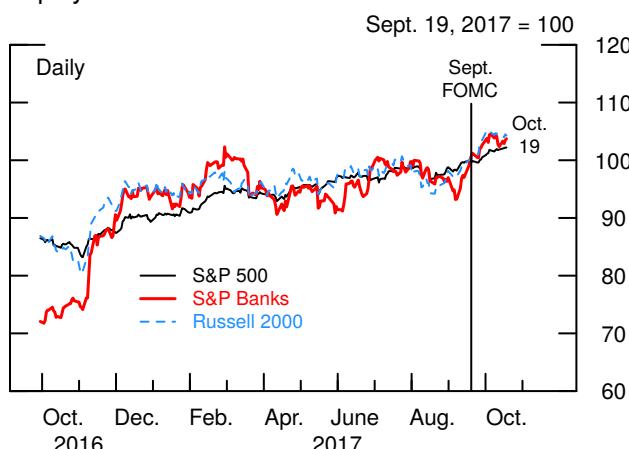


* Release of the first schedule of mortgage-backed securities (MBS) operations based on reduced reinvestment purchases

Source: Barclays

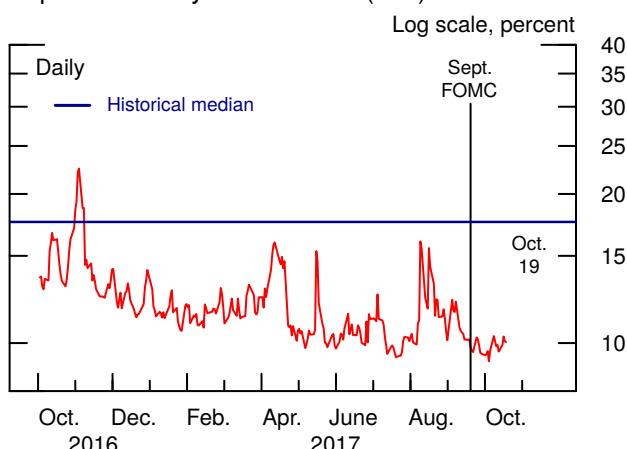
Corporate Asset Market Developments

Equity Indexes



Source: Bloomberg.

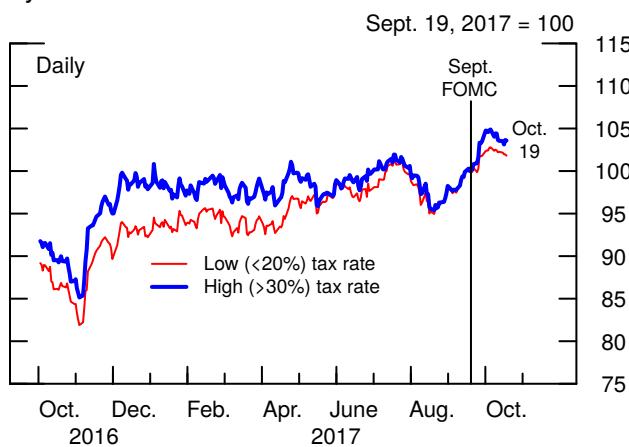
Implied Volatility on S&P 500 (VIX)



Note: Historical median is taken from 1990 onward.

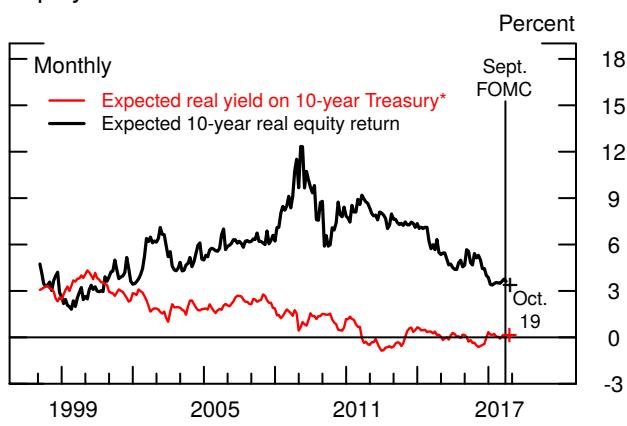
Source: Chicago Board Options Exchange.

Equal-Weighted Stock Returns, by Domestic Tax Rate



Note: The data include small firms excluding those in the financial and energy sectors. Tax rates are measured as U.S. taxes over pretax income.
Source: Bloomberg.

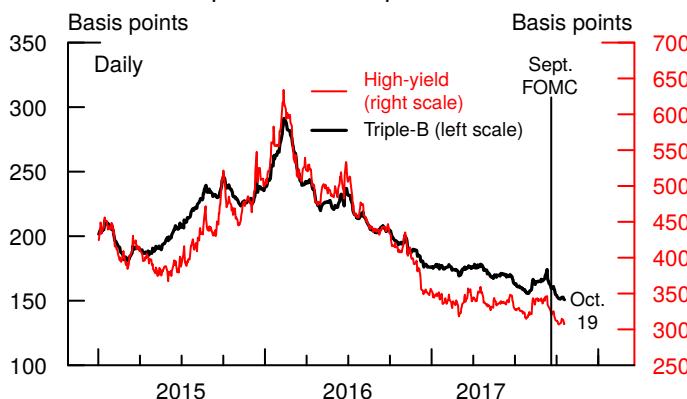
Equity Risk Premium



* Off-the-run 10-year Treasury yield less Philadelphia Fed 10-year expected inflation.

+ Denotes latest observation using daily interest rates and stock prices as well as staff forecast of corporate profits.
Source: Staff projections.

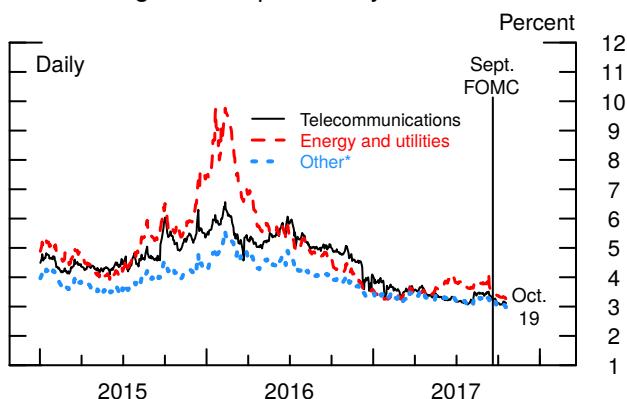
10-Year Corporate Bond Spreads



Note: Spreads over 10-year Treasury yield.

Source: Staff estimates of smoothed yield curves based on Merrill Lynch bond data and smoothed Treasury yield curve.

10-Year High-Yield Spreads, by Sector



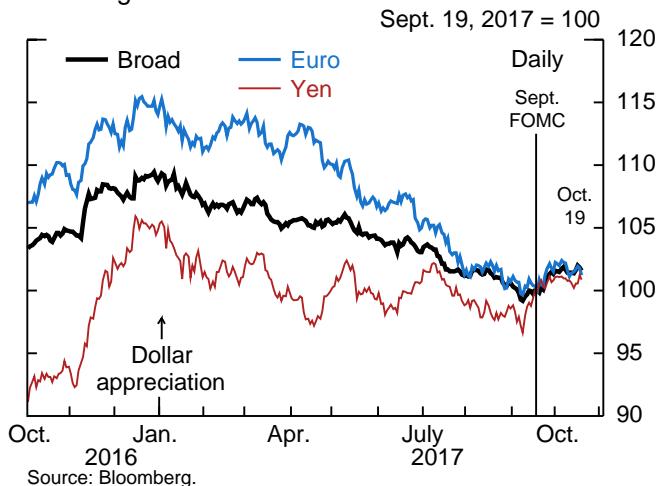
Note: Spreads over 10-year Treasury yield.

* Includes high-yield firms that are not in the telecommunications sector or energy and utilities sectors.

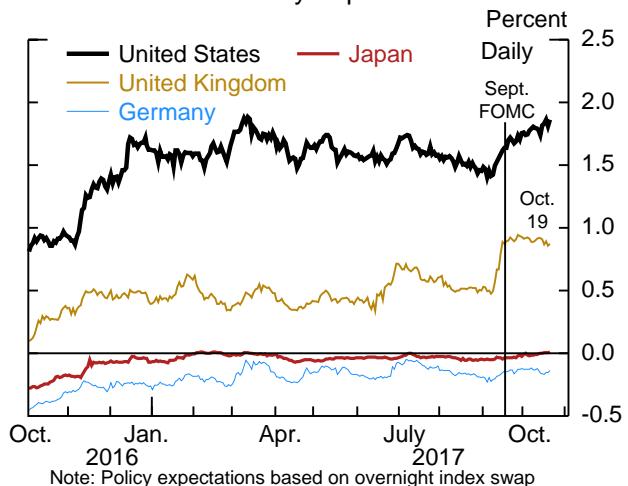
Source: Staff estimates of smoothed corporate yield curves based on Merrill Lynch data and smoothed Treasury yield curve.

Foreign Developments

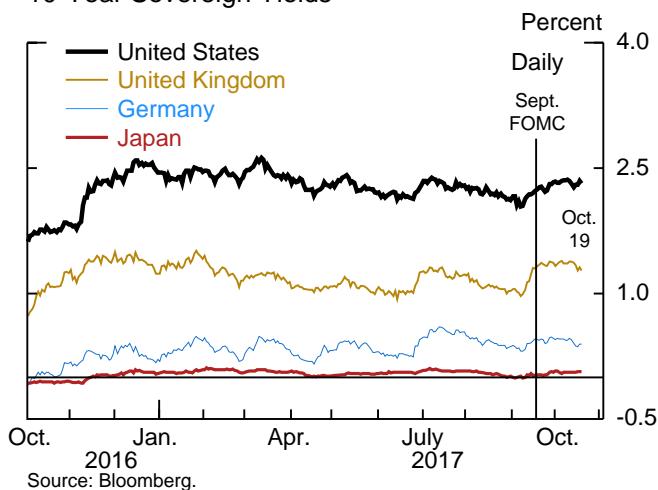
Exchange Rates



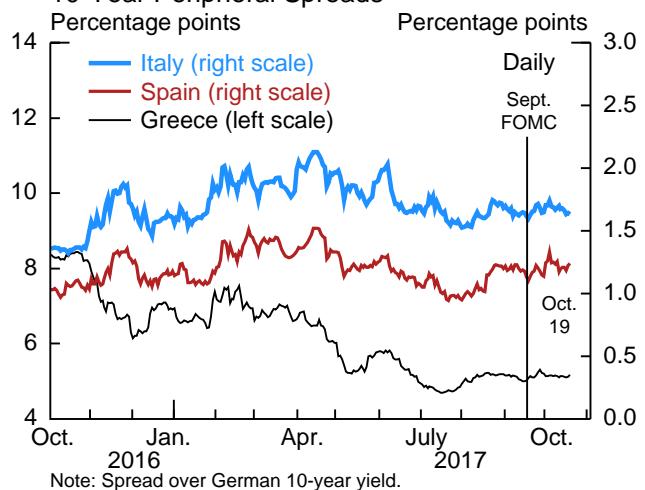
24-Month-Ahead Policy Expectations



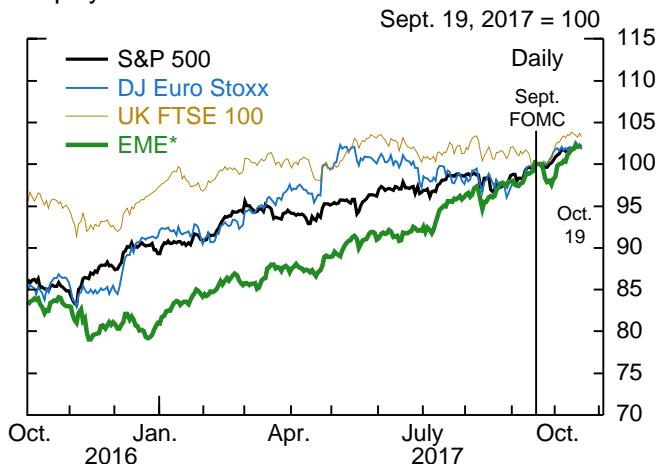
10-Year Sovereign Yields



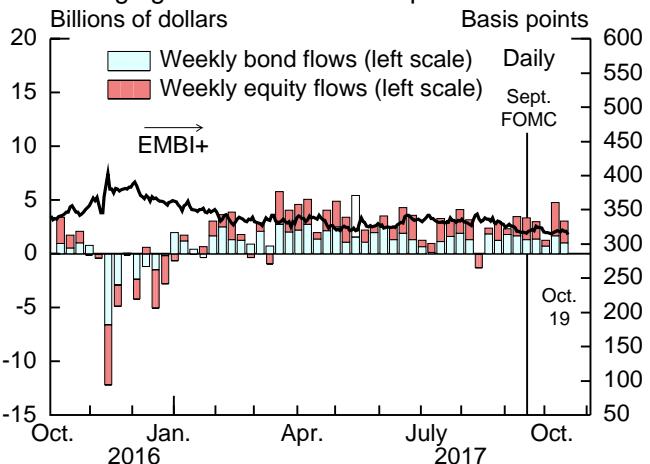
10-Year Peripheral Spreads



Equity Market Indexes

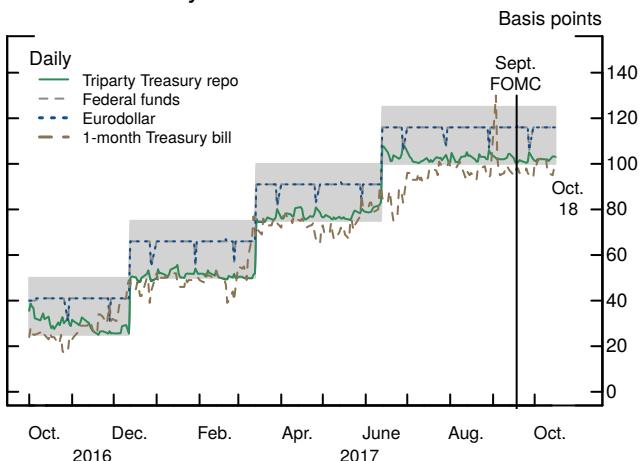


Emerging Market Flows and Spreads



Short-Term Funding Markets and Federal Reserve Operations

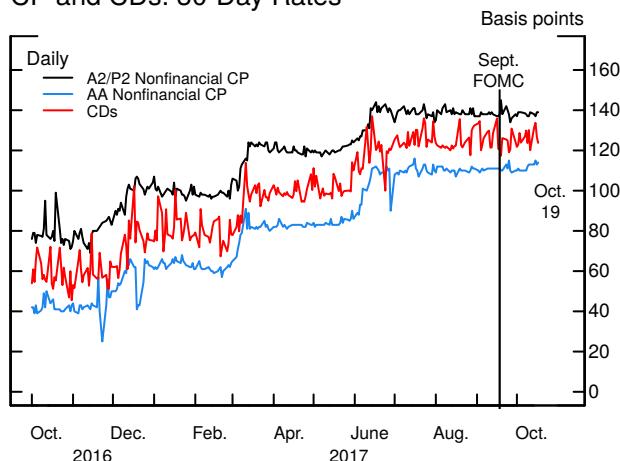
Selected Money Market Rates



Note: Federal funds rate is a weighted median. Shaded area is the target range for the federal funds rate. Repo is repurchase agreement.

Source: Federal Reserve Bank of New York; Federal Reserve Board, Form FR 2420, Report of Selected Money Market Rates.

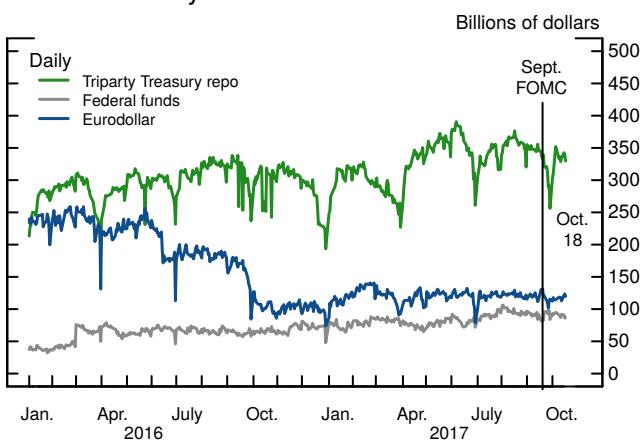
CP and CDs: 30-Day Rates



Note: Rates are for domestic issuers. CP is commercial paper; CD is certificate of deposit.

Source: Depository Trust & Clearing Corporation.

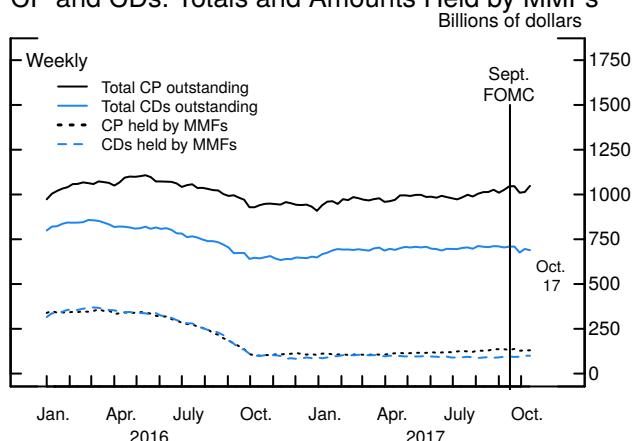
Selected Money Market Volumes



Note: Repo is repurchase agreement.

Source: Federal Reserve Bank of New York; Federal Reserve Board, Form FR 2420, Report of Selected Money Market Rates.

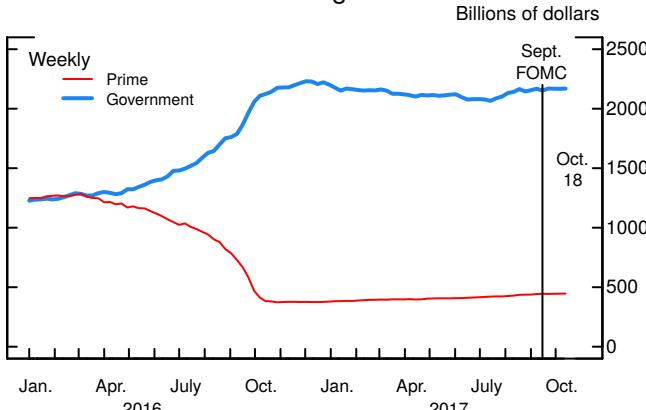
CP and CDs: Totals and Amounts Held by MMFs



Note: Outstanding levels are not seasonally adjusted. Commercial paper (CP) includes asset-backed CP. CD is certificate of deposit; MMF is money market fund.

Source: Depository Trust & Clearing Corporation; iMoneyNet.

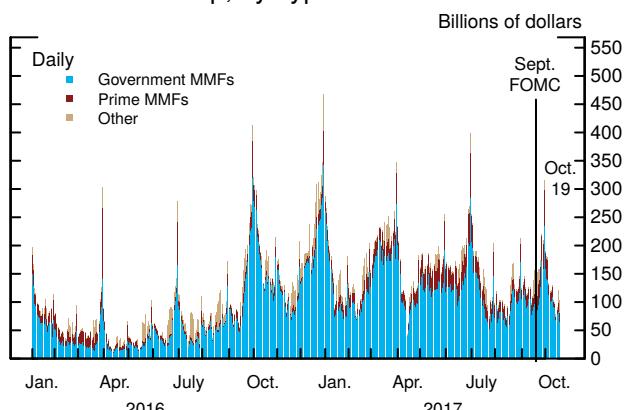
MMFs: Assets under Management



Note: MMF is money market fund.

Source: Investment Company Institute.

ON RRP Take-Up, by Type

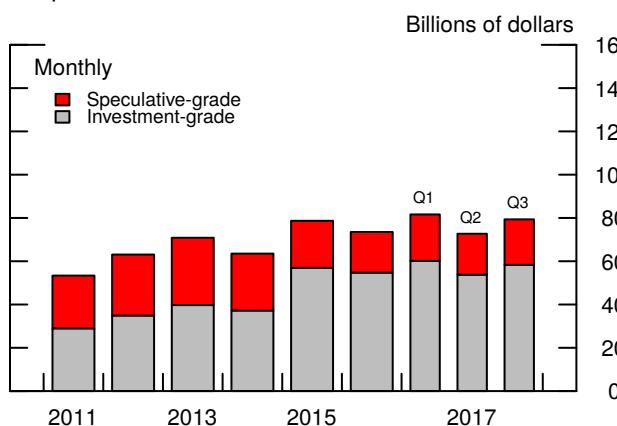


Note: ON RRP is overnight reverse repurchase agreement; MMF is money market fund.

Source: Federal Reserve Bank of New York.

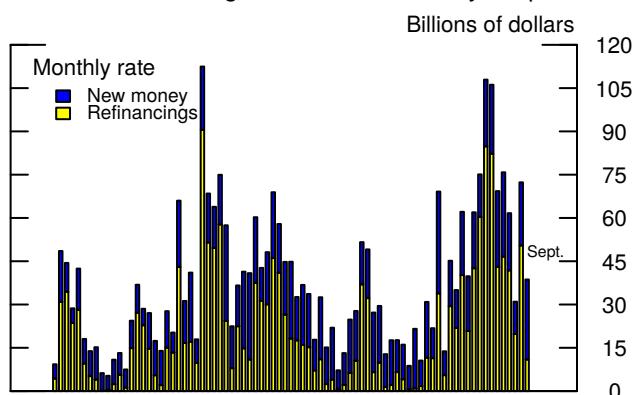
Business Finance

Gross Issuance of Nonfinancial Corporate Bonds



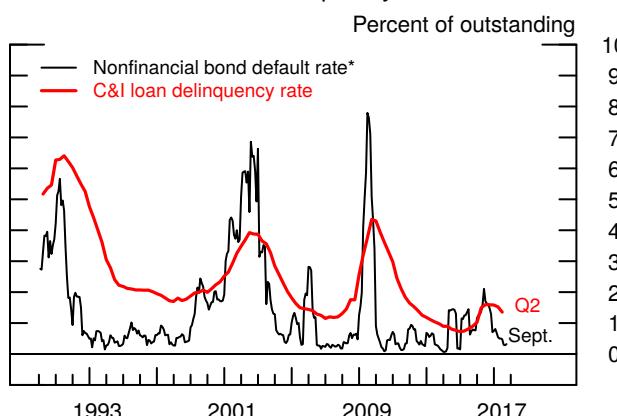
Note: Bonds are categorized by Moody's, Standard & Poor's, and Fitch.
Source: Mergent Fixed Income Securities Database.

