**Appendix 1: Materials used by Mr. Potter and Ms. Logan**

*Material for Briefing on*

# Financial Developments and Open Market Operations

**Lorie Logan and Simon Potter**
**Exhibits by Ashley Rhodes**
**June 12, 2018**

Class II FOMC – Restricted (FR)

Exhibit 1

### (1) Asset Price Changes*

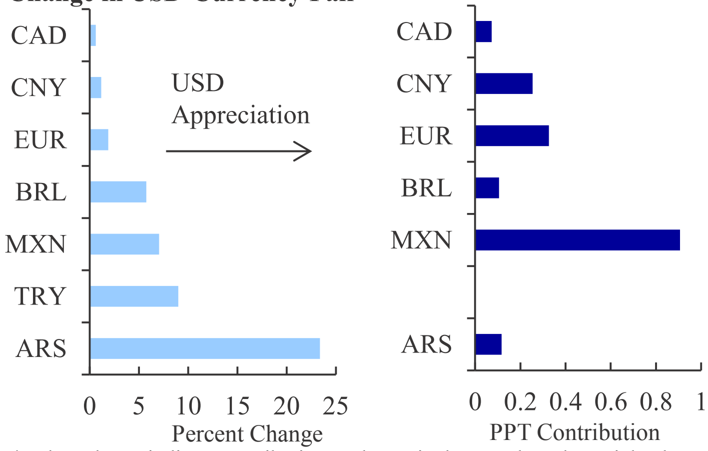
| | Since May FOMC | Current Level |
|---|---|---|
| 2-Yr Nominal Treasury Yield | -1 bps | 2.50% |
| 10-Yr Nominal Treasury Yield | -2 bps | 2.95% |
| 5y5y Breakeven | +0 bps | 2.28% |
| U.S. Broad T.W. Dollar | +2.1% | 123 |
| S&P 500 Index | +4.7% | 2779 |
| VIX Index | -3 ppts | 12 ppts |
| KBW Bank Index | +2.7% | 110 |
| Goldman Sachs FCI | -0.03% | 99 |

*Red indicates tightening in financial conditions, blue indicates loosening.
Source: Barclays, Bloomberg, Federal Reserve Board, Goldman Sachs

### (2) 10-Year U.S. Treasury Yield


Source: Bloomberg

### (3) U.S. Dollar Performance