Institutional Leveraged Loan Issuance, by Purpose



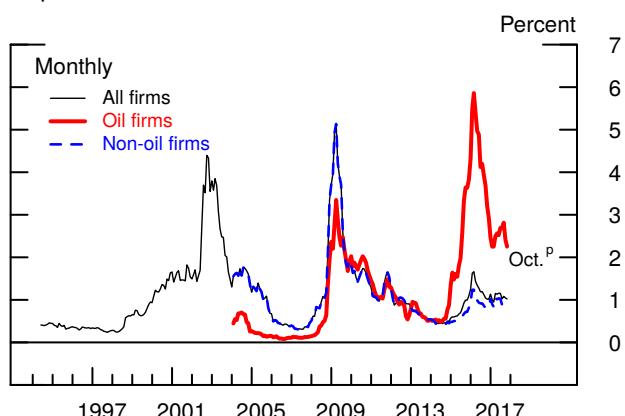
Source: Thomson Reuters LPC LoanConnector.

Selected Default and Delinquency Rates



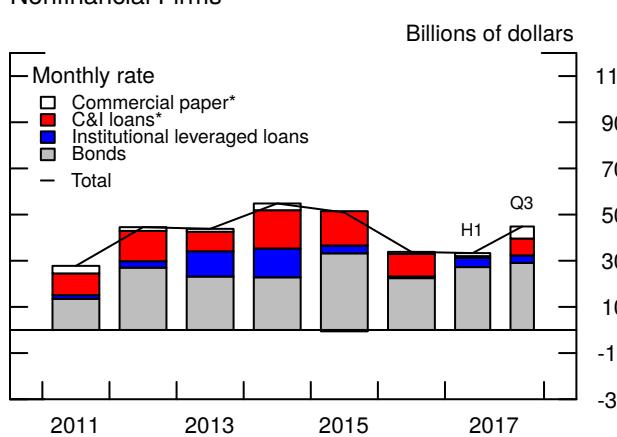
* 6-month trailing defaults divided by beginning-of-period outstanding, at an annual rate.
Source: For default rate of nonfinancial bonds, Moody's Investors Service; for delinquency rate of commercial and industrial (C&I) loans, Call Report.

Expected Nonfinancial Year-Ahead Defaults



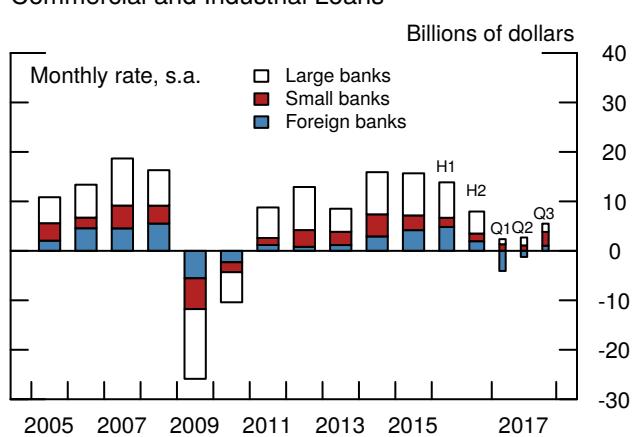
Note: Firm-level estimates of default weighted by firm liabilities as a percent of total liabilities, excluding defaulted firms.
P Preliminary.
Source: Calculated using firm-level data from Moody's KMV.

Selected Components of Net Debt Financing, Nonfinancial Firms



Note: C&I is commercial and industrial.
* Period-end basis, seasonally adjusted.
Source: Depository Trust & Clearing Corporation; Mergent Fixed Income Securities Database; Federal Reserve Board; Thomson Reuters LPC.

Commercial and Industrial Loans



Source: Staff calculations, Form FR 2644, Weekly Report of Selected Assets and Liabilities of Domestically Chartered Commercial Banks and U.S. Branches and Agencies of Foreign Banks.

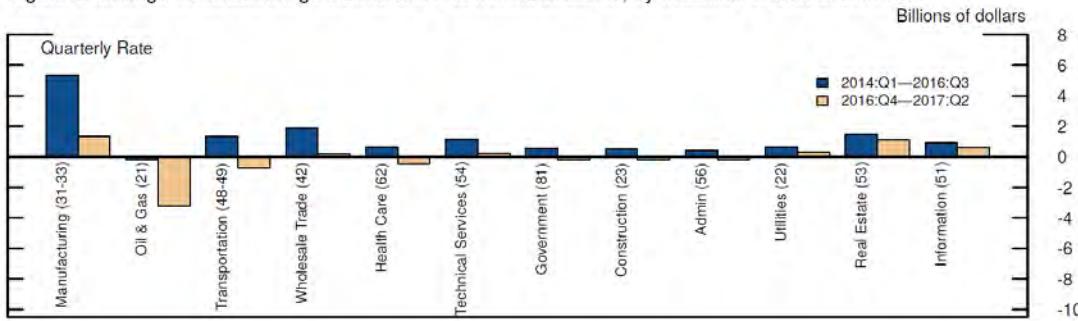
Which Borrowers Account for the Recent Decline in Banks' Commercial and Industrial Loan Growth?

Domestic commercial and industrial (C&I) loan growth at banks has declined noticeably this year. In particular, over recent quarters, C&I loans at the largest U.S. banks expanded at a seasonally adjusted annualized rate of about 1½ percent, on average, after having grown at a pace of nearly 7 percent in 2016 and 11 percent both in 2015 and in 2014.¹ In this discussion we provide some new information about the borrowers that account for the slowdown based on an analysis of banks' loan-level data.

We focus on C&I lending by the set of large domestic banks that undergo the Federal Reserve's annual Comprehensive Capital Analysis and Review, or CCAR banks. These banks hold about 70 percent of the C&I loans outstanding on domestic banks' balance sheets and account for more of the recent step-down in aggregate C&I lending than would be suggested by their share of C&I loans alone.

Figure 1 ranks the industries, from left to right, to which the CCAR banks have reported the largest decline in recent C&I lending (the tan bars), relative to an earlier base period, 2014:Q1 to 2016:Q3 (the blue bars). While the recent decline in banks' C&I lending has been widespread across industries, the step-down has been most pronounced for borrowers in the oil and gas and manufacturing sectors.² The oil and gas sector witnessed a sizable contraction in outstanding loans in recent quarters after remaining about flat in the earlier period, while the manufacturing sector experienced subdued positive lending compared with robust lending in the earlier period. Together, these two sectors account for about 45 percent of the recent slowdown in C&I lending at the CCAR banks.

Figure 1: Change in Outstanding Commercial and Industrial Loans, by Industrial Sector of Borrower



Note: Bar heights are computed as the average of quarterly changes in C&I lending across indicated time horizons. The sample consists of 29 banks that undergo the Federal Reserve's annual Comprehensive Capital Analysis and Review. The two-digit NAICS codes corresponding to the industrial sectors are listed in parentheses.

Source: Federal Reserve Board, FR Y-14Q, Capital Assessments and Stress Testing.

¹ These numbers are based on staff calculations using the Board's weekly FR 2644 data ("Weekly Assets and Liabilities of Domestically Chartered Commercial Banks and U.S. Branches and Agencies of Foreign Banks"). In this discussion, we do not consider C&I loans booked by U.S. branches and agencies of foreign banks; these institutions account for about 18 percent of the C&I loans outstanding to U.S. nonfinancial corporations. Growth in such C&I loans has also stepped down significantly this year.

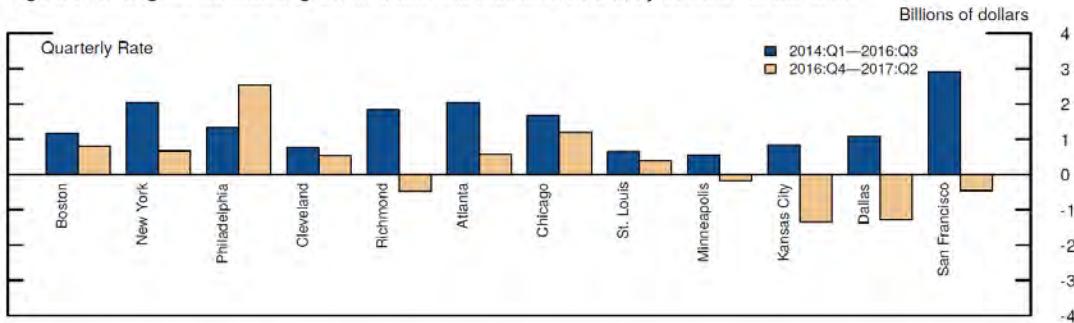
² Within the manufacturing sector, borrowers in the industry subsegments of computer and electronic products as well as chemicals account for particularly large shares of the recent decline in C&I loan growth.

Figure 2 shows that the recent decline in C&I loan growth has been widely evident across geographic regions of the United States, with businesses headquartered in all but one Federal Reserve District having experienced such a decline. The declines in C&I loans outstanding in the Dallas and Kansas City regions primarily reflect the reduction in lending to borrowers in the oil and gas industries. The declines in other Districts, such as San Francisco, Richmond, Atlanta, and New York, reflect the broader step-down in C&I lending across industries.

While the factors behind the decline in C&I loan growth across the industrial sectors and geographic regions depicted in figures 1 and 2 are difficult to precisely identify, the decline in banks' exposure to borrowers in the oil and gas industry began last year, likely in light of greater realized and anticipated losses on loans to this sector amid prolonged declines in energy prices. For example, when answering special questions in the April 2016 Senior Loan Officer Opinion Survey on Bank Lending Practices (SLOOS), banks reported that they anticipated greater losses on their loans to the oil and gas sector and had tightened their lending standards and terms on such loans in response.

We believe that the likely cause of the slowdown in lending to borrowers in other industrial sectors is a broad-based reduction in businesses' demand for bank credit. Indeed, respondents to the SLOOS have indicated that demand for C&I loans from firms of all sizes has weakened, on balance, in each of the first three quarters of 2017. Banks have cited a range of reasons for this general weakening in their customers' demand for C&I loans, including borrowers' increased usage of alternative sources of financing—such as retained earnings, the capital markets, or other nonbank lenders—as well as fewer planned finance investment projects or merger and acquisition activity.

Figure 2: Change in Outstanding Commercial and Industrial Loans, by Location of Borrower

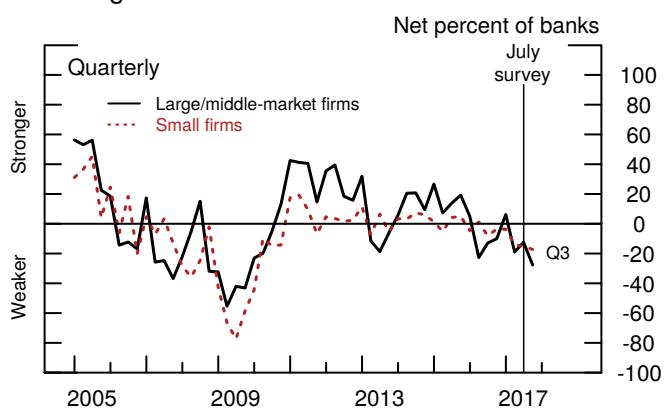


Note: Bar heights are computed as the average of quarterly changes in C&I lending across indicated time horizons. The sample consists of 29 banks that undergo the Federal Reserve's annual Comprehensive Capital Analysis and Review. Borrower locations are defined by the borrower's Federal Reserve district.

Source: Federal Reserve Board, FR Y-14Q, Capital Assessments and Stress Testing.

Bank Lending and CMBS Issuance

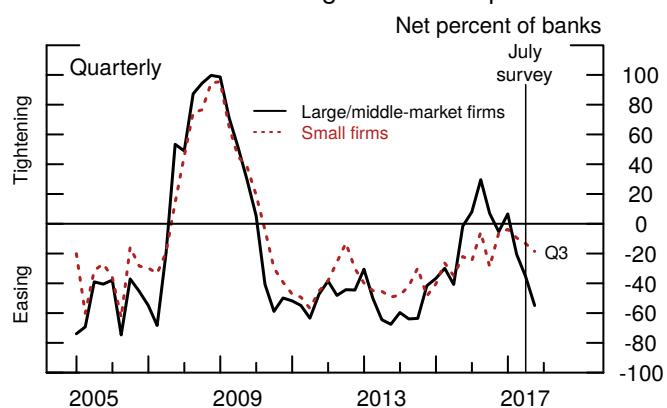
Change in Demand for C&I Loans



Note: Banks' responses are weighted by their sizes in the relevant loan categories. C&I is commercial and industrial.

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

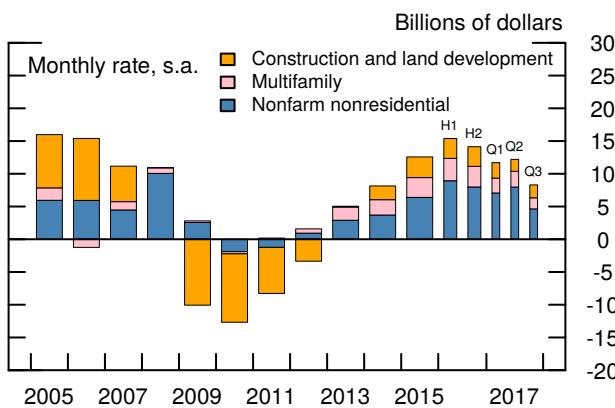
C&I Loan Terms: Changes in Loan Spreads



Note: Banks' responses are weighted by their sizes in the relevant loan categories. C&I is commercial and industrial.

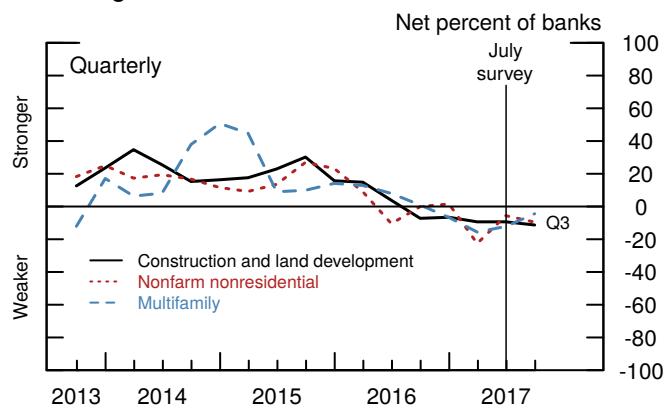
Source: Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices.

Commercial Real Estate Loans



Source: Staff calculations, Form FR 2644, Weekly Report of Selected Assets and Liabilities of Domestically Chartered Commercial Banks and U.S. Branches and Agencies of Foreign Banks.

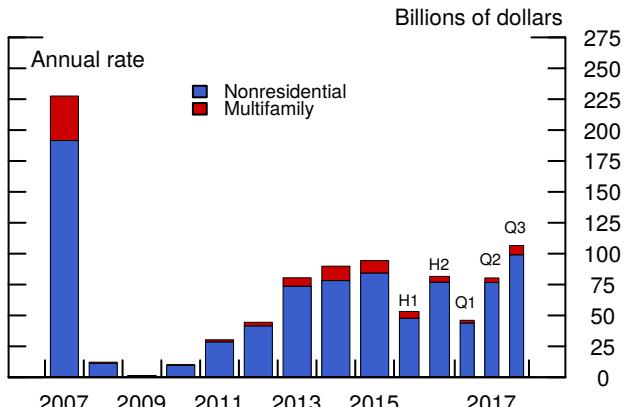
Change in Demand for CRE Loans



Note: Banks' responses are weighted by their sizes in the relevant loan categories. CRE is commercial real estate.

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

CMBS Issuance

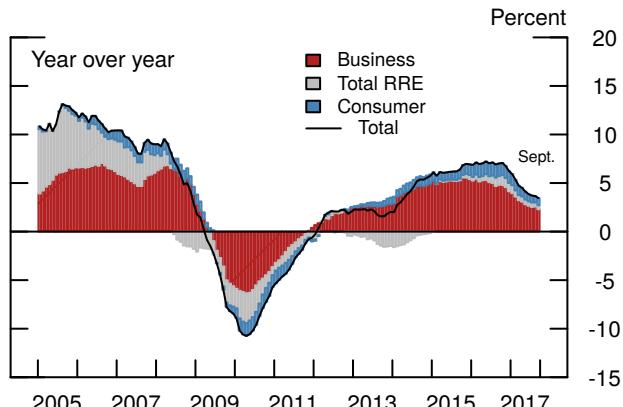


Note: Multifamily excludes agency issuance. CMBS is commercial mortgage-backed securities.

Source: Consumer Mortgage Alert.

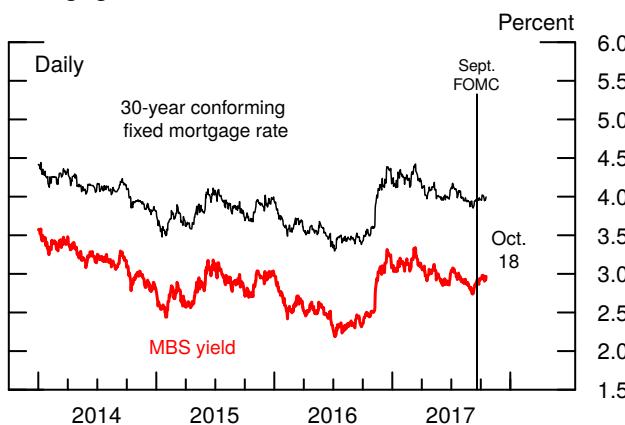
Financing Conditions

Core Loan Growth

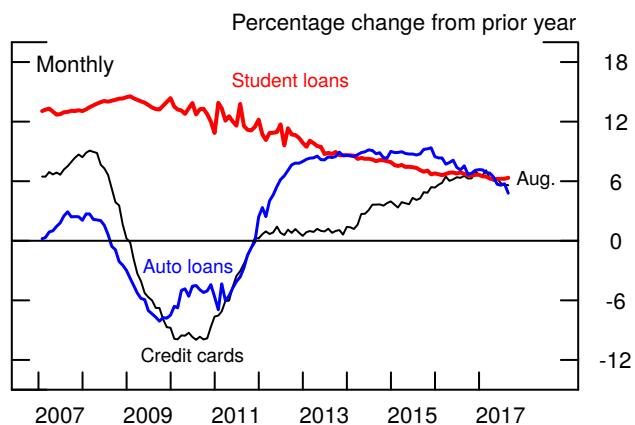


Note: Business loans include commercial and industrial loans and commercial real estate loans. Consumer loans include credit card, auto, and other consumer loans. RRE is residential real estate.

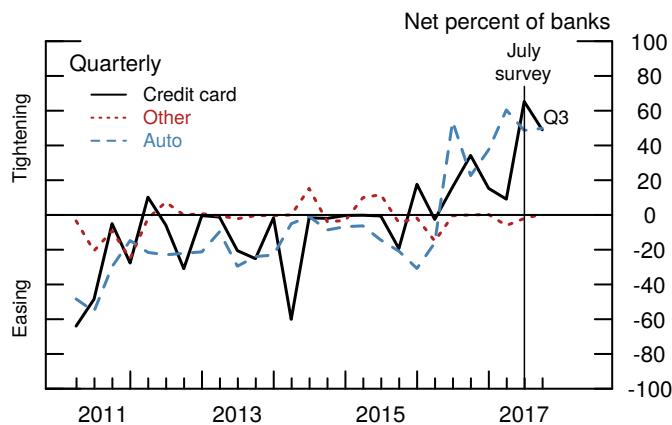
Source: Staff calculations, Form FR 2644, Weekly Report of Selected Assets and Liabilities of Domestically Chartered Commercial Banks and U.S. Branches and Agencies of Foreign Banks.

Mortgage Rate and MBS Yield

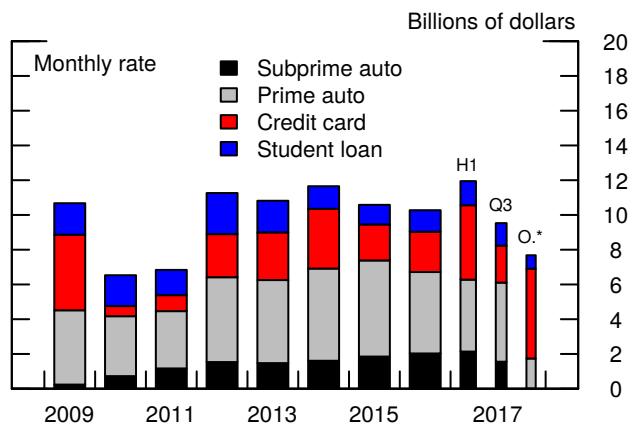
Note: The mortgage-backed securities (MBS) yield is the Fannie Mae 30-year current-coupon rate.
Source: For MBS yield, Barclays; for mortgage rate, Loansifter.

Consumer Credit

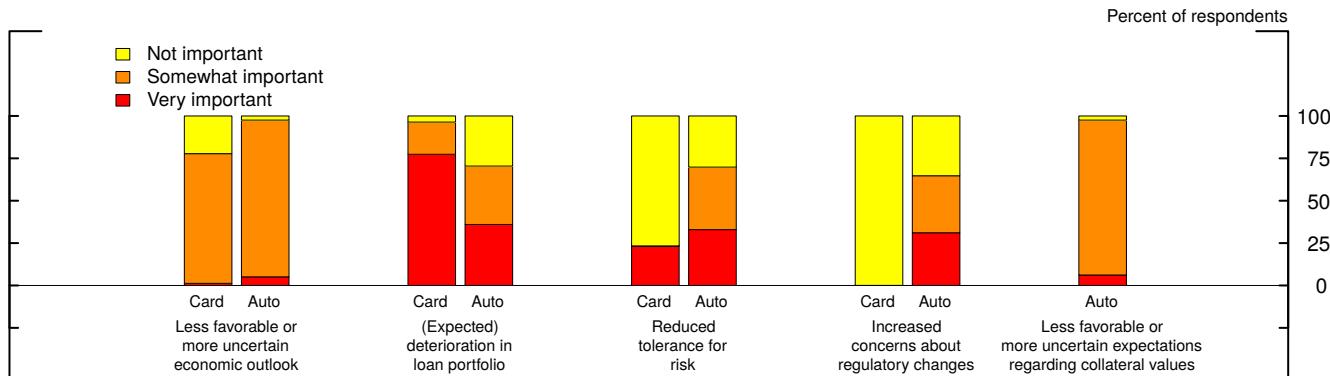
Note: The data are not seasonally adjusted.
Source: Federal Reserve Board.

Changes in Standards for Consumer Loans

Note: Banks' responses are weighted by their sizes in the relevant loan categories.
Source: Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices.

Gross Consumer ABS Issuance

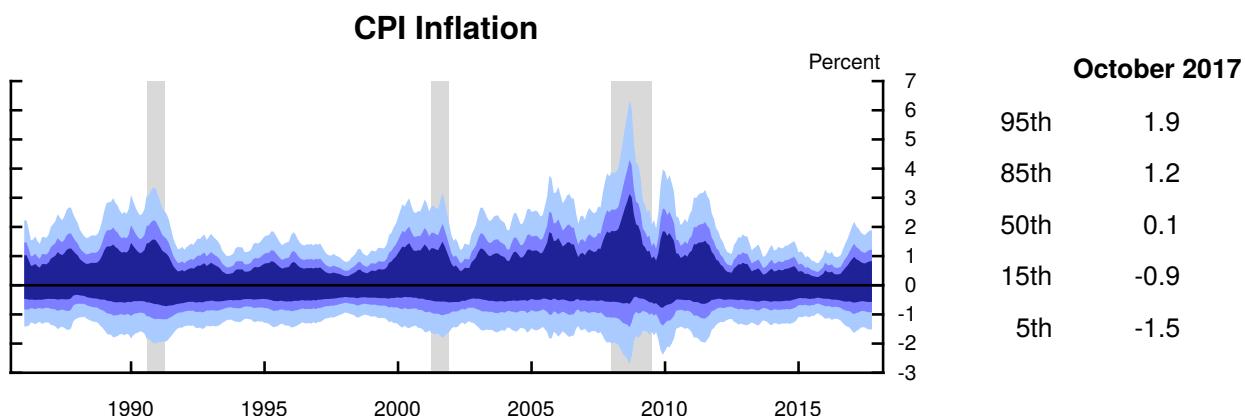
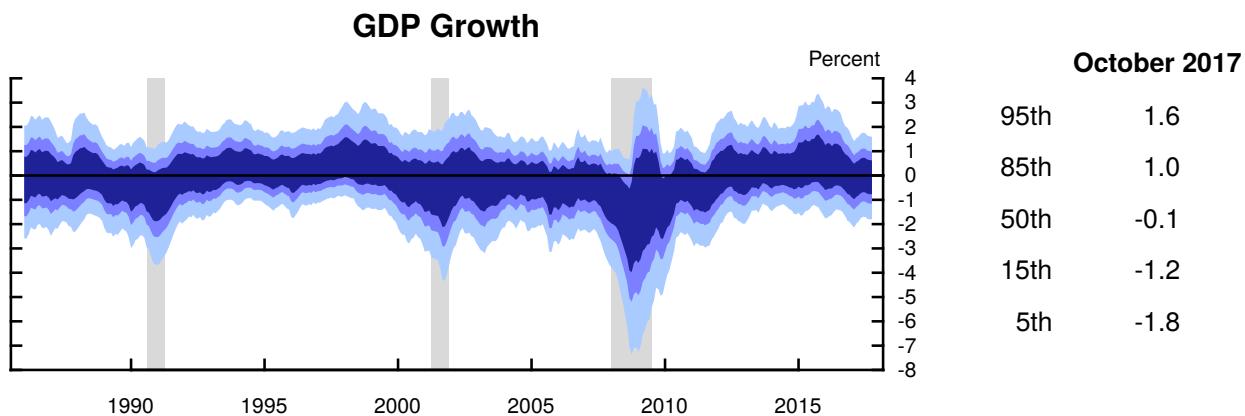
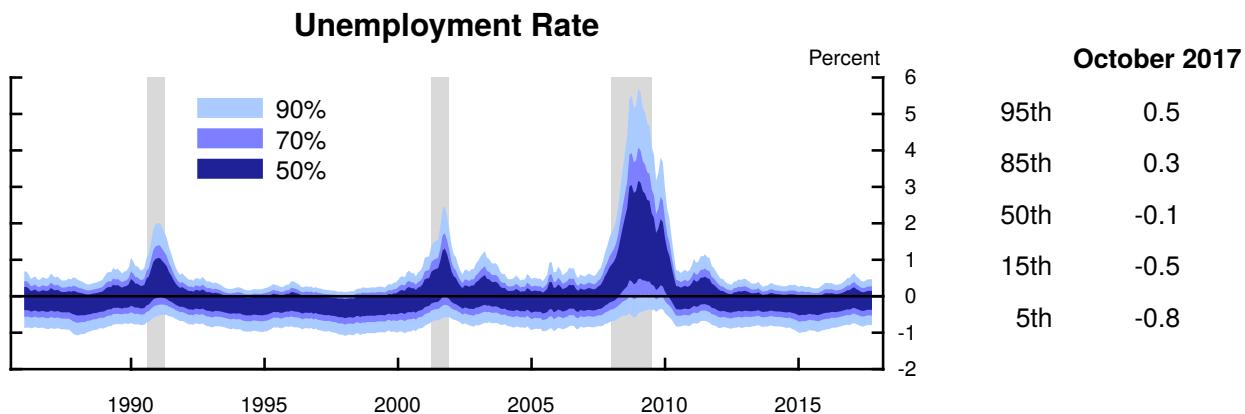
Note: ABS is asset-backed securities.
* Month to date.
Source: Inside MBS & ABS; Merrill Lynch; Bloomberg.

Selected Reasons for Tightening Standards on Subprime Credit Card Loans and Subprime Auto Loans, October 2017

Note: "Card" refers to credit card loans, and "auto" refers to auto loans. Eleven banks responded to the questions on credit card loans. Ten banks responded to the questions on auto loans. Respondents were not asked if collateral value expectations are a reason to tighten standards for credit card loans.

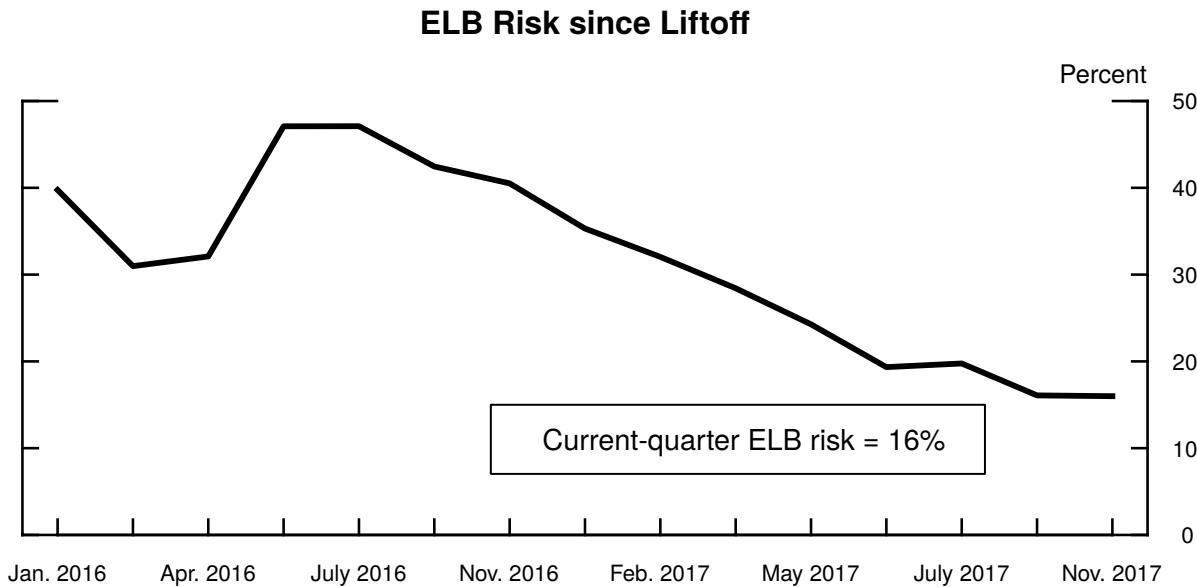
Source: Federal Reserve Board, Senior Loan Officer Opinion Survey on Bank Lending Practices.

Time-Varying Macroeconomic Risk

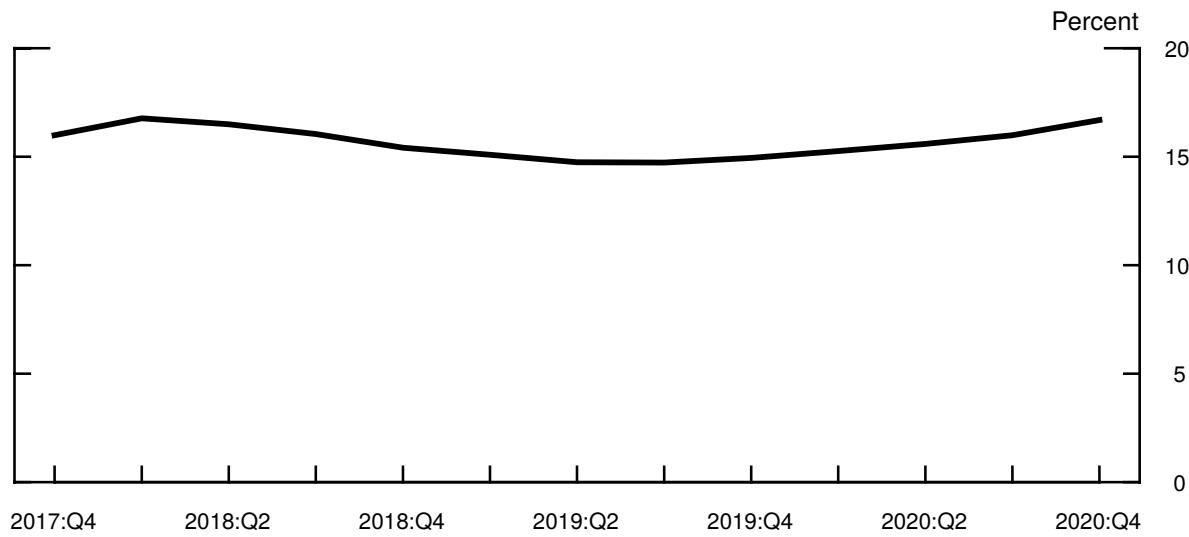


Note: The exhibit shows estimates of quantiles of the distribution of errors for four-quarter-ahead staff forecasts. The estimates are conditioned on indicators of real activity, inflation, financial market strain, and the volatility of high-frequency macroeconomic indicators. The tables show selected quantiles of the predictive distributions for the respective variables as of the current Tealbook.

Effective Lower Bound Risk Estimate



ELB Risk over the Projection Period



Note: The figures show the probability that the federal funds rate reaches the effective lower bound (ELB) over the next 3 years starting in the given quarter. Details behind the computation of the ELB risk measure are provided in the box "A Guidepost for Dropping the Effective Lower Bound Risk from the Assessment of Risks" in the Risks and Uncertainty section of the April 2017 Tealbook A. The lower panel computes ELB risk over a forward-looking moving 3-year window using stochastic simulations in FRB/US beginning in the current quarter. The simulations are computed around the Tealbook baseline.

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

Measure and scenario	2017		2018	2019	2020	2021-22
	H1	H2				
<i>Real GDP</i>						
Extended Tealbook baseline	2.1	3.1	2.4	1.9	1.6	1.2
Different inflation process	2.1	3.1	2.4	2.0	1.7	1.3
Steeper Phillips curve	2.1	3.1	2.4	1.8	1.5	1.1
Market correction	2.1	2.8	1.7	1.6	1.8	1.6
Misperceived lower natural rate	2.1	3.1	2.5	2.1	1.7	1.3
Stronger economy	2.1	3.5	3.0	2.0	1.6	1.3
Stronger dollar and weaker foreign growth	2.1	3.1	2.0	1.6	1.6	1.4
Inflation-driven tightening in the AFEs	2.1	3.0	2.1	1.9	1.6	1.3
<i>Unemployment rate¹</i>						
Extended Tealbook baseline	4.4	4.2	3.7	3.6	3.6	4.1
Different inflation process	4.4	4.2	3.7	3.5	3.5	4.0
Steeper Phillips curve	4.4	4.2	3.8	3.7	3.8	4.4
Market correction	4.4	4.3	4.1	4.1	4.0	4.1
Misperceived lower natural rate	4.4	4.2	3.6	3.3	3.2	3.7
Stronger economy	4.4	4.0	3.3	3.2	3.4	4.0
Stronger dollar and weaker foreign growth	4.4	4.2	3.9	3.9	4.0	4.4
Inflation-driven tightening in the AFEs	4.4	4.2	3.8	3.7	3.8	4.2
<i>Total PCE prices</i>						
Extended Tealbook baseline	1.2	1.7	1.7	2.0	2.0	2.1
Different inflation process	1.2	1.5	1.1	1.4	1.5	1.7
Steeper Phillips curve	1.2	1.8	2.0	2.5	2.8	3.1
Market correction	1.2	1.7	1.7	1.9	2.0	2.1
Misperceived lower natural rate	1.2	1.7	1.6	1.7	1.8	2.0
Stronger economy	1.2	1.7	1.7	1.9	1.9	2.1
Stronger dollar and weaker foreign growth	1.2	1.6	1.3	1.7	1.9	2.1
Inflation-driven tightening in the AFEs	1.2	1.7	1.7	1.8	1.9	2.1
<i>Core PCE prices</i>						
Extended Tealbook baseline	1.4	1.4	1.8	2.0	2.0	2.1
Different inflation process	1.4	1.2	1.2	1.4	1.5	1.7
Steeper Phillips curve	1.4	1.5	2.1	2.5	2.8	3.1
Market correction	1.4	1.4	1.8	2.0	2.0	2.0
Misperceived lower natural rate	1.4	1.4	1.7	1.8	1.8	1.9
Stronger economy	1.4	1.4	1.8	1.9	2.0	2.0
Stronger dollar and weaker foreign growth	1.4	1.4	1.5	1.8	1.9	2.0
Inflation-driven tightening in the AFEs	1.4	1.4	1.8	1.9	1.9	2.0
<i>Federal funds rate¹</i>						
Extended Tealbook baseline	.9	1.4	2.5	3.5	4.0	4.0
Different inflation process	.9	1.3	2.1	2.9	3.5	3.6
Steeper Phillips curve	.9	1.4	2.7	3.8	4.6	4.9
Market correction	.9	1.3	2.2	2.9	3.4	3.7
Misperceived lower natural rate	.9	1.4	2.5	3.3	3.8	3.9
Stronger economy	.9	1.4	2.8	3.9	4.4	4.2
Stronger dollar and weaker foreign growth	.9	1.3	2.3	3.0	3.5	3.7
Inflation-driven tightening in the AFEs	.9	1.3	2.4	3.1	3.5	3.7

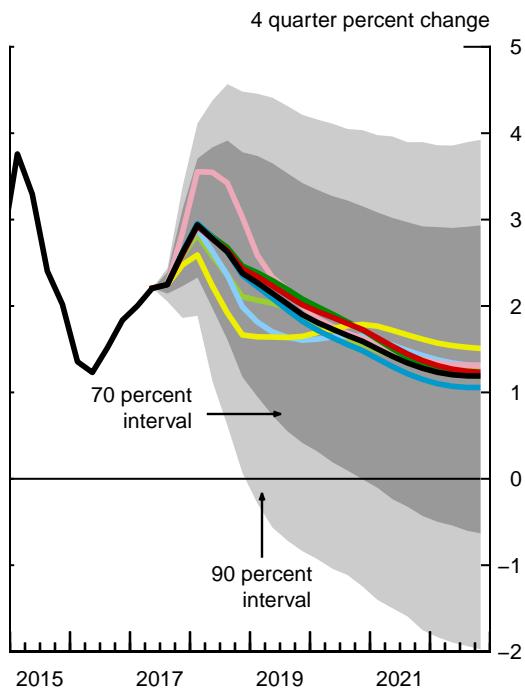
1. Percent, average for the final quarter of the period.

Forecast Confidence Intervals and Alternative Scenarios

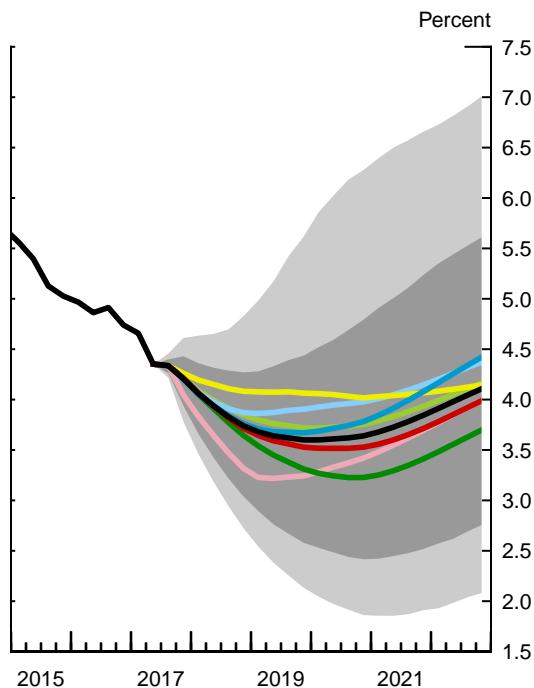
Confidence Intervals Based on FRB/US Stochastic Simulations

- Extended Tealbook baseline
- Market correction
- Stronger dollar and weaker foreign growth
- Different inflation process
- Misperceived lower natural rate
- Inflation–driven tightening in the AFEs
- Steeper Phillips curve
- Stronger economy

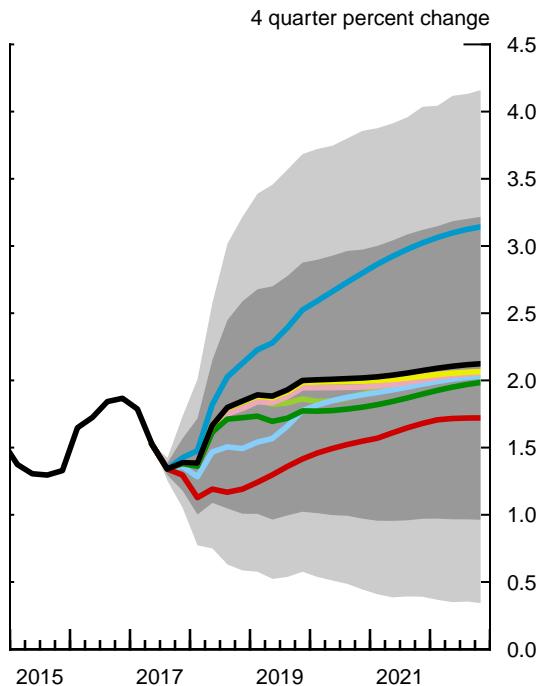
Real GDP



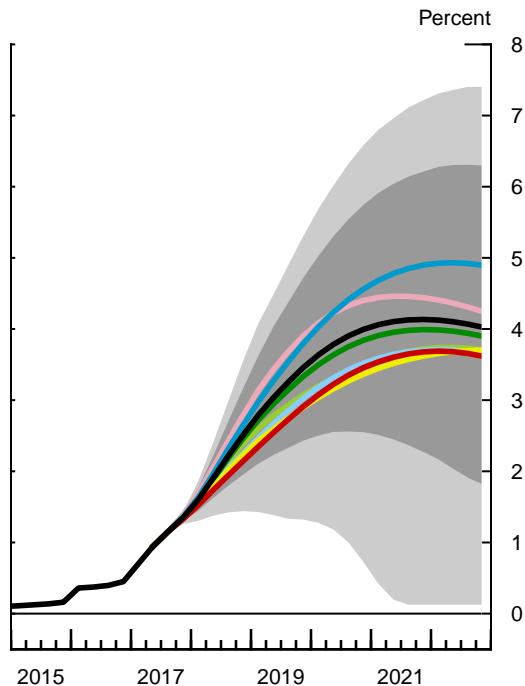
Unemployment Rate



PCE Prices excluding Food and Energy



Federal Funds Rate



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

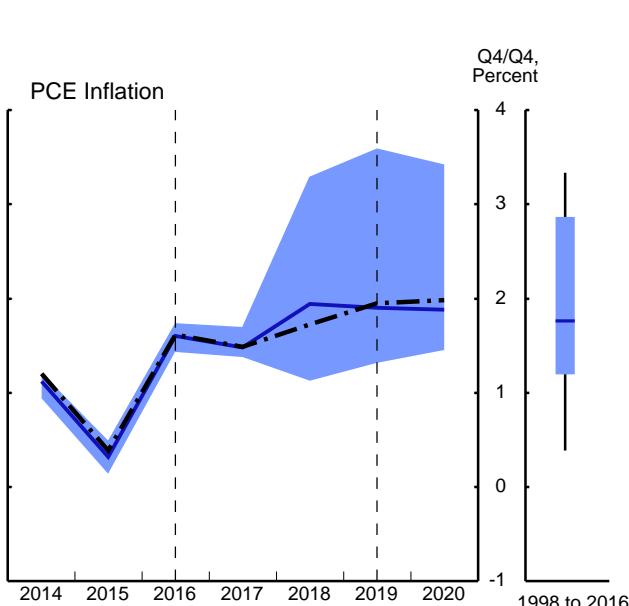
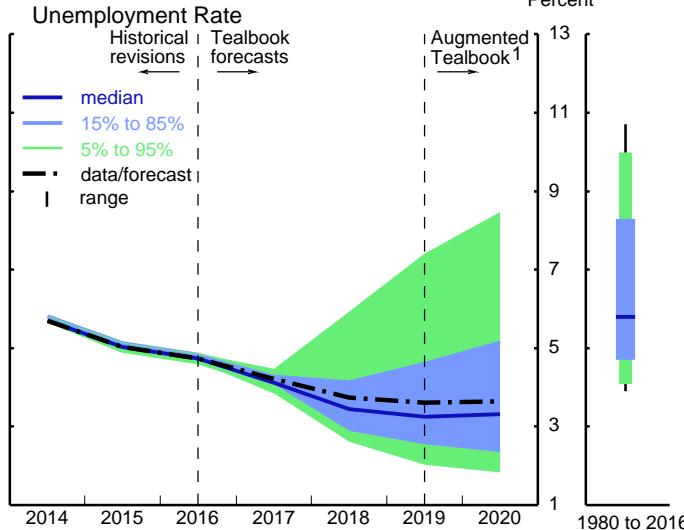
Measure	2017	2018	2019	2020	2021	2022
<i>Real GDP</i> <i>(percent change, Q4 to Q4)</i>						
Projection	2.6	2.4	1.9	1.6	1.3	1.2
Confidence interval						
Tealbook forecast errors	2.0–3.8	.9–4.0	-.4–3.6	-1.0–3.2
FRB/US stochastic simulations	2.2–3.1	1.2–3.8	.4–3.4	.0–3.2	-.4–2.9	-.6–2.9
<i>Civilian unemployment rate</i> <i>(percent, Q4)</i>						
Projection	4.2	3.7	3.6	3.6	3.8	4.1
Confidence interval						
Tealbook forecast errors	4.0–4.3	2.8–4.2	2.5–4.6	2.3–5.2
FRB/US stochastic simulations	3.9–4.4	3.0–4.3	2.6–4.4	2.4–4.8	2.5–5.2	2.8–5.6
<i>PCE prices, total</i> <i>(percent change, Q4 to Q4)</i>						
Projection	1.5	1.7	2.0	2.0	2.1	2.1
Confidence interval						
Tealbook forecast errors	1.4–1.7	1.1–3.3	1.3–3.6	1.4–3.4
FRB/US stochastic simulations	1.2–1.7	.8–2.5	.9–2.9	.9–3.0	.9–3.2	.9–3.3
<i>PCE prices excluding food and energy</i> <i>(percent change, Q4 to Q4)</i>						
Projection	1.4	1.8	2.0	2.0	2.1	2.1
Confidence interval						
Tealbook forecast errors	1.2–1.7	1.4–2.6	1.4–2.8
FRB/US stochastic simulations	1.2–1.6	1.0–2.6	1.0–2.9	1.0–3.0	1.0–3.1	1.0–3.2
<i>Federal funds rate</i> <i>(percent, Q4)</i>						
Projection	1.4	2.5	3.5	4.0	4.1	4.0
Confidence interval						
FRB/US stochastic simulations	1.3–1.4	2.0–3.2	2.4–4.7	2.6–5.7	2.3–6.2	1.8–6.3

Note: Shocks underlying FRB/US stochastic simulations are randomly drawn from the 1969–2016 set of model equation residuals. Intervals derived from Tealbook forecast errors are based on projections made from 1980 to 2016 for real GDP and unemployment and from 1998 to 2016 for PCE prices. The intervals for real GDP, unemployment, and total PCE prices are extended into 2020 using information from the Blue Chip survey and forecasts from the CBO and CEA.

... Not applicable.

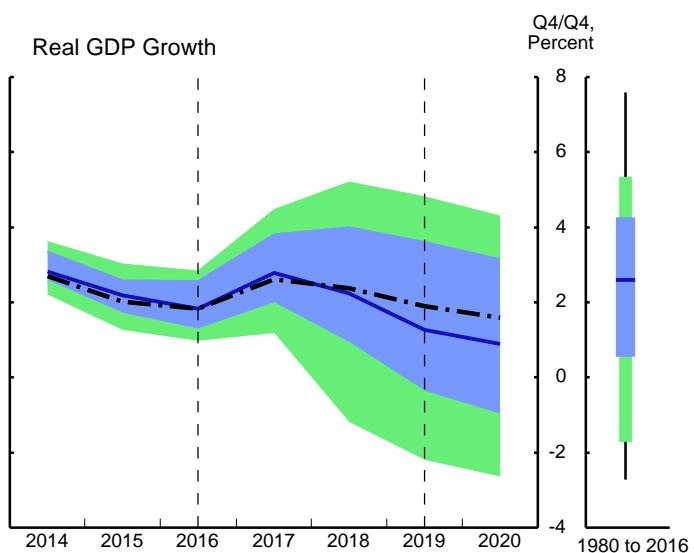
Prediction Intervals Derived from Historical Tealbook Forecast Errors

Forecast Error Percentiles

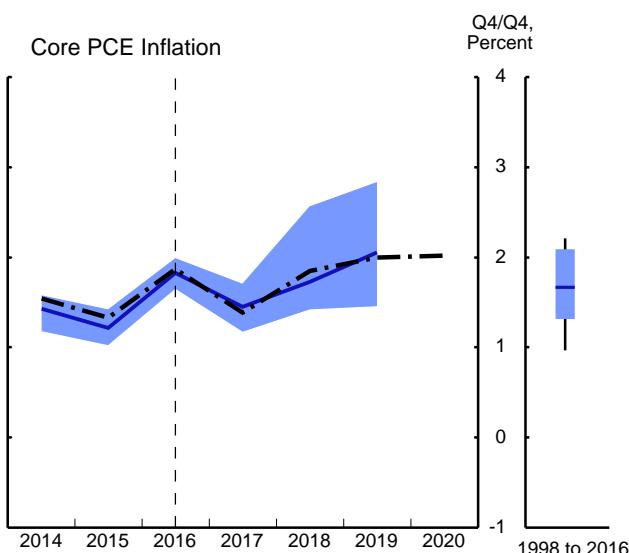


Risks & Uncertainty

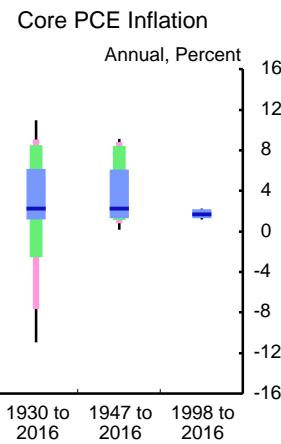
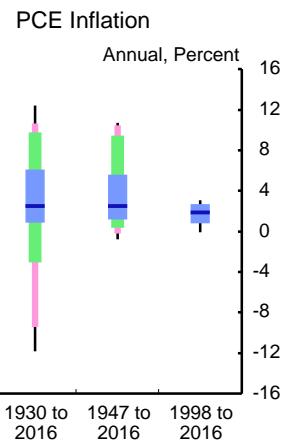
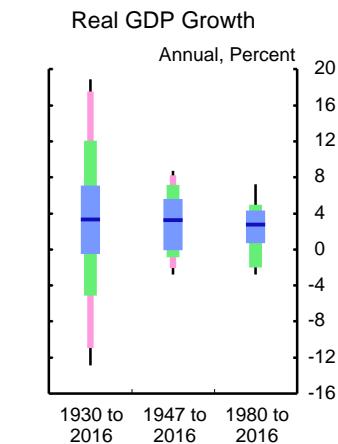
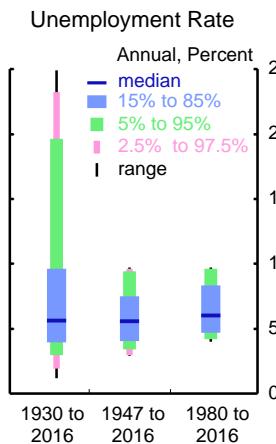
Real GDP Growth



Core PCE Inflation



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 2020.

Assessment of Key Macroeconomic Risks

Probability of Inflation Events

(4 quarters ahead)

Probability that the 4-quarter change in total PCE prices will be . . .	Staff	FRB/US	EDO	BVAR
<i>Greater than 3 percent</i>				
Current Tealbook	.06	.04	.01	.02
Previous Tealbook	.06	.04	.03	.04
<i>Less than 1 percent</i>				
Current Tealbook	.15	.21	.17	.27
Previous Tealbook	.12	.23	.19	.21

Probability of Unemployment Events

(4 quarters ahead)

Probability that the unemployment rate will . . .	Staff	FRB/US	EDO	BVAR
<i>Increase by 1 percentage point</i>				
Current Tealbook	.01	.01	.13	.01
Previous Tealbook	.01	.01	.12	.01
<i>Decrease by 1 percentage point</i>				
Current Tealbook	.21	.04	.09	.22
Previous Tealbook	.22	.10	.10	.32

Probability of Near-Term Recession

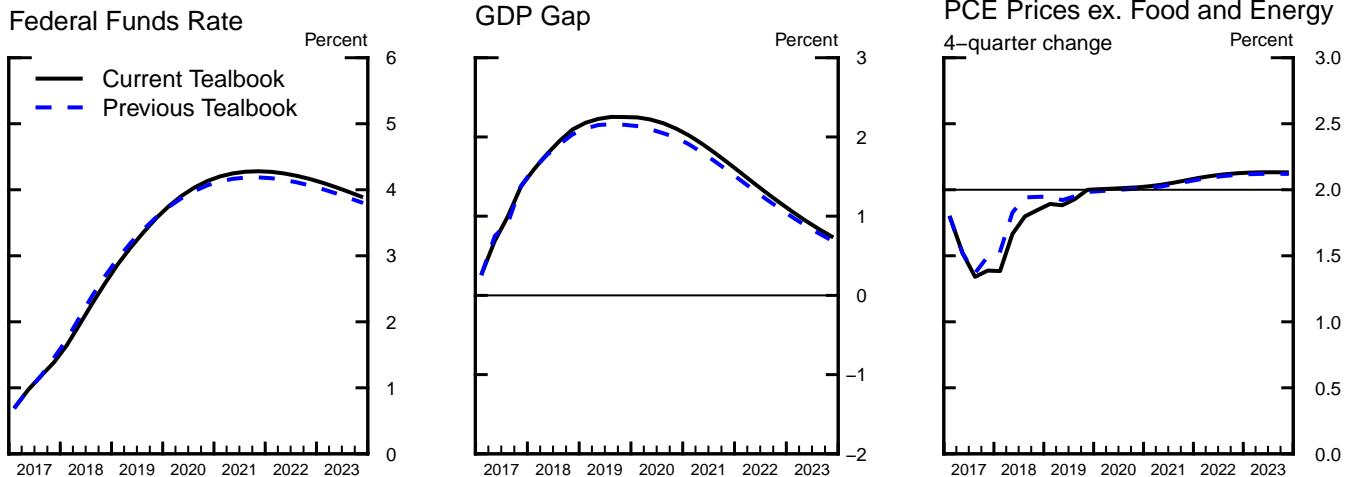
Probability that real GDP declines in the next two quarters	Staff	FRB/US	EDO	BVAR	Factor Model
Current Tealbook	.01	.01	.03	.02	.02
Previous Tealbook	.01	.00	.04	.02	.00

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.

Policy Rules and the Staff Projection

Near-Term Prescriptions of Selected Simple Policy Rules ¹			
(Percent)	2017:Q4	2018:Q1	
Taylor (1993) rule	2.26	2.36	
<i>Previous Tealbook</i>	2.42	2.58	
Taylor (1999) rule	2.92	3.12	
<i>Previous Tealbook</i>	3.08	3.34	
First-difference rule	1.51	1.78	
<i>Previous Tealbook projection</i>	1.60	1.88	
Nominal income targeting rule	1.08	1.04	
<i>Previous Tealbook projection</i>	1.07	1.03	
<i>Addendum:</i>			
Tealbook baseline	1.35	1.60	

Key Elements of the Staff Projection



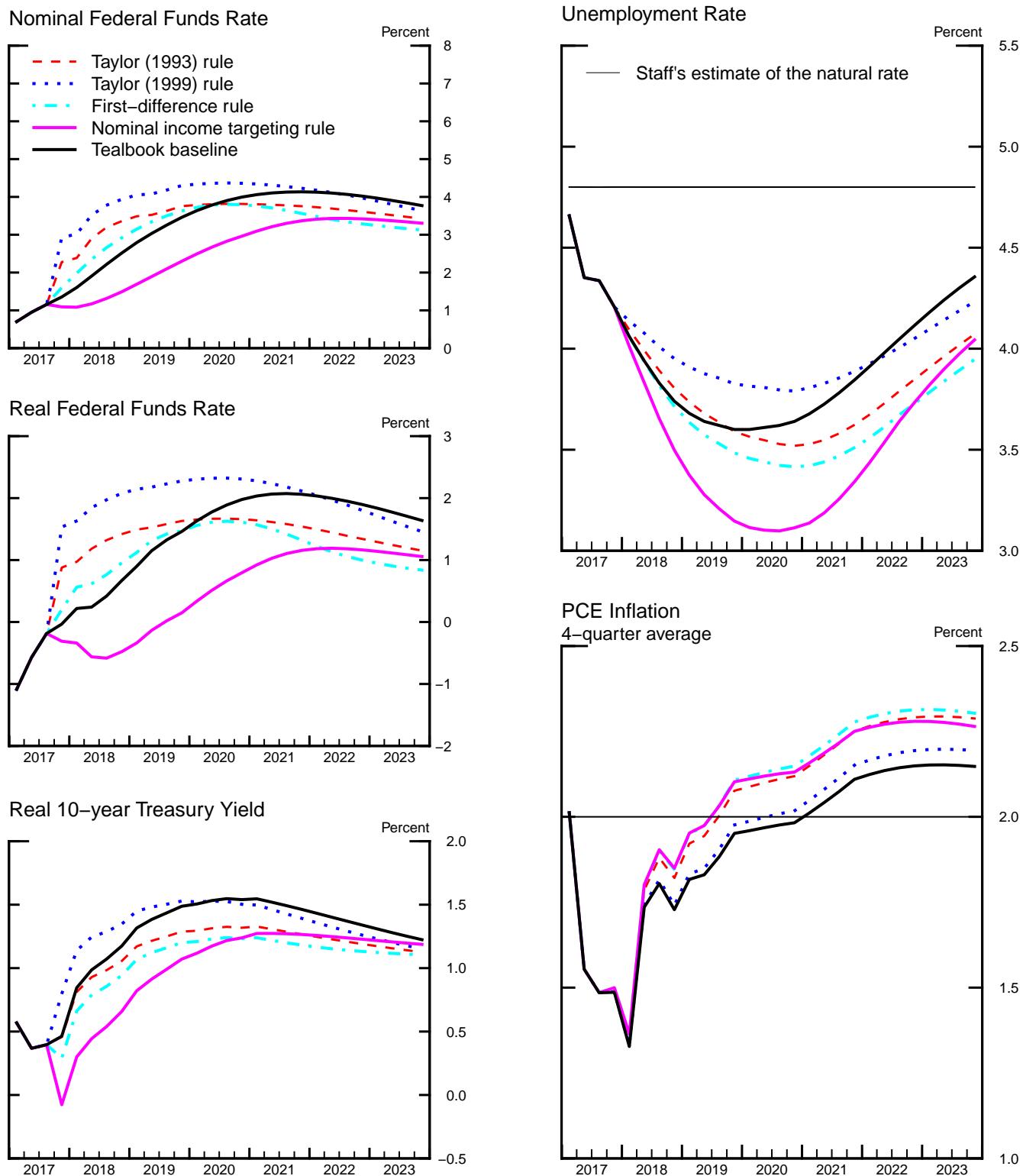
A Medium-Term Notion of the Equilibrium Real Federal Funds Rate² (Percent)

	Current Tealbook	<i>Current-Quarter Estimate Based on Previous Tealbook</i>	Previous Tealbook
Tealbook baseline			
FRB/US r^*	2.56	2.46	2.32
Average projected real federal funds rate	.99	.98	.80
SEP-consistent baseline			
FRB/US r^*	.83		
Average projected real federal funds rate	.34		

1. For rules that have a lagged policy rate as a right-hand-side variable, the lines denoted "Previous Tealbook" projection report prescriptions based on the previous Tealbook's staff outlook for inflation and the output gap, but conditional on the current Tealbook value of the lagged policy rate.

2. The "FRB/US r^* " is the level of the real federal funds rate that, if maintained over a 12-quarter period (beginning in the current quarter) in the FRB/US model sets the output gap equal to zero in the final quarter of that period given either the Tealbook or SEP-consistent projection. The SEP-consistent baseline corresponds to the September 2017 median SEP responses. The "Average projected real federal funds rate" is calculated under the Tealbook and SEP-consistent baseline projections over the same 12-quarter period as FRB/US r^* .

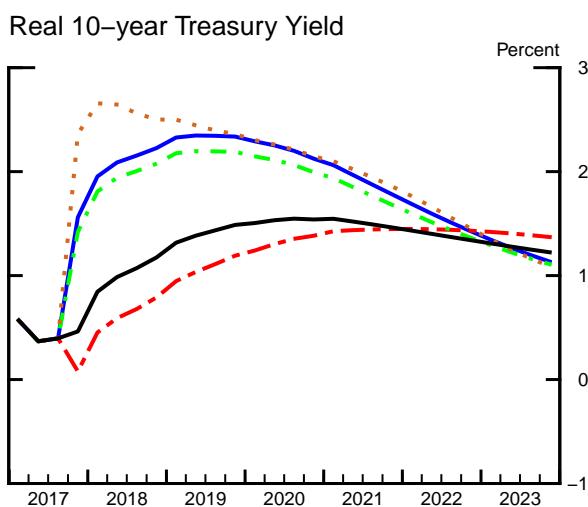
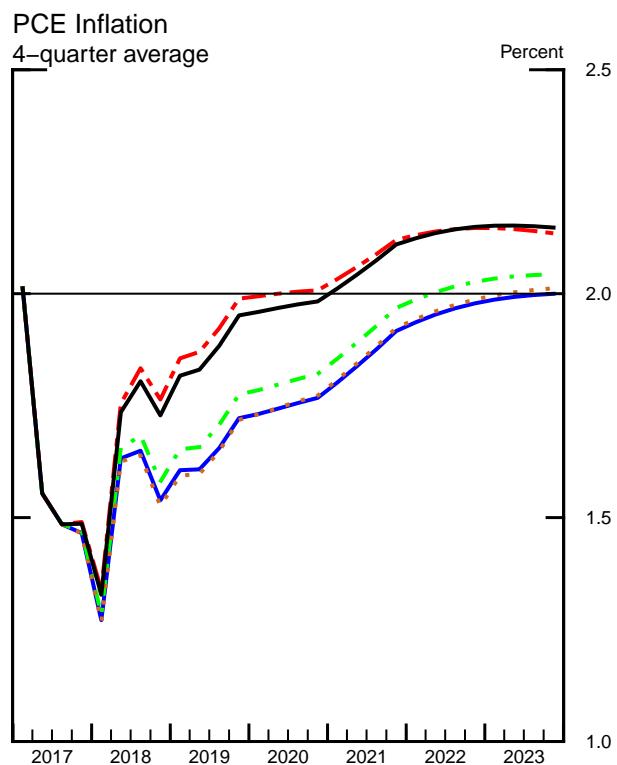
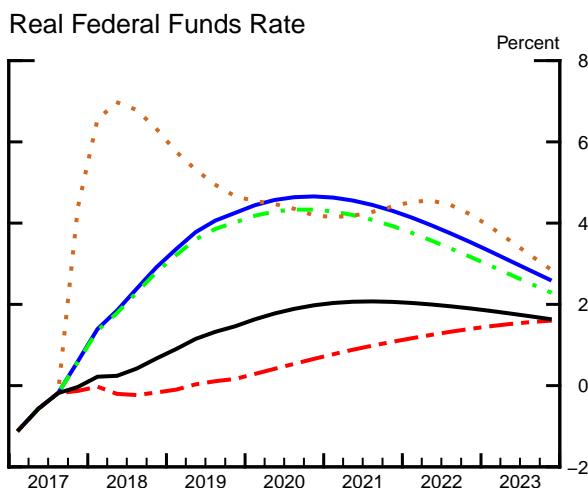
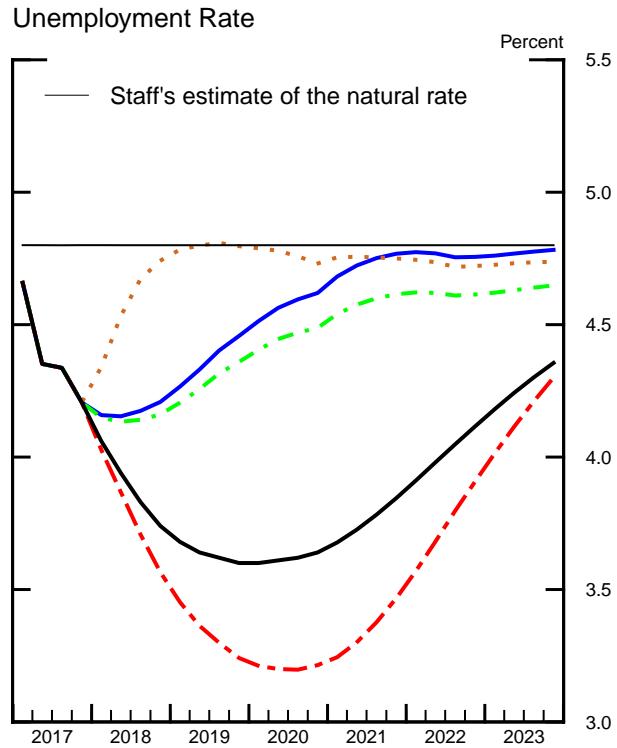
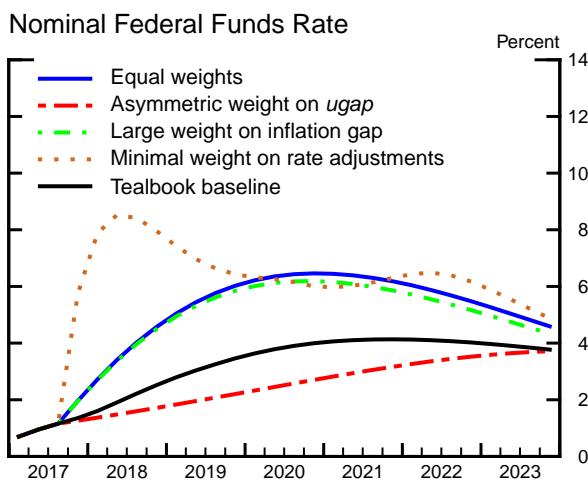
Simple Policy Rule Simulations



Note: The policy rule simulations in this exhibit are based on rules that respond to core inflation rather than to headline inflation. This choice of rule specification was made in light of a tendency for current and near-term core inflation rates to outperform headline inflation rates as predictors of the medium-term behavior of headline inflation.

Optimal Control Simulations under Commitment

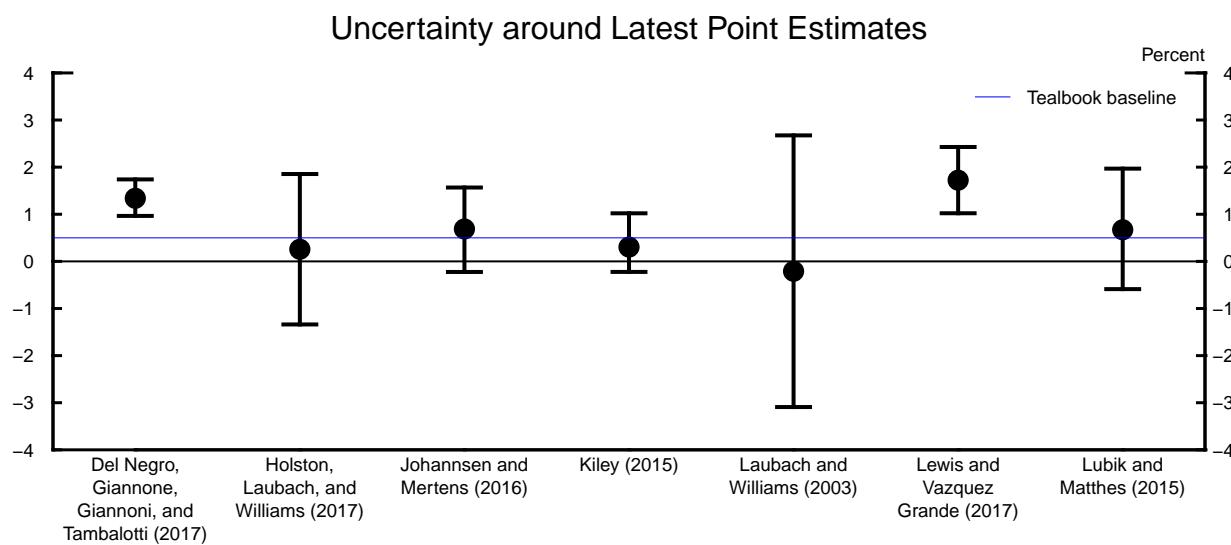
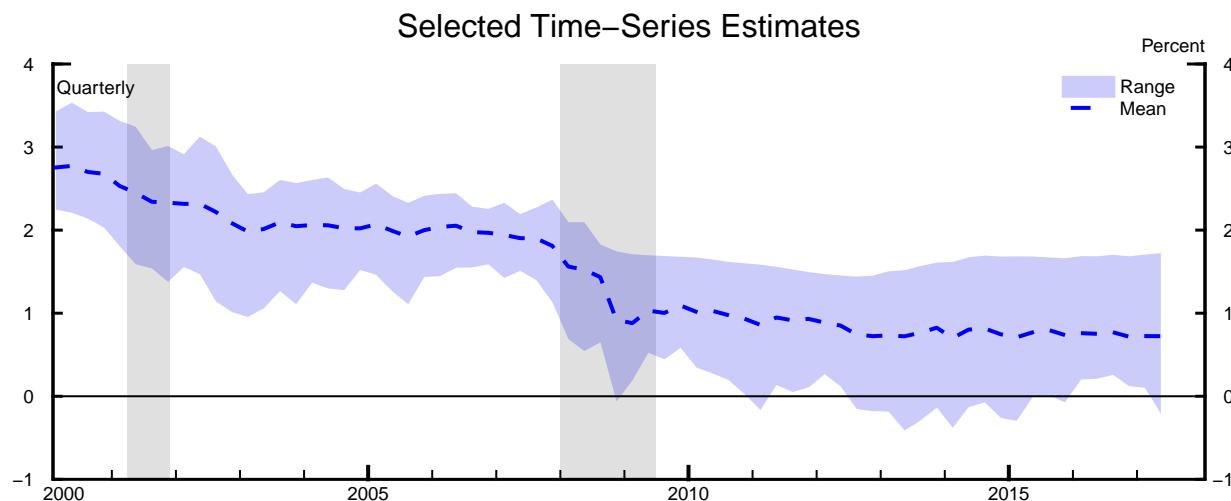
Monetary Policy Strategies



Note: Each set of lines corresponds to an optimal control policy under commitment in which policymakers minimize a discounted weighted sum of squared deviations of 4-quarter headline PCE inflation from the Committee's 2 percent objective, of squared deviations of the unemployment rate from the staff's estimate of the natural rate, and of squared changes in the federal funds rate. The weights vary across simulations. See the appendix for technical details and the box "Optimal Control and the Loss Function" in the June 2016 Tealbook B for a motivation.

Estimates of the Equilibrium Real Federal Funds Rate in the Longer Run

Monetary Policy Strategies



Selected Estimates (Percent)	
Tealbook baseline	.50
Median SEP	.75
Survey of Primary Dealers	.75
Blue Chip (6–10-year)	1.00
Congressional Budget Office (10-year)	1.10

Note: See the end of this section for a list of references and the appendix to this section for details on methods. The shaded vertical areas in the top panel are NBER recessions. In addition to the studies listed in the middle panel, the computation of the range in the top panel includes time-series point estimates from Christensen and Rudebusch (2017). The middle panel reports 68 percent uncertainty bands around each point estimate for 2017:Q2.

Outcomes of Simple Policy Rule Simulations
 (Percent change, annual rate, from end of preceding period except as noted)

Outcome and strategy	2017	2018	2019	2020	2021	2022	2023
<i>Nominal federal funds rate¹</i>							
Taylor (1993)	2.3	3.4	3.8	3.8	3.8	3.6	3.4
Taylor (1999)	2.9	3.9	4.3	4.4	4.2	4.0	3.6
First-difference	1.6	2.9	3.6	3.8	3.6	3.3	3.1
Nominal income targeting	1.1	1.5	2.3	3.0	3.4	3.4	3.3
Extended Tealbook baseline	1.4	2.5	3.5	4.0	4.1	4.0	3.8
<i>Real GDP</i>							
Taylor (1993)	2.6	2.3	2.0	1.8	1.5	1.3	1.3
Taylor (1999)	2.6	2.0	1.8	1.7	1.5	1.4	1.3
First-difference	2.6	2.5	2.1	1.8	1.5	1.3	1.4
Nominal income targeting	2.6	2.9	2.3	1.7	1.2	1.0	1.2
Extended Tealbook baseline	2.6	2.4	1.9	1.6	1.3	1.2	1.3
<i>Unemployment rate¹</i>							
Taylor (1993)	4.2	3.8	3.6	3.5	3.6	3.8	4.1
Taylor (1999)	4.2	4.0	3.8	3.8	3.9	4.1	4.2
First-difference	4.2	3.7	3.5	3.4	3.5	3.7	3.9
Nominal income targeting	4.2	3.5	3.1	3.1	3.3	3.7	4.0
Extended Tealbook baseline	4.2	3.7	3.6	3.6	3.8	4.1	4.4
<i>Total PCE prices</i>							
Taylor (1993)	1.5	1.8	2.1	2.1	2.3	2.3	2.3
Taylor (1999)	1.5	1.7	2.0	2.0	2.2	2.2	2.2
First-difference	1.5	1.8	2.1	2.1	2.3	2.3	2.3
Nominal income targeting	1.5	1.8	2.1	2.1	2.3	2.3	2.3
Extended Tealbook baseline	1.5	1.7	2.0	2.0	2.1	2.1	2.1
<i>Core PCE prices</i>							
Taylor (1993)	1.4	1.9	2.1	2.2	2.2	2.3	2.3
Taylor (1999)	1.4	1.9	2.0	2.1	2.1	2.2	2.2
First-difference	1.4	2.0	2.2	2.2	2.2	2.3	2.3
Nominal income targeting	1.4	2.0	2.2	2.2	2.2	2.3	2.2
Extended Tealbook baseline	1.4	1.8	2.0	2.0	2.1	2.1	2.1

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

Outcomes of Simple Policy Rule Simulations, Quarterly
 (4-quarter percent change, except as noted)

Outcome and strategy	2017		2018				2019	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
<i>Nominal federal funds rate¹</i>								
Taylor (1993)	1.2	2.3	2.4	2.9	3.2	3.4	3.5	3.5
Taylor (1999)	1.2	2.9	3.0	3.5	3.8	3.9	4.1	4.1
First-difference	1.2	1.6	2.0	2.3	2.7	2.9	3.1	3.3
Nominal income targeting	1.2	1.1	1.1	1.2	1.3	1.5	1.7	1.9
Extended Tealbook baseline	1.2	1.4	1.6	1.9	2.2	2.5	2.8	3.0
<i>Real GDP</i>								
Taylor (1993)	2.2	2.6	2.9	2.7	2.6	2.3	2.3	2.2
Taylor (1999)	2.2	2.6	2.8	2.6	2.3	2.0	2.0	1.9
First-difference	2.2	2.6	3.0	2.8	2.7	2.5	2.4	2.3
Nominal income targeting	2.2	2.6	3.1	3.0	3.0	2.9	2.8	2.7
Extended Tealbook baseline	2.2	2.6	2.9	2.8	2.6	2.4	2.3	2.1
<i>Unemployment rate¹</i>								
Taylor (1993)	4.3	4.2	4.1	4.0	3.9	3.8	3.7	3.7
Taylor (1999)	4.3	4.2	4.1	4.1	4.0	4.0	3.9	3.9
First-difference	4.3	4.2	4.1	3.9	3.8	3.7	3.6	3.6
Nominal income targeting	4.3	4.2	4.0	3.8	3.7	3.5	3.4	3.3
Extended Tealbook baseline	4.3	4.2	4.1	3.9	3.8	3.7	3.7	3.6
<i>Total PCE prices</i>								
Taylor (1993)	1.5	1.5	1.4	1.8	1.9	1.8	1.9	1.9
Taylor (1999)	1.5	1.5	1.3	1.7	1.8	1.7	1.8	1.8
First-difference	1.5	1.5	1.4	1.8	1.9	1.8	1.9	2.0
Nominal income targeting	1.5	1.5	1.4	1.8	1.9	1.8	2.0	2.0
Extended Tealbook baseline	1.5	1.5	1.3	1.7	1.8	1.7	1.8	1.8
<i>Core PCE prices</i>								
Taylor (1993)	1.3	1.4	1.4	1.7	1.9	1.9	2.0	2.0
Taylor (1999)	1.3	1.4	1.4	1.7	1.8	1.9	1.9	1.9
First-difference	1.3	1.4	1.4	1.7	1.9	2.0	2.0	2.0
Nominal income targeting	1.3	1.4	1.4	1.7	1.9	2.0	2.0	2.0
Extended Tealbook baseline	1.3	1.4	1.4	1.7	1.8	1.8	1.9	1.9

1. Percent, average for the quarter.

Outcomes of Optimal Control Simulations under Commitment

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

Outcome and strategy	2017	2018	2019	2020	2021	2022	2023
<i>Nominal federal funds rate¹</i>							
Equal weights	2.0	4.6	6.0	6.5	6.2	5.5	4.6
Aymmetric weight on <i>ugap</i>	1.3	1.7	2.2	2.7	3.2	3.5	3.7
Large weight on inflation gap	2.0	4.5	5.8	6.2	5.9	5.2	4.3
Minimal weight on rate adjustments	5.8	8.0	6.4	6.0	6.3	6.2	4.9
Extended Tealbook baseline	1.4	2.5	3.5	4.0	4.1	4.0	3.8
<i>Real GDP</i>							
Equal weights	2.6	1.4	1.1	1.4	1.5	1.6	1.5
Aymmetric weight on <i>ugap</i>	2.6	2.8	2.2	1.7	1.2	0.9	1.1
Large weight on inflation gap	2.6	1.5	1.2	1.4	1.5	1.6	1.5
Minimal weight on rate adjustments	2.6	0.5	1.3	1.8	1.7	1.6	1.4
Extended Tealbook baseline	2.6	2.4	1.9	1.6	1.3	1.2	1.3
<i>Unemployment rate¹</i>							
Equal weights	4.2	4.2	4.5	4.6	4.8	4.8	4.8
Aymmetric weight on <i>ugap</i>	4.2	3.6	3.2	3.2	3.5	3.9	4.3
Large weight on inflation gap	4.2	4.2	4.4	4.5	4.6	4.6	4.6
Minimal weight on rate adjustments	4.2	4.7	4.8	4.7	4.7	4.7	4.7
Extended Tealbook baseline	4.2	3.7	3.6	3.6	3.8	4.1	4.4
<i>Total PCE prices</i>							
Equal weights	1.5	1.5	1.7	1.8	1.9	2.0	2.0
Aymmetric weight on <i>ugap</i>	1.5	1.8	2.0	2.0	2.1	2.1	2.1
Large weight on inflation gap	1.5	1.6	1.8	1.8	2.0	2.0	2.0
Minimal weight on rate adjustments	1.5	1.5	1.7	1.8	1.9	2.0	2.0
Extended Tealbook baseline	1.5	1.7	2.0	2.0	2.1	2.1	2.1
<i>Core PCE prices</i>							
Equal weights	1.4	1.7	1.8	1.8	1.9	2.0	2.0
Aymmetric weight on <i>ugap</i>	1.4	1.9	2.0	2.0	2.1	2.1	2.1
Large weight on inflation gap	1.4	1.7	1.8	1.9	1.9	2.0	2.0
Minimal weight on rate adjustments	1.4	1.6	1.8	1.8	1.9	2.0	2.0
Extended Tealbook baseline	1.4	1.8	2.0	2.0	2.1	2.1	2.1

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

Outcomes of Optimal Control Simulations under Commitment, Quarterly
 (4-quarter percent change, except as noted)

Outcome and strategy	2017		2018				2019	
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
<i>Nominal federal funds rate¹</i>								
Equal weights	1.2	2.0	2.7	3.4	4.0	4.6	5.0	5.4
Asymmetric weight on <i>ugap</i>	1.2	1.3	1.4	1.5	1.6	1.7	1.8	2.0
Large weight on inflation gap	1.2	2.0	2.7	3.4	4.0	4.5	4.9	5.3
Minimal weight on rate adjustments	1.2	5.8	7.9	8.5	8.4	8.0	7.4	7.0
Extended Tealbook baseline	1.2	1.4	1.6	1.9	2.2	2.5	2.8	3.0
<i>Real GDP</i>								
Equal weights	2.2	2.6	2.7	2.3	1.9	1.4	1.2	1.2
Asymmetric weight on <i>ugap</i>	2.2	2.6	3.0	3.0	2.9	2.8	2.7	2.6
Large weight on inflation gap	2.2	2.6	2.7	2.4	2.0	1.5	1.4	1.3
Minimal weight on rate adjustments	2.2	2.6	2.4	1.8	1.1	0.5	0.6	0.8
Extended Tealbook baseline	2.2	2.6	2.9	2.8	2.6	2.4	2.3	2.1
<i>Unemployment rate¹</i>								
Equal weights	4.3	4.2	4.2	4.2	4.2	4.2	4.3	4.3
Asymmetric weight on <i>ugap</i>	4.3	4.2	4.0	3.9	3.7	3.6	3.5	3.4
Large weight on inflation gap	4.3	4.2	4.1	4.1	4.1	4.2	4.2	4.3
Minimal weight on rate adjustments	4.3	4.2	4.3	4.5	4.7	4.7	4.8	4.8
Extended Tealbook baseline	4.3	4.2	4.1	3.9	3.8	3.7	3.7	3.6
<i>Total PCE prices</i>								
Equal weights	1.5	1.5	1.3	1.6	1.6	1.5	1.6	1.6
Asymmetric weight on <i>ugap</i>	1.5	1.5	1.3	1.8	1.8	1.8	1.9	1.9
Large weight on inflation gap	1.5	1.5	1.3	1.7	1.7	1.6	1.7	1.7
Minimal weight on rate adjustments	1.5	1.5	1.3	1.6	1.6	1.5	1.6	1.6
Extended Tealbook baseline	1.5	1.5	1.3	1.7	1.8	1.7	1.8	1.8
<i>Core PCE prices</i>								
Equal weights	1.3	1.4	1.3	1.6	1.6	1.7	1.7	1.7
Asymmetric weight on <i>ugap</i>	1.3	1.4	1.4	1.7	1.8	1.9	1.9	1.9
Large weight on inflation gap	1.3	1.4	1.3	1.6	1.7	1.7	1.7	1.7
Minimal weight on rate adjustments	1.3	1.4	1.3	1.6	1.6	1.6	1.7	1.7
Extended Tealbook baseline	1.3	1.4	1.4	1.7	1.8	1.8	1.9	1.9

1. Percent, average for the quarter.

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

	Nominal GDP		Real GDP		PCE price index		Core PCE price index		Unemployment rate ¹	
Interval	09/08/17	10/19/17	09/08/17	10/19/17	09/08/17	10/19/17	09/08/17	10/19/17	09/08/17	10/19/17
<i>Quarterly</i>										
2017:Q1	3.3	3.3	1.2	1.2	2.2	2.2	1.8	1.8	4.7	4.7
Q2	4.3	4.1	3.3	3.1	0.3	0.3	0.9	0.9	4.4	4.4
Q3	4.1	4.8	2.3	2.9	1.8	1.5	1.4	1.3	4.4	4.3
Q4	5.2	5.2	3.6	3.2	1.9	2.0	1.8	1.5	4.2	4.2
2018:Q1	4.5	4.4	2.5	2.5	1.6	1.6	2.0	1.8	4.1	4.1
Q2	4.6	4.5	2.3	2.4	2.1	1.9	2.1	2.0	3.9	3.9
Q3	4.3	4.3	2.2	2.3	1.9	1.7	1.9	1.8	3.8	3.8
Q4	4.2	4.1	2.2	2.2	1.9	1.7	1.9	1.7	3.8	3.7
2019:Q1	4.3	4.3	2.0	2.1	2.0	1.9	2.0	2.0	3.7	3.7
Q2	4.1	4.0	1.9	1.9	2.0	1.9	2.0	2.0	3.7	3.6
Q3	3.9	3.9	1.8	1.8	2.0	2.0	2.0	2.0	3.7	3.6
Q4	3.8	3.8	1.7	1.7	2.0	2.0	2.0	2.0	3.7	3.6
<i>Two-quarter²</i>										
2017:Q2	3.8	3.7	2.3	2.1	1.2	1.2	1.4	1.4	-0.3	-0.3
Q4	4.6	5.0	3.0	3.1	1.9	1.7	1.6	1.4	-0.2	-0.2
2018:Q2	4.5	4.5	2.4	2.4	2.5	1.9	1.7	2.0	-0.3	-0.3
Q4	4.2	4.2	2.2	2.2	2.3	1.9	1.7	1.9	-0.1	-0.2
2019:Q2	4.2	4.2	2.0	2.0	2.0	1.9	2.0	2.0	-0.1	-0.1
Q4	3.9	3.9	1.7	1.8	2.0	2.0	2.0	2.0	0.0	0.0
<i>Four-quarter³</i>										
2016:Q4	3.4	3.4	1.8	1.8	1.6	1.6	1.9	1.9	-0.3	-0.3
2017:Q4	4.2	4.3	2.6	2.6	1.5	1.5	1.4	1.4	-0.5	-0.5
2018:Q4	4.4	4.3	2.3	2.4	1.9	1.7	1.9	1.8	-0.4	-0.5
2019:Q4	4.0	4.0	1.9	1.9	2.0	2.0	2.0	2.0	-0.1	-0.1
2020:Q4	3.8	3.7	1.6	1.6	2.0	2.0	2.0	2.0	0.0	0.0
<i>Annual</i>										
2016	2.8	2.8	1.5	1.5	1.2	1.2	1.8	1.8	4.9	4.9
2017	4.0	4.0	2.3	2.3	1.7	1.6	1.5	1.5	4.4	4.4
2018	4.5	4.6	2.7	2.7	1.7	1.6	1.8	1.7	3.9	3.9
2019	4.2	4.2	4.2	2.0	2.1	1.9	2.0	1.9	3.7	3.6
2020	3.9	3.8	1.7	1.7	1.7	2.0	2.0	2.0	3.7	3.6

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

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

Item	2017			2018			2019			2017 ¹			2018 ¹			2019 ¹		
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2017	2018 ¹	2019 ¹	2020 ¹			
Real GDP <i>Previous Tealbook</i>	3.1 3.3	2.9 2.3	3.2 3.6	2.5 2.3	2.4 2.3	2.3 2.2	2.2 2.2	2.1 2.0	1.9 1.9	1.8 1.8	1.7 1.7	2.6 2.6	2.4 2.3	1.9 1.9	1.6 1.6			
Final sales <i>Previous Tealbook</i>	3.0 3.2	2.5 2.1	3.2 3.4	2.3 2.4	2.4 2.4	2.3 2.3	2.6 2.4	2.1 2.2	1.8 2.2	1.8 2.2	1.8 2.1	2.8 2.9	2.4 2.4	1.9 1.9	1.6 1.6			
Priv. dom. final purch. <i>Previous Tealbook</i>	3.3 3.5	2.4 2.0	3.3 3.8	2.9 2.9	2.8 2.8	2.8 2.6	2.5 2.5	2.3 2.2	2.2 2.2	2.2 2.1	2.1 2.0	3.0 3.1	2.7 2.7	2.2 2.1	1.9 1.9			
Personal cons. expend. <i>Previous Tealbook</i>	3.3 3.4	2.3 2.0	3.3 3.3	2.8 2.7	2.6 2.5	2.6 2.5	2.5 2.5	2.4 2.3	2.4 2.3	2.4 2.3	2.3 2.3	2.3 2.2	2.7 2.7	2.6 2.6	2.3 2.3			
Durables	7.6	8.5	4.9	3.1	4.7	4.3	3.8	1.9	1.8	1.8	1.7	5.2	4.0	1.8	1.6			
Nondurables	4.2	1.1	3.9	2.8	2.8	2.8	2.7	2.5	2.4	2.4	2.4	2.6	2.8	2.4	2.4	2.2		
Services	2.3	1.7	2.8	2.7	2.2	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.2		
Residential investment <i>Previous Tealbook</i>	-7.3 -6.3	-6.2 -4.2	-6.6 -1.8	-1.6 2.0	5.5 3.2	6.2 4.4	2.4 3.9	2.0 2.2	1.8 2.6	2.7 2.8	2.6 2.6	-1.0 .4	3.9 3.4	2.3 2.5	2.7 3.7			
Nonres. priv. fixed invest. <i>Previous Tealbook</i>	6.7 7.3	5.6 4.0	5.0 7.2	3.8 4.3	3.4 3.9	2.6 2.3	2.4 2.1	2.0 1.4	1.7 1.4	1.3 1.2	1.0 .9	6.1 6.4	3.1 3.1	1.5 1.2	.7 .5			
Equipment & intangibles <i>Previous Tealbook</i>	6.6 7.4	8.4 7.1	7.8 8.7	4.6 5.3	3.4 4.1	2.9 2.8	2.6 2.2	2.3 1.7	2.1 1.9	1.8 1.7	1.5 1.4	7.0 7.0	3.4 3.6	1.9 1.7	1.2 1.1			
Nonres. structures <i>Previous Tealbook</i>	7.0 7.2	-3.1 -5.8	-4.0 2.2	1.1 .9	3.4 3.1	1.7 .8	1.8 1.5	1.0 .4	.4 -.1	-.3 -.6	-.3 -.9	3.4 4.3	2.0 1.6	.1 .1	-1.2 -1.2			
Net exports ² <i>Previous Tealbook</i> ²	-614 -616	-586 -602	-579 -603	-591 -611	-596 -618	-601 -606	-589 -598	-591 -609	-602 -616	-610 -621	-616 -621	-600 -611	-594 -613	-605 -611	-645 -649			
Exports	3.5	2.8	4.0	4.7	4.7	4.9	4.8	4.5	4.1	4.1	3.2	4.4	4.8	4.0	2.9			
Imports	1.5	-1.7	2.2	5.4	4.5	4.5	2.2	3.8	4.8	4.3	3.5	1.5	4.1	4.1	3.7			
Gov't. cons. & invest. <i>Previous Tealbook</i>	-2 -1	-1.0 .6	.8 1.0	.4 .2	.3 .5	.0 .5	1.1 1.3	1.0 1.3	1.0 1.5	.5 1.5	.5 1.5	.8 1.3	.2 1.3	.4 1.1	.8 .7			
Federal	1.9	.9	-.7	-1.4	-1.2	-1.3	1.3	1.0	.6	.4	.7	-.1	-.6	.7	.6			
Defense	4.7	1.6	-.4	-1.0	-.1	-.4	2.9	1.9	1.5	1.5	1.3	.6	-.3	1.5	.8			
Nonddefense	-1.9 -1.5	-2.1	-1.1 1.8	1.5	1.2	1.2 .7	-2.6 .9	-3 .9	-.7 1.0	-1.2 .6	-.2 .9	-1.1 -.3	-2.0 1.1	-.6 -.3	.4 .9			
State & local																		
Change in priv. inventories ² <i>Previous Tealbook</i> ²	5 6	24 15	26 23	36 31	37 29	40 12	25 4	23 11	27 10	29 7	25 11	14 7	35 11	26 24	29 8	29 11		

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	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Real GDP <i>Previous Tealbook</i>	1.7	1.3	2.7	2.7	2.0	1.8	2.6	2.4	1.9	1.6
Final sales <i>Previous Tealbook</i>	1.5	1.7	2.0	2.9	2.0	1.9	2.8	2.4	1.9	1.6
Priv. dom. final purch. <i>Previous Tealbook</i>	2.6	2.3	2.6	4.1	2.9	2.5	3.0	2.7	2.2	1.9
Personal cons. expend. <i>Previous Tealbook</i>	1.5	1.3	2.0	3.6	3.0	2.8	2.7	2.6	2.3	2.1
Durables	1.5	1.3	2.0	3.6	3.0	2.8	2.7	2.6	2.3	2.1
Nondurables	4.8	7.2	5.2	8.7	6.4	7.0	5.2	4.0	1.8	1.6
Services	.4	.8	2.6	2.8	2.8	2.5	2.6	2.8	2.4	2.2
Residential investment <i>Previous Tealbook</i>	6.0	15.7	6.8	6.3	10.3	2.5	-1.0	3.9	2.3	2.7
Nonres. priv. fixed invest. <i>Previous Tealbook</i>	9.0	5.2	4.8	6.1	.3	.7	6.1	3.1	1.5	.7
Equipment & intangibles <i>Previous Tealbook</i>	9.0	5.2	4.8	6.1	.3	.7	6.4	3.1	1.2	.5
Nonres. structures <i>Previous Tealbook</i>	8.0	4.1	5.8	8.8	-9.1	3.5	3.4	2.0	1	-1.2
Net exports ¹ <i>Previous Tealbook</i>	-459	-447	-405	-428	-545	-586	-600	-594	-605	-645
Exports	4.2	2.2	5.9	3.0	-1.8	.6	4.4	4.8	4.0	2.9
Imports	3.5	.3	2.5	6.2	2.9	2.7	1.5	4.1	4.1	3.7
Gov't. cons. & invest. <i>Previous Tealbook</i>	-3.0	-2.2	-2.8	.5	1.6	.4	-2	4	.8	.8
Federal	-3.0	-2.2	-2.8	.5	1.6	.4	-2	4	.7	.6
Defense	-4.0	-2.1	-6.7	-1.2	1.2	-.3	-1	-.6	.7	.6
Nondefense	-4.1	-3.9	-7.1	-4.0	.0	-1.4	.6	.3	1.5	.8
State & local	-3.9	1.0	-6.0	3.5	2.9	1.2	-1.1	-2.0	-6	.4
Change in priv. inventories ¹ <i>Previous Tealbook</i>	38	55	79	68	101	33	14	35	26	29
	38	55	79	68	101	33	11	24	8	11

1. Billions of chained (2009) dollars.

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

Item	2017			2018			2019			2017 ¹			2018 ¹			2019 ¹		
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2017 ¹	2018 ¹	2019 ¹	2018 ¹	2019 ¹	2020 ¹	
Real GDP <i>Previous Tealbook</i>	3.1	2.9	3.2	2.5	2.4	2.3	2.2	2.1	1.9	1.8	1.7	2.6	2.4	1.9	1.6	1.6	1.6	
Final sales <i>Previous Tealbook</i>	2.9	2.5	3.2	2.3	2.4	2.3	2.6	2.1	1.8	1.8	1.7	2.6	2.4	1.9	1.6	1.6	1.6	
Priv. dom. final purch. <i>Previous Tealbook</i>	3.2	2.1	3.4	2.4	2.4	2.3	2.4	2.2	1.8	1.8	1.8	2.9	2.4	1.9	1.6	1.6	1.6	
Personal cons. expend. <i>Previous Tealbook</i>	2.2	1.6	2.3	1.9	1.8	1.8	1.7	1.6	1.6	1.6	1.6	1.5	1.8	1.8	1.6	1.6	1.5	
Durables	2.4	1.4	2.3	1.9	1.8	1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.8	1.8	1.6	1.6	1.5	
Nondurables	.6	.6	.4	.2	.3	.3	.3	.1	.1	.1	.1	.4	.3	.3	.1	.1	.1	
Services	.6	.2	.6	.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.3	.3	.3	.3	
Residential investment <i>Previous Tealbook</i>	-3	-2	0	.1	.2	.2	.1	.1	.1	.1	.1	.0	.0	.1	.1	.1	.1	
Nonres. priv. fixed invest. <i>Previous Tealbook</i>	.8	.7	.6	.5	.4	.3	.3	.3	.2	.2	.2	.1	.1	.8	.4	.2	.1	
Equipment & intangibles <i>Previous Tealbook</i>	.9	.5	.9	.5	.5	.3	.3	.2	.2	.2	.2	.1	.1	.8	.4	.2	.1	
Nonres. structures <i>Previous Tealbook</i>	.6	.8	.8	.4	.3	.3	.3	.2	.2	.2	.2	.1	.1	.7	.3	.2	.1	
Net exports <i>Previous Tealbook</i>	.7	.7	.8	.5	.4	.3	.2	.2	.2	.2	.2	.1	.1	.7	.4	.2	.1	
Exports	.2	-.1	-.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Imports	.2	-.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Gov't. cons. & invest. <i>Previous Tealbook</i>	.2	-.2	.2	-.2	-.1	-.1	0	0	0	0	0	0	0	0	0	0	0	
Federal Defense	.4	.3	.5	.6	.6	.6	.6	.5	.5	.5	.5	.4	.5	.6	.5	.4	.4	
Nondefense	-.2	.3	-.3	-.8	-.7	-.7	-.3	-.6	-.7	-.6	-.5	-.5	-.2	-.6	-.5	-.5	-.5	
State & local																		
Change in priv. inventories <i>Previous Tealbook</i>	.1	.4	.1	.2	.0	.1	-.3	-.1	0	0	0	0	0	0	0	0	0	
	.2	.2	.2	.2	-.1	-.1	-.3	-.2	0	0	0	0	0	0	0	0	0	

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)

Class II FOMC – Restricted (FR)

Authorized for Public Release

October 20, 2017

Item	2017				2018				2019				2020 ¹			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	2017 ¹	2018 ¹	2019 ¹	2020 ¹
GDP chain-wt. price index	1.0	1.8	1.9	1.9	2.0	1.9	1.8	2.2	2.1	2.1	2.0	1.7	1.9	2.1	2.1	2.1
<i>Previous Tealbook</i>	1.0	1.7	1.5	1.9	2.2	2.0	2.0	2.2	2.1	2.1	2.0	1.5	1.9	2.0	2.0	2.2
PCE chain-wt. price index	.3	1.5	2.0	1.6	1.9	1.7	1.7	1.9	1.9	2.0	2.0	1.5	1.7	2.0	2.0	2.0
<i>Previous Tealbook</i>	.3	1.8	1.9	1.6	2.1	1.9	1.9	2.0	2.0	2.0	2.0	1.5	1.9	2.0	2.0	2.0
Energy	-16.0	8.5	14.0	-4.0	-1.7	-.5	-.1	.1	.0	.2	.3	4.6	-1.6	.2	.7	.7
<i>Previous Tealbook</i>	-16.0	14.0	3.1	-6.7	1.5	1.2	1.1	.9	.8	1.0	.9	3.4	-.8	.9	1.2	1.2
Food	2.0	.2	1.5	2.0	2.1	2.1	2.3	2.3	2.3	2.3	2.3	1.0	2.1	2.3	2.2	2.2
<i>Previous Tealbook</i>	2.0	.9	1.9	2.3	2.1	2.1	2.3	2.3	2.3	2.3	2.3	1.3	2.2	2.3	2.2	2.2
Ex. food & energy	.9	1.3	1.5	1.8	2.0	1.8	1.7	2.0	2.0	2.0	2.0	1.4	1.8	2.0	2.0	2.0
<i>Previous Tealbook</i>	.9	1.4	1.8	2.0	2.1	1.9	1.9	2.0	2.0	2.0	2.0	1.5	1.9	2.0	2.0	2.0
Ex. food & energy, market based	.3	1.0	1.5	1.6	1.8	1.6	1.5	1.8	1.8	1.8	1.8	1.2	1.6	1.8	1.9	1.9
<i>Previous Tealbook</i>	.2	1.1	1.8	1.7	1.9	1.6	1.6	1.8	1.8	1.8	1.8	1.3	1.7	1.8	1.9	1.9
CPI	-3	2.0	2.8	1.8	2.1	2.1	2.1	2.3	2.3	2.3	2.3	1.9	2.1	2.3	2.4	2.4
<i>Previous Tealbook</i>	-3	2.1	2.4	1.8	2.4	2.3	2.3	2.4	2.4	2.4	2.4	1.8	2.2	2.4	2.4	2.4
Ex. food & energy	-.6	1.7	2.0	2.2	2.4	2.3	2.2	2.4	2.4	2.4	2.4	2.5	1.7	2.3	2.4	2.5
<i>Previous Tealbook</i>	-.6	1.5	2.3	2.3	2.5	2.3	2.3	2.5	2.5	2.5	2.5	2.5	1.7	2.4	2.5	2.5
ECI, hourly compensation ²	2.2	2.3	2.4	2.6	2.4	2.5	2.5	2.6	2.6	2.6	2.6	2.5	2.5	2.6	2.6	2.6
<i>Previous Tealbook</i>	2.2	2.3	2.4	2.6	2.4	2.5	2.5	2.6	2.6	2.6	2.6	2.5	2.5	2.6	2.6	2.6
Business sector	1.3	4.3	.1	1.1	1.0	1.0	.9	1.1	.9	.7	.7	1.2	1.0	.8	.9	.9
Output per hour	1.6	2.2	1.1	1.3	.9	.8	.8	.9	1.0	.9	.9	1.0	.9	.9	1.0	1.0
<i>Previous Tealbook</i>	1.8	3.4	3.3	3.6	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.2	3.5	3.6	3.6	3.6
Compensation per hour	1.8	3.0	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.1	3.5	3.6	3.6	3.6
<i>Previous Tealbook</i>	1.8	-.8	3.2	2.5	2.4	2.4	2.6	2.6	2.7	2.9	2.9	2.0	2.5	2.8	2.7	2.7
Unit labor costs	.5	.2	.8	2.3	2.2	2.6	2.7	2.8	2.7	2.6	2.7	2.7	2.1	2.6	2.7	2.5
<i>Previous Tealbook</i>	.2	1.5	3.2	.8	1.0	.8	.8	.8	.7	.7	.7	1.8	.9	.7	.7	.7
Core goods imports chain-wt. price index ³	2.5	3.6	4.0	1.9	1.1	.8	.7	.7	.7	.7	.6	2.5	1.1	.7	.7	.7
<i>Previous Tealbook</i>	2.5	3.6	4.0	1.9	1.1	.8	.7	.7	.7	.7	.6	2.5	1.1	.7	.7	.7

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	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
GDP chain-wt. price index <i>Previous Tealbook</i>	1.9 1.9	1.9 1.9	1.6 1.6	1.6 1.6	1.0 1.0	1.5 1.5	1.7 1.5	1.9 2.0	2.1 2.1	2.1 2.2
PCE chain-wt. price index <i>Previous Tealbook</i>	2.7 2.7	1.8 1.8	1.2 1.2	1.2 1.2	.4 .4	1.6 1.6	1.5 1.5	1.7 1.9	2.0 2.0	2.0 2.0
Energy <i>Previous Tealbook</i>	12.0 12.0	2.3 2.3	-2.5 -2.5	-6.5 -6.5	-16.2 -16.2	2.2 2.2	4.6 3.4	-1.6 -.8	.2 .9	.7 1.2
Food <i>Previous Tealbook</i>	5.1 5.1	1.2 1.2	.7 .7	2.6 2.6	.3 .3	-1.7 -1.7	1.0 1.3	2.1 2.2	2.3 2.3	2.2 2.2
Ex. food & energy <i>Previous Tealbook</i>	1.9 1.9	1.8 1.8	1.5 1.5	1.5 1.5	1.3 1.3	1.9 1.9	1.4 1.5	1.8 1.9	2.0 2.0	2.0 2.0
Ex. food & energy, market based <i>Previous Tealbook</i>	1.9 1.9	1.5 1.5	1.1 1.1	1.2 1.2	1.1 1.1	1.5 1.5	1.2 1.3	1.6 1.7	1.8 1.8	1.9 1.9
CPI <i>Previous Tealbook</i>	3.3 3.3	1.9 1.9	1.2 1.2	1.2 1.2	.4 .4	1.8 1.8	1.9 1.8	2.1 2.2	2.3 2.4	2.4 2.4
Ex. food & energy <i>Previous Tealbook</i>	2.2 2.2	1.9 1.9	1.7 1.7	1.7 1.7	2.0 2.0	2.2 2.2	1.7 1.7	2.3 2.4	2.4 2.5	2.4 2.5
ECI, hourly compensation ¹ <i>Previous Tealbook</i>	2.2 2.2	1.8 1.8	2.0 2.0	2.3 2.3	1.9 1.9	2.2 2.2	2.5 2.5	2.5 2.5	2.6 2.6	2.6 2.6
Business sector										
Output per hour <i>Previous Tealbook</i>	-1 -1	-.1 -.1	1.9 1.9	.1 .1	.7 .7	1.0 1.0	1.2 1.0	1.0 .9	.8 .9	.9 1.0
Compensation per hour <i>Previous Tealbook</i>	.5 .5	5.9 5.9	-1 -2	2.9 2.9	3.1 3.1	-.1 -.1	3.2 3.1	3.5 3.1	3.6 3.5	3.6 3.6
Unit labor costs <i>Previous Tealbook</i>	.6 .6	6.0 6.0	-2.0 -2.0	2.8 2.7	2.4 2.4	-1.2 -1.2	2.0 2.1	2.5 2.6	2.8 2.7	2.7 2.5
Core goods imports chain-wt. price index ² <i>Previous Tealbook</i>	4.3 4.3	.1 .1	-1.5 -1.5	.3 .3	-3.7 -3.7	-.2 -.2	1.8 2.5	.9 1.1	.7 .7	.7 .7

1. Private-industry workers.

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

Other Macroeconomic Indicators

Item	2017				2018				2019				2017 ¹	2018 ¹	2019 ¹	2020 ¹
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1				
<i>Employment and production</i>																
Nonfarm payroll employment ²	187	91	243	179	179	179	179	154	144	134	119	172	179	138	109	109
Unemployment rate ³	4.4	4.3	4.2	4.1	3.9	3.8	3.7	3.6	3.6	3.6	3.6	4.2	3.7	3.6	3.6	3.6
<i>Previous Tealbook</i> ³	4.4	4.4	4.2	4.1	3.9	3.8	3.7	3.7	3.7	3.7	3.7	4.2	3.8	3.7	3.7	3.7
Natural rate of unemployment ³	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
<i>Previous Tealbook</i> ³	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Employment-to-Population Ratio ³	60.1	60.2	60.2	60.2	60.3	60.3	60.3	60.3	60.3	60.3	60.3	60.2	60.3	60.3	60.1	60.1
Employment-to-Population Trend ³	59.7	59.7	59.6	59.6	59.5	59.5	59.4	59.4	59.3	59.3	59.2	59.6	59.4	59.2	59.0	59.0
Output gap ⁴	.7	1.0	1.4	1.6	1.8	2.0	2.1	2.2	2.2	2.3	2.3	1.4	2.1	2.3	2.1	2.1
<i>Previous Tealbook</i> ⁴	.8	.9	1.4	1.6	1.8	1.9	2.1	2.1	2.2	2.2	2.2	1.4	2.1	2.2	2.1	2.0
Industrial production ⁵	5.6	-1.5	4.3	3.1	2.4	1.0	1.1	1.1	1.2	.9	.7	.6	2.4	1.9	.8	.5
<i>Previous Tealbook</i> ⁵	5.2	-.3	4.4	2.0	1.6	.5	1.1	1.2	1.4	1.1	.7	.7	2.9	1.3	1.1	.5
Manufacturing industr. prod. ⁵	2.5	-2.2	2.7	2.1	2.0	1.3	.9	.7	.9	.7	.3	.3	1.3	1.6	.6	.2
<i>Previous Tealbook</i> ⁵	1.9	-.5	2.8	1.2	1.8	1.1	.7	.9	1.5	1.1	.5	.6	1.6	1.2	1.0	.3
Capacity utilization rate - mfg. ³	75.7	75.2	75.6	75.8	76.1	76.2	76.2	76.3	76.4	76.4	76.4	75.6	76.2	76.4	76.4	76.4
<i>Previous Tealbook</i> ³	75.6	75.4	75.8	75.9	76.1	76.2	76.2	76.3	76.5	76.6	76.6	75.8	76.2	76.6	76.7	76.7
Housing starts ⁶	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.3	1.3	1.3
Light motor vehicle sales ⁶	16.8	17.1	17.4	16.9	16.9	16.9	16.8	16.8	16.7	16.7	16.7	17.1	16.9	16.7	16.6	16.6
<i>Income and saving</i>																
Nominal GDP ⁵	4.1	4.8	5.2	4.4	4.5	4.3	4.1	4.3	4.0	3.9	3.8	4.3	4.3	4.0	3.7	3.7
Real disposable pers. income ⁵	3.3	.7	2.0	5.3	2.5	1.8	2.6	3.4	1.8	1.6	1.9	2.2	3.0	2.2	1.8	1.8
<i>Previous Tealbook</i> ⁵	3.3	1.4	2.1	4.4	2.0	2.2	2.4	3.4	1.8	1.8	1.8	2.4	2.7	2.2	1.7	1.7
Personal saving rate ³	3.8	3.4	3.1	3.7	3.7	3.6	3.6	3.8	3.7	3.6	3.5	3.5	3.1	3.6	3.1	3.1
<i>Previous Tealbook</i> ³	3.7	3.5	3.3	3.7	3.5	3.5	3.5	3.7	3.6	3.5	3.4	3.4	3.3	3.5	3.4	3.0
Corporate profits ⁷	2.8	20.9	8.1	3.3	5.7	2.8	1.0	1.8	3.0	3.7	3.1	5.4	3.2	2.9	3.7	3.7
Profit share of GNP ³	10.9	11.3	11.4	11.4	11.4	11.4	11.3	11.3	11.2	11.2	11.2	11.4	11.3	11.2	11.2	11.2
Gross national saving rate ³	17.4	17.7	17.5	17.4	17.5	17.5	17.4	17.3	17.3	17.2	17.2	17.5	17.4	17.2	16.8	16.8
Net national saving rate ³	2.2	2.8	2.5	2.5	2.6	2.4	2.4	2.2	2.2	2.0	1.9	2.5	2.4	1.9	1.5	1.5

1. Change from fourth quarter of previous year to fourth quarter of year indicated, unless otherwise indicated.

2. Average monthly change, thousands.

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	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<i>Employment and production</i>										
Nonfarm payroll employment ¹	174	179	192	250	226	187	172	179	138	109
Unemployment rate ²	8.7	7.8	7.0	5.7	5.0	4.7	4.2	3.7	3.6	3.6
<i>Previous Tealbook</i> ²	8.7	7.8	7.0	5.7	5.0	4.7	4.2	3.8	3.7	3.7
Natural rate of unemployment ²	5.9	5.6	5.4	5.1	4.9	4.8	4.8	4.8	4.8	4.8
<i>Previous Tealbook</i> ²	5.9	5.6	5.4	5.1	4.9	4.8	4.8	4.8	4.8	4.8
Employment-to-Population Ratio ²	58.5	58.7	58.5	59.2	59.4	59.7	60.2	60.3	60.3	60.1
Employment-to-Population Trend ²	60.7	60.3	60.2	60.1	59.9	59.8	59.6	59.4	59.2	59.0
Output gap ³	-3.7	-3.7	-2.5	-9	-1	3	1.4	2.1	2.3	2.1
<i>Previous Tealbook</i> ³	-3.7	-3.7	-2.5	-9	-1	3	1.4	2.1	2.2	2.0
Industrial production ⁴	2.8	2.3	2.2	3.4	-2.7	-1	2.4	1.9	.8	.5
<i>Previous Tealbook</i> ⁴	2.8	2.3	2.2	3.4	-2.7	-1	2.9	1.3	1.1	.5
Manufacturing industr. prod. ⁴	2.5	1.7	.9	1.5	-6	3	1.3	1.6	.6	.2
<i>Previous Tealbook</i> ⁴	2.5	1.7	.9	1.5	-6	3	1.6	1.2	1.0	.3
Capacity utilization rate - mfg. ²	74.4	74.6	74.7	75.9	75.4	75.1	75.6	76.2	76.4	76.4
<i>Previous Tealbook</i> ²	74.4	74.6	74.7	75.9	75.4	75.1	75.8	76.2	76.6	76.7
Housing starts ⁵	.6	.8	.9	1.0	1.1	1.2	1.2	1.3	1.3	1.3
Light motor vehicle sales ⁵	12.7	14.4	15.5	16.5	17.4	17.5	17.1	16.9	16.7	16.6
<i>Income and saving</i>										
Nominal GDP ⁴	3.6	3.2	4.3	4.3	3.1	3.4	4.3	4.3	4.0	3.7
Real disposable pers. income ⁴	1.7	5.1	-2.8	4.9	3.2	2	2.2	3.0	2.2	1.8
<i>Previous Tealbook</i> ⁴	1.7	5.1	-2.8	4.9	3.2	2	2.4	2.7	2.2	1.7
Personal saving rate ²	5.8	9.2	4.7	5.9	6.1	3.6	3.1	3.6	3.5	3.1
<i>Previous Tealbook</i> ²	5.8	9.2	4.7	5.9	6.1	3.6	3.3	3.5	3.4	3.0
Corporate profits ⁶	6.8	.6	4.7	7.4	-11.1	8.7	5.4	3.2	2.9	3.7
Profit share of GNP ²	12.3	12.0	12.0	12.4	10.7	11.3	11.4	11.3	11.2	11.2
Gross national saving rate ²	16.1	18.0	18.2	19.5	19.0	17.2	17.5	17.4	17.2	16.8
Net national saving rate ²	.8	2.9	3.1	4.7	4.1	2.1	2.5	2.4	1.9	1.5

1. Average monthly change, thousands.

2. Percent; values are for the fourth quarter of the year indicated.

3. Percent difference between actual and potential GDP; a negative number indicates that the economy is operating below potential.

4. Percent change.

5. Level, millions; values are annual averages.

6. Percent change, with inventory valuation and capital consumption adjustments.

Staff Projections of Government-Sector Accounts and Related Items

Item	2015	2016	2017	2018	2019	2020	2017				
							Q1	Q2	Q3	Q4	
Unified federal budget¹											
Receipts	3,250	3,268	3,331	3,394	3,616	3,809	732	1,035	823	767	
Outlays	3,688	3,853	3,966	4,119	4,392	4,652	1,049	1,031	935	1,013	
Surplus/deficit	-438	585	-636	-724	-776	-843	-317	4	-113	-246	
<i>Percent of GDP</i>					Percent of GDP						
Surplus/deficit	-2.4	-3.2	-3.3	-3.6	-3.7	-3.9	-6.7	.1	-2.3	-5.0	
<i>Previous Tealbook</i>	-2.4	-3.2	-3.4	-3.8	-3.9	-4.1	-6.7	.1	-2.3	-5.0	
Primary surplus/deficit	-1.2	-1.9	-1.9	-2.1	-1.9	-1.7	-5.1	1.8	-1.5	-3.1	
Net interest	1.2	1.3	1.4	1.6	1.8	2.2	1.5	1.7	.9	1.9	
Cyclically adjusted surplus/deficit	-1.9	-2.8	-3.1	-4.0	-4.5	-4.7	-6.3	.2	-2.4	-5.2	
Federal debt held by public	72.9	76.7	76.5	77.2	78.5	80.0	75.3	74.6	75.3	75.0	
Government in the NIPA²											
Purchases	1.6	.4	-.2	.4	.8	.8	-.6	-.2	-1.0	.8	
Consumption	1.9	.6	-.2	.0	.4	.5	-.7	.4	.5	.1	
Investment	.4	-.5	-.5	2.4	2.3	2.0	4.1	-3.2	-7.0	4.8	
State and local construction	.0	-2.3	-8.3	2.2	1.0	1.0	-2.3	-17.8	-20.0	10.0	
Real disposable personal income	3.2	.2	2.2	3.0	2.2	1.8	2.9	3.3	.7	2.0	
Contribution from transfers ³	.7	.3	.4	.9	.8	.7	.6	.1	.3	.5	
Contribution from taxes ³	-1.4	.2	-.9	-.3	-.7	-.6	-.6	-.1	-1.1	-.7	
Government employment					Average net change in monthly payrolls, thousands						
Federal	3	4	-1	0	0	0	-2	-1	-1	0	
State and local	10	13	6	9	9	9	6	4	7	6	
Fiscal indicators²											
Fiscal effect (FE) ⁴	.3	.5	-.3	.1	.4	.4	-.2	-.1	-.6	-.2	
Discretionary policy actions (FI)	.4	.2	.0	.3	.3	.2	-.2	.0	-.2	.2	
<i>Previous Tealbook</i>	.4	.2	.0	.3	.3	.2	-.2	.0	.1	.2	
Federal purchases	.1	.0	.0	.0	.0	.0	-.2	.1	.1	.0	
State and local purchases	.2	.1	.0	.1	.1	.1	.1	-.2	-.2	.2	
Taxes and transfers	.1	.1	.0	.2	.2	.1	-.1	.0	.0	.1	
Cyclical	-.3	.0	-.2	-.3	-.1	.0	.0	-.2	-.4	-.4	
Other	.2	.3	.0	.2	.2	.2	.0	.2	-.1	.0	

1. Annual values stated on a fiscal year basis. Quarterly values not seasonally adjusted.

2. Annual values refer to the change from fourth quarter of previous year to fourth quarter of year indicated.

3. Percentage point contribution to change in real disposable personal income, annual basis.

4. The FE measure captures the total contribution of the government sector to the growth of real GDP (excluding multiplier effects). It equals the sum of the direct contributions to real GDP growth from all changes in federal purchases and state and local purchases, plus the estimated contribution to real household consumption and business investment that is induced by changes in transfer and tax policies. FI (fiscal impetus) is the portion of FE attributable to discretionary fiscal policy actions (for example, a legislated change in tax revenues).

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

Measure and country	2017				2018				Projected 2019			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Real GDP¹												
Total foreign	3.0	3.2	2.7	2.8	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.7
<i>Previous Tealbook</i>	3.0	3.3	2.8	2.8	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7
Advanced foreign economies	2.6	3.3	2.3	2.0	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.1
Canada	3.7	4.5	2.4	2.2	1.9	1.9	1.8	1.7	1.7	1.7	1.7	1.7
Japan	1.2	2.5	1.6	1.5	1.2	1.1	1.0	.8	.8	.8	.8	.4
United Kingdom	1.0	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Euro area	2.2	2.6	2.4	2.0	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7
Germany	2.9	2.5	2.4	2.0	1.6	1.5	1.5	1.4	1.4	1.4	1.4	1.4
Emerging market economies	3.4	3.1	3.1	3.6	3.5	3.5	3.5	3.6	3.6	3.5	3.5	3.5
Asia	5.4	4.8	4.8	5.0	4.8	4.7	4.7	4.6	4.6	4.5	4.5	4.5
Korea	4.3	2.4	3.4	3.3	3.1	3.1	3.1	3.1	3.0	3.0	3.0	3.0
China	7.1	6.8	6.6	6.6	6.3	6.3	6.2	6.1	6.1	6.0	6.0	5.9
Latin America	2.3	2.0	1.5	2.4	2.5	2.5	2.5	2.5	2.7	2.6	2.7	2.7
Mexico	2.7	2.3	1.5	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7
Brazil	4.2	1.0	1.6	1.9	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2
<i>Consumer prices²</i>												
Total foreign	2.8	2.0	2.2	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4
<i>Previous Tealbook</i>	2.9	2.0	1.8	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Advanced foreign economies	2.3	.3	1.1	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	2.6
Canada	2.6	.1	1.2	1.9	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.0
Japan	-.1	-.3	.5	1.1	.8	.7	.8	.9	.9	1.0	1.0	6.3
United Kingdom	3.8	3.0	2.2	2.6	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.1
Euro area	2.8	.1	1.0	1.5	1.5	1.4	1.4	1.5	1.5	1.5	1.6	1.7
Germany	2.0	.2	1.7	1.8	1.9	1.8	1.8	1.9	2.0	2.0	2.1	2.2
Emerging market economies	3.2	3.3	2.9	3.0	3.1	3.1	3.1	3.1	3.0	3.0	3.0	3.0
Asia	.8	1.7	2.1	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Korea	2.6	.7	2.2	2.7	3.1	3.2	3.2	3.2	3.1	3.0	3.0	3.0
China	-.6	2.3	2.0	2.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Latin America	9.4	7.1	5.3	4.0	3.9	3.8	3.8	3.6	3.5	3.5	3.5	3.5
Mexico	9.9	6.9	5.1	3.4	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Brazil	3.2	2.3	2.3	3.8	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3

¹Foreign GDP aggregates calculated using shares of U.S. exports.

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

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

Class II FOMC – Restricted (FR)

Authorized for Public Release

October 20, 2017

Measure and country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Projected
Real GDP¹											
Total foreign	3.2	2.3	3.0	2.6	2.0	2.4	2.9	2.6	2.6	2.6	2.6
<i>Previous Tealbook</i>	3.2	2.3	3.0	2.6	2.0	2.4	3.0	2.6	2.6	2.6	2.6
Advanced foreign economies	1.8	3	2.5	1.8	1.2	1.9	2.6	1.7	1.6	1.7	1.7
Canada	3.1	.7	3.6	2.2	.4	2.0	3.2	1.8	1.7	1.7	1.7
Japan	.2	.3	2.8	.5	1.1	1.7	1.7	1.0	.1	.6	.6
United Kingdom	1.3	1.5	2.6	3.3	2.1	1.6	1.2	1.5	1.5	1.7	1.7
Euro area	.5	-1.1	.8	1.5	2.0	1.9	2.3	1.8	1.7	1.7	1.7
Germany	2.4	.2	1.6	1.9	1.3	1.9	2.4	1.5	1.4	1.4	1.4
Emerging market economies	4.6	4.3	3.4	3.3	2.8	2.9	3.3	3.5	3.5	3.6	3.6
Asia	5.1	5.7	5.4	5.0	4.4	4.8	5.0	4.7	4.5	4.4	4.4
Korea	2.9	2.1	3.5	2.8	3.3	2.4	3.4	3.1	3.0	2.9	2.9
China	8.7	8.0	7.6	7.1	6.8	6.8	6.8	6.2	6.0	5.8	5.8
Latin America	4.1	3.4	1.6	1.9	1.3	1.2	2.1	2.5	2.7	2.9	2.9
Mexico	4.2	3.4	1.0	2.7	2.5	2.3	2.3	2.6	2.7	2.9	2.9
Brazil	2.7	2.5	2.6	-.2	-5.7	-2.4	2.2	2.0	2.2	2.2	2.2
<i>Consumer prices²</i>											
Total foreign	3.4	2.3	2.4	2.0	1.4	1.9	1.9	2.4	2.4	2.5	2.4
<i>Previous Tealbook</i>	3.4	2.3	2.4	2.0	1.4	1.9	2.3	2.3	2.4	2.5	2.5
Advanced foreign economies	2.2	1.3	1.0	1.2	.5	.9	1.3	1.6	1.9	1.7	1.7
Canada	2.7	1.0	1.0	2.0	1.3	1.4	1.4	2.2	2.1	2.0	2.0
Japan	-.3	-2	1.4	2.6	.2	.3	.3	.8	2.3	1.0	1.0
United Kingdom	4.6	2.6	2.1	.9	.1	1.2	2.9	2.2	2.1	2.0	2.0
Euro area	2.9	2.3	.8	.2	.7	.7	1.4	1.4	1.6	1.7	1.7
Germany	2.6	1.9	1.4	.4	.2	1.0	1.4	1.8	2.1	2.3	2.3
Emerging market economies	4.3	3.1	3.4	2.7	2.1	2.7	3.1	3.1	3.0	3.0	3.0
Asia	4.4	2.6	3.1	1.8	1.5	2.0	1.8	2.7	2.7	2.7	2.7
Korea	3.9	1.7	1.1	1.0	.9	1.5	2.0	3.1	3.0	3.0	3.0
China	4.6	2.1	2.9	1.5	1.5	2.2	1.5	2.5	2.5	2.5	2.5
Latin America	4.1	4.4	4.1	4.8	3.4	4.3	6.4	3.9	3.5	3.5	3.5
Mexico	3.5	4.1	3.6	4.2	2.3	3.2	6.3	3.2	3.2	3.2	3.2
Brazil	6.7	5.6	5.8	6.5	10.4	7.1	2.9	4.3	4.3	4.3	4.3

¹Foreign GDP aggregates calculated using shares of U.S. exports.

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

**U.S. Current Account
Quarterly Data**

	<i>Billions of dollars, s.a.a.r.</i>								<i>Projected</i>			
	2017				2018				2019			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
U.S. current account balance												
<i>Previous Tealbook</i>	-454.1	-492.5	-454.8	-479.4	-528.1	-510.7	-532.5	-541.7	-589.4	-587.1	-606.1	-625.4
Current account as percent of GDP	-2.4	-2.6	-2.3	-2.4	-2.6	-2.5	-2.6	-2.6	-2.8	-2.8	-2.9	-2.9
<i>Previous Tealbook</i>	-2.4	-2.5	-2.4	-2.5	-2.7	-2.7	-2.7	-2.7	-2.9	-2.8	-2.9	-3.0
Net goods & services	-552.4	-549.2	-517.5	-523.5	-550.3	-530.8	-526.7	-518.3	-535.5	-525.1	-526.4	-538.8
Investment income, net	213.7	202.8	210.6	188.1	175.0	162.0	142.2	120.6	98.9	79.8	68.3	57.4
Direct, net	295.7	278.6	278.5	270.2	276.6	284.1	286.4	286.5	286.0	287.3	296.3	305.2
Portfolio, net	-82.1	-75.8	-67.9	-82.2	-101.6	-122.1	-144.1	-165.9	-187.1	-207.5	-228.1	-247.8
Other income and transfers, net	-115.4	-146.1	-147.9	-143.9	-152.8	-141.8	-147.9	-143.9	-152.8	-141.8	-147.9	-143.9
<i>Annual Data</i>												
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2019	2019	2020
U.S. current account balance												
<i>Previous Tealbook</i>	444.6	-426.2	-349.5	-373.0	-434.6	-451.7	-470.2	-528.2	-602.0	-683.8	-683.0	-683.0
Current account as percent of GDP	-2.9	-2.6	-2.1	-2.1	-2.4	-2.4	-2.4	-2.4	-2.6	-2.9	-3.1	-3.1
<i>Previous Tealbook</i>	-2.9	-2.6	-2.1	-2.1	-2.4	-2.4	-2.4	-2.4	-2.7	-2.9	-3.1	-3.1
Net goods & services	-548.6	-536.8	-461.9	-489.5	-500.4	-504.8	-535.7	-535.7	-531.5	-531.5	-570.2	-570.2
Investment income, net	219.2	216.1	215.4	221.3	192.7	186.8	203.8	150.0	76.1	76.1	33.0	33.0
Direct, net	288.7	285.5	283.3	276.7	266.5	258.8	280.8	283.4	293.7	293.7	323.2	323.2
Portfolio, net	-69.5	-69.4	-67.9	-55.4	-73.8	-72.0	-77.0	-133.4	-217.6	-217.6	-290.2	-290.2
Other income and transfers, net	-115.1	-105.5	-103.1	-104.8	-126.9	-133.7	-138.4	-146.6	-146.6	-146.6	-146.6	-146.6

Abbreviations

ABS	asset-backed securities
AFE	advanced foreign economy
BEA	Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
BOC	Bank of Canada
BOE	Bank of England
BOJ	Bank of Japan
C&I	commercial and industrial
CMBS	commercial mortgage-backed securities
CPI	consumer price index
CRE	commercial real estate
ECB	European Central Bank
E&I	equipment and intangibles
ELB	effective lower bound
EME	emerging market economy
EU	European Union
FOMC	Federal Open Market Committee; also, the Committee
GDP	gross domestic product
MBS	mortgage-backed securities
MMF	money market fund
NAFTA	North American Free Trade Agreement
NI	nominal income
OIS	overnight index swap
ON RRP	overnight reverse repurchase agreement
PCE	personal consumption expenditures

PDFP	private domestic final purchases
PPI	producer price index
SEP	Summary of Economic Projections
SLOOS	Senior Loan Officer Opinion Survey on Bank Lending Practices
SOMA	System Open Market Account
S&P	Standard & Poor's
TIPS	Treasury Inflation-Protected Securities

Class I FOMC – Restricted Controlled (FR)

Report to the FOMC on Economic Conditions and Monetary Policy



Book B Monetary Policy Alternatives

October 26, 2017

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

Redemptions and Reinvestments of SOMA Principal Payments

Projections for Treasury Securities
(Billions of dollars)

	Redemptions		Reinvestments	
	Period	Cumulative*	Period	Cumulative*
2017: Q4	18.0	18.0	27.1	27.1
2018: Q1	36.0	54.0	74.7	101.9
2018: Q2	54.0	108.0	65.8	167.6
2018: Q3	67.0	175.0	27.4	195.1
2018: Q4	72.1	247.1	29.2	224.3
2019	269.0	516.0	115.0	339.3
2020	210.3	726.3	88.4	427.7

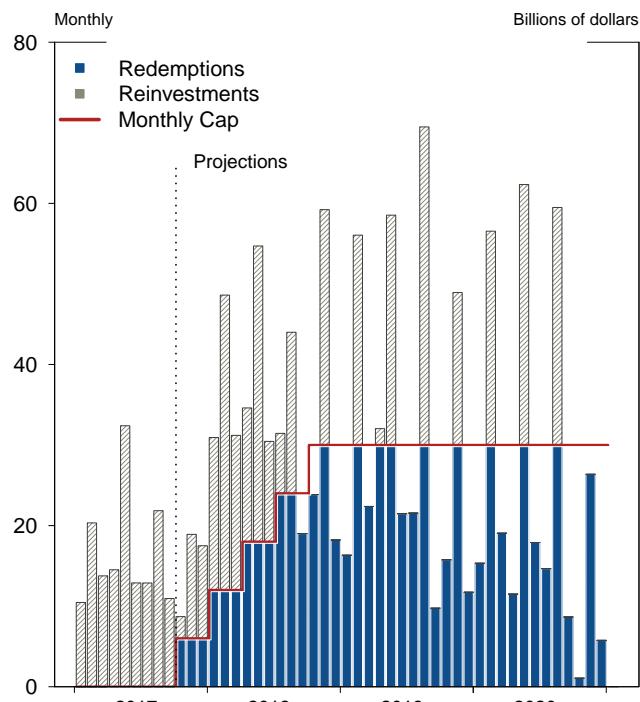
* Since October 2017.

Projections for Agency Securities
(Billions of dollars)

	Redemptions		Reinvestments	
	Period	Cumulative*	Period	Cumulative*
2017: Q4	12.0	12.0	54.1	54.1
2018: Q1	24.0	36.0	24.7	78.8
2018: Q2	36.0	72.0	15.8	94.5
2018: Q3	44.5	116.5	0.6	95.1
2018: Q4	40.3	156.9	0.0	95.1
2019	153.2	310.1	0.0	95.1
2020	140.9	451.0	0.0	95.1

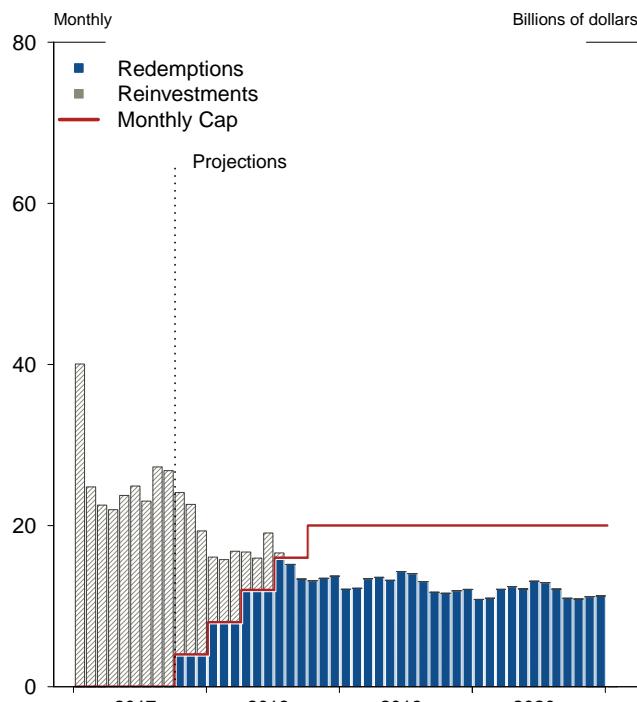
* Since October 2017.

SOMA Treasury Securities Principal Payments



Note: Projection dependent on assumed distribution of future Treasury issuance.

SOMA Agency Debt and MBS Principal Payments

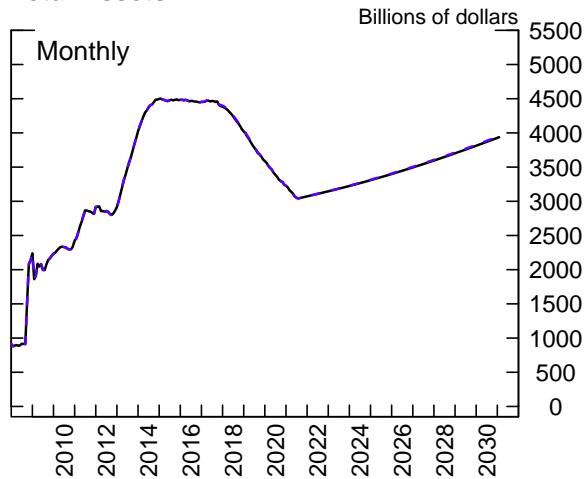


Note: Projection dependent on future interest rates and housing market developments.

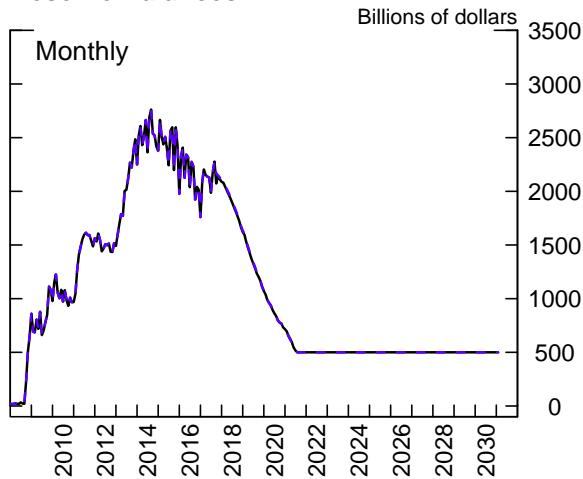
Total Assets and Selected Balance Sheet Items

— October Tealbook baseline - - - September Tealbook baseline

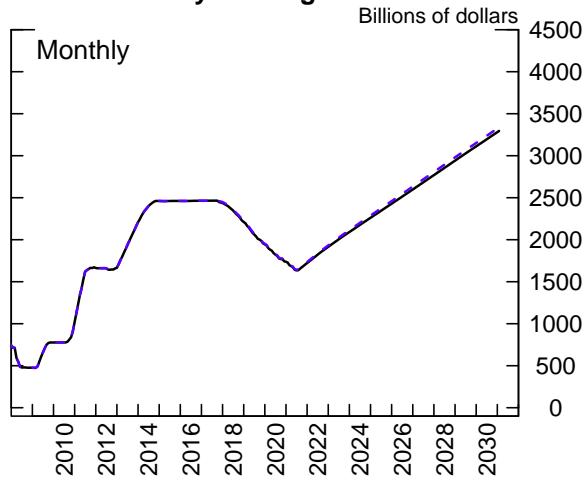
Total Assets



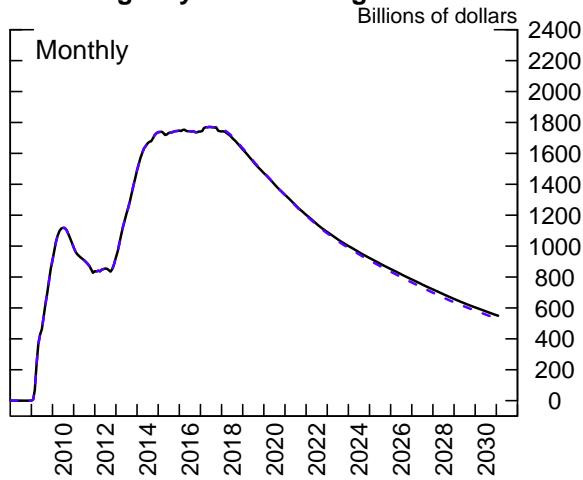
Reserve Balances



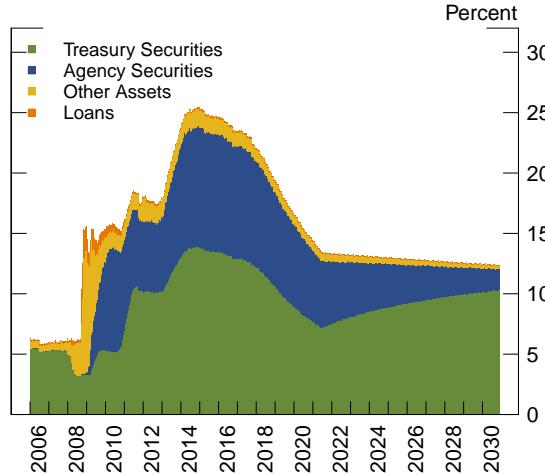
SOMA Treasury Holdings



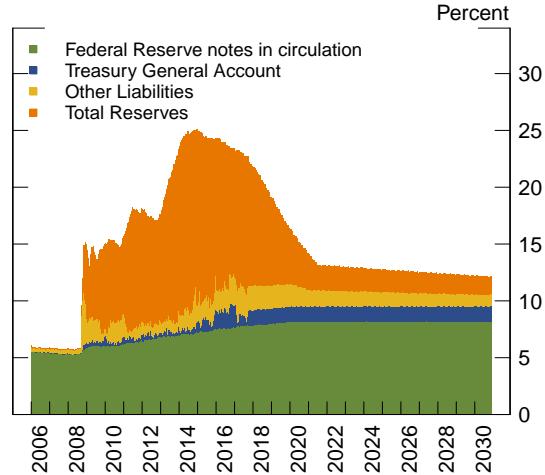
SOMA Agency MBS Holdings



Assets as a Share of GDP



Liabilities as a Share of GDP



Federal Reserve Balance Sheet
End-of-Year Projections -- October Tealbook
(Billions of dollars)

	Sep 29, 2017	2017	2019	2021	2023	2025	2030
Total assets	4,460	4,382	3,587	3,072	3,224	3,399	3,927
Selected assets							
Loans and other credit extensions*	6	0	0	0	0	0	0
Securities held outright	4,240	4,183	3,419	2,927	3,095	3,283	3,836
U.S. Treasury securities	2,465	2,437	1,945	1,723	2,092	2,429	3,280
Agency debt securities	7	4	2	2	2	2	2
Agency mortgage-backed securities	1,768	1,742	1,472	1,202	1,001	852	553
Unamortized premiums	162	158	125	99	82	68	41
Unamortized discounts	-14	-14	-11	-9	-7	-6	-4
Total other assets	45	47	47	47	47	47	47
Total liabilities	4,419	4,340	3,543	3,024	3,172	3,342	3,856
Selected liabilities							
Federal Reserve notes in circulation	1,532	1,563	1,761	1,892	2,019	2,165	2,608
Reverse repurchase agreements	557	340	340	240	240	240	240
Deposits with Federal Reserve Banks	2,318	2,432	1,437	887	908	932	1,003
Reserve balances held by depository institutions	2,073	2,088	1,071	500	500	500	500
U.S. Treasury, General Account	159	263	286	307	328	351	423
Other deposits	86	80	80	80	80	80	80
Earnings remittances due to the U.S. Treasury	2	0	0	0	0	0	0
Total Federal Reserve Bank capital**	41	41	44	48	52	57	72

Source: Federal Reserve H.4.1 statistical releases and staff calculations.

Note: Components may not sum to totals due to rounding.

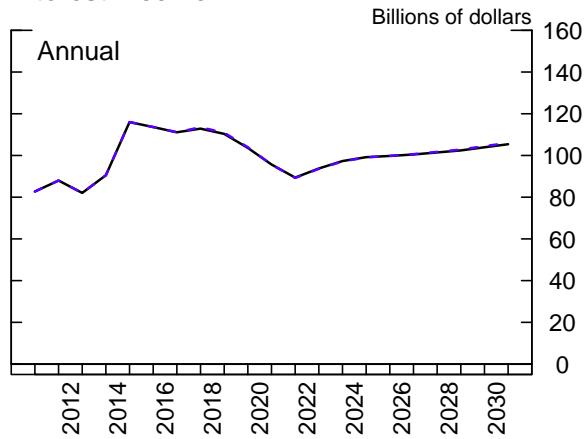
*Loans and other credit extensions includes primary, secondary, and seasonal credit; central bank liquidity swaps; and net portfolio holdings of Maiden Lane LLC.

**Total capital includes capital paid-in and capital surplus accounts.

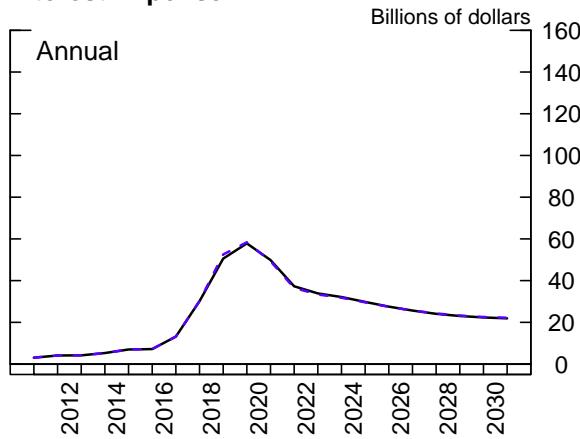
Income Projections

— October Tealbook baseline — September Tealbook baseline

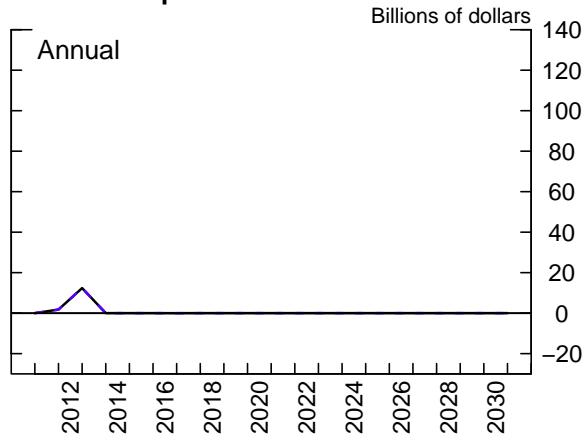
Interest Income



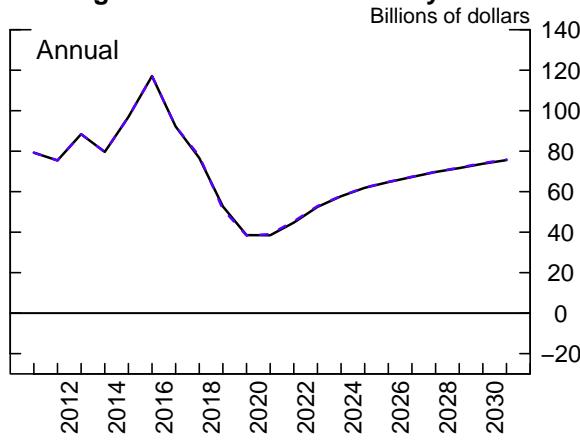
Interest Expense



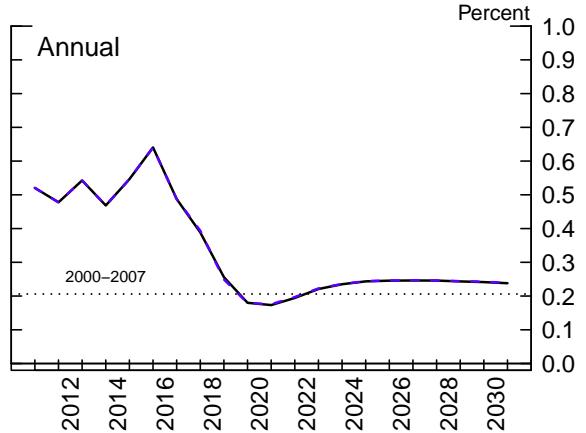
Realized Capital Gains



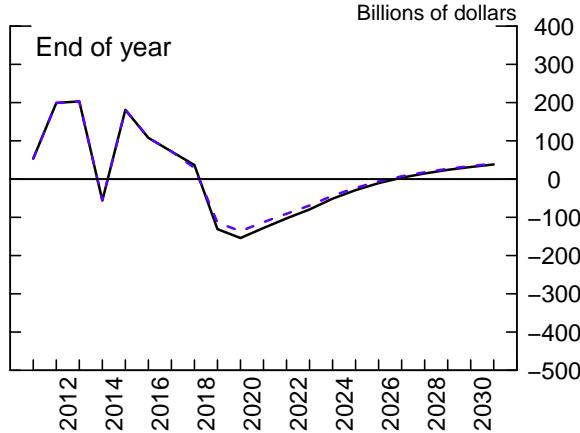
Earnings Remittances to Treasury



Remittances as a Percent of GDP



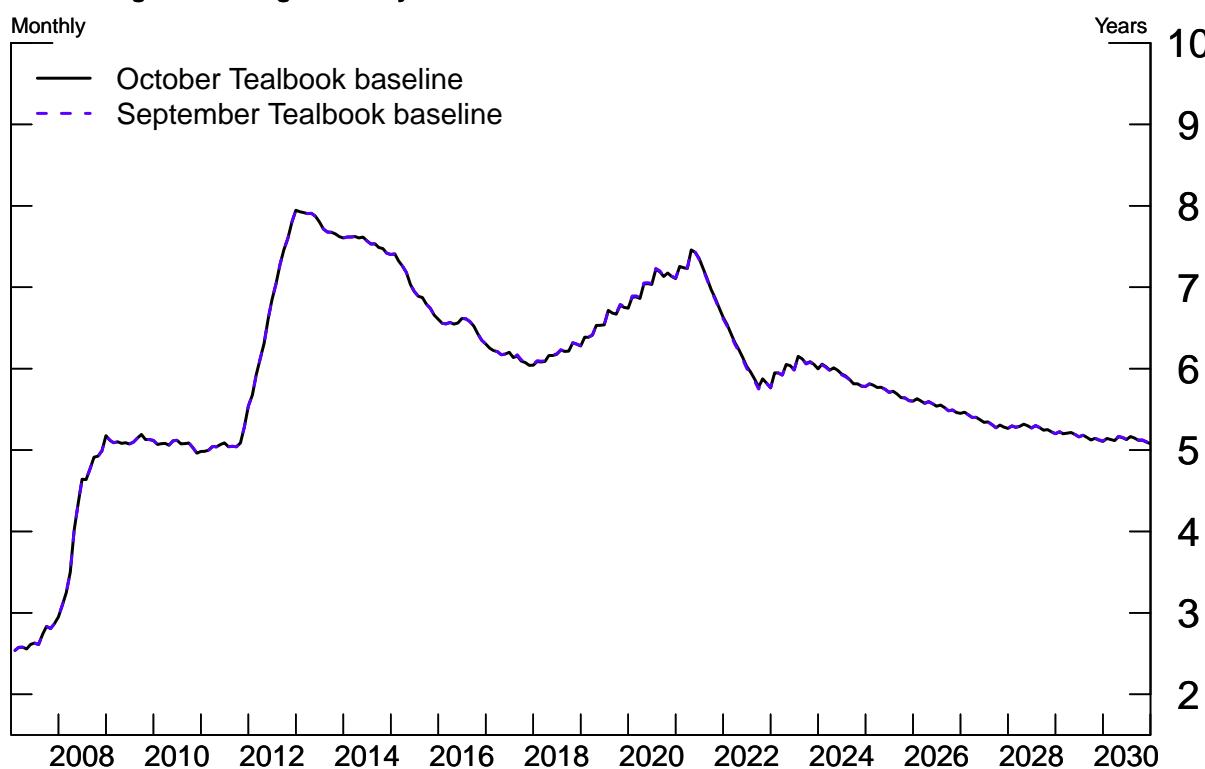
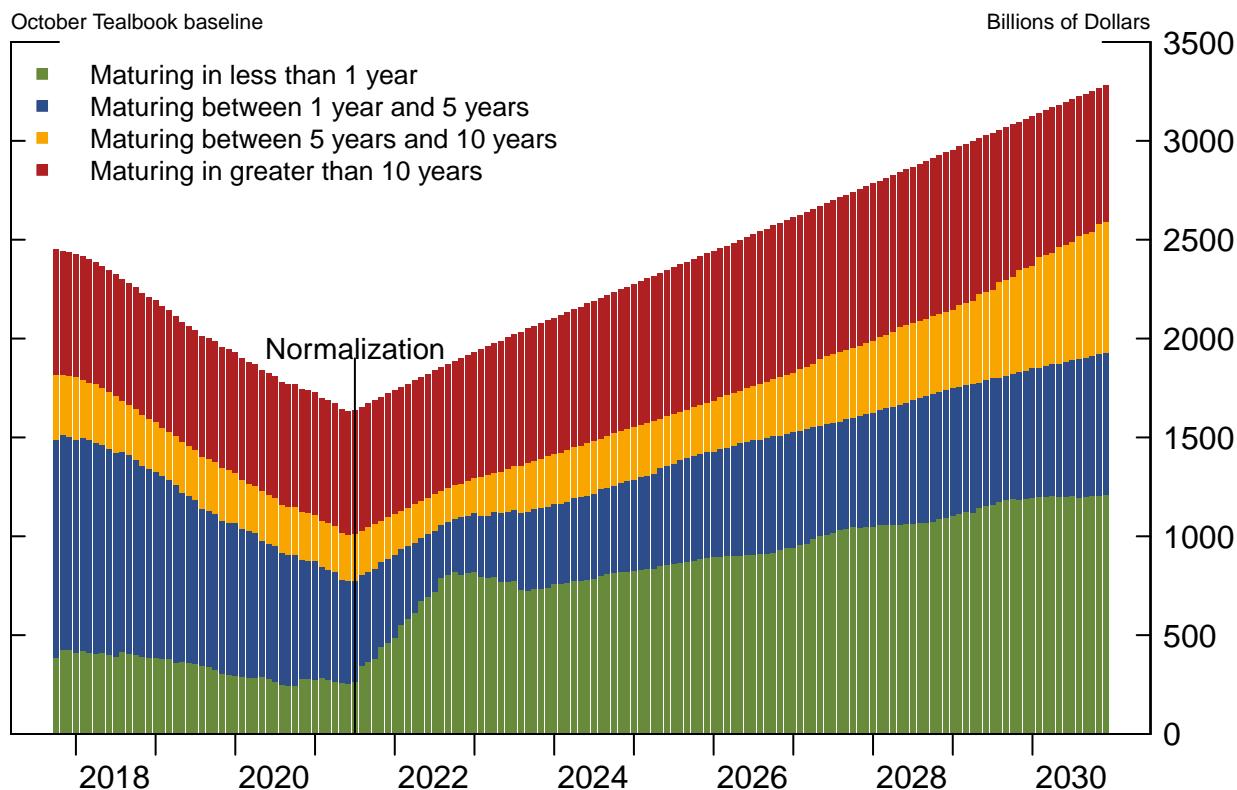
Memo: Unrealized Gains/Losses



Projections for the 10-Year Treasury Term Premium Effect
(Basis Points)

Date	October Tealbook	September Tealbook
Quarterly Averages		
2017:Q4	-87	-87
2018:Q4	-75	-75
2019:Q4	-65	-65
2020:Q4	-57	-57
2021:Q4	-51	-51
2022:Q4	-48	-48
2023:Q4	-45	-45
2024:Q4	-42	-42
2025:Q4	-39	-39
2026:Q4	-37	-36
2027:Q4	-35	-34
2028:Q4	-33	-32
2029:Q4	-31	-31
2030:Q4	-29	-29

Projections for the Characteristics of SOMA Treasury Securities Holdings

SOMA Weighted-Average Treasury Duration**Maturity Composition of SOMA Treasury Portfolio**

Balance Sheet & Income

Abbreviations

ABS	asset-backed securities
BEA	Bureau of Economic Analysis, Department of Commerce
BHC	bank holding company
CDS	credit default swaps
CFTC	Commodity Futures Trading Commission
C&I	commercial and industrial
CLO	collateralized loan obligation
CMBS	commercial mortgage-backed securities
CPI	consumer price index
CRE	commercial real estate
DEDO	section in Tealbook A, “Domestic Economic Developments and Outlook”
Desk	Open Market Desk
DFMU	Designated Financial Market Utilities
ECB	European Central Bank
ELB	effective lower bound
EME	emerging market economy
EU	European Union
FAST Act	Fixing America’s Surface Transportation Act
FDIC	Federal Deposit Insurance Corporation
FOMC	Federal Open Market Committee; also, the Committee
GCF	general collateral finance
GDI	gross domestic income
GDP	gross domestic product
GSIBs	globally systemically important banking organizations
HQLA	high-quality liquid assets
IOER	interest on excess reserves
ISM	Institute for Supply Management
LIBOR	London interbank offered rate

LSAPs	large-scale asset purchases
MBS	mortgage-backed securities
MMFs	money market funds
NBER	National Bureau of Economic Research
NI	nominal income
NIPA	national income and product accounts
OIS	overnight index swap
ON RRP	overnight reverse repurchase agreement
PCE	personal consumption expenditures
QS	Quantitative Surveillance
repo	repurchase agreement
RMBS	residential mortgage-backed securities
RRP	reverse repurchase agreement
SCOOS	Senior Credit Officer Opinion Survey on Dealer Financing Terms
SEP	Summary of Economic Projections
SFA	Supplemental Financing Account
SLOOS	Senior Loan Officer Opinion Survey on Bank Lending Practices
SOMA	System Open Market Account
TBA	to be announced (for example, TBA market)
TGA	U.S. Treasury's General Account
TIPS	Treasury inflation-protected securities
TPE	Term premium effects
ZLB	zero lower bound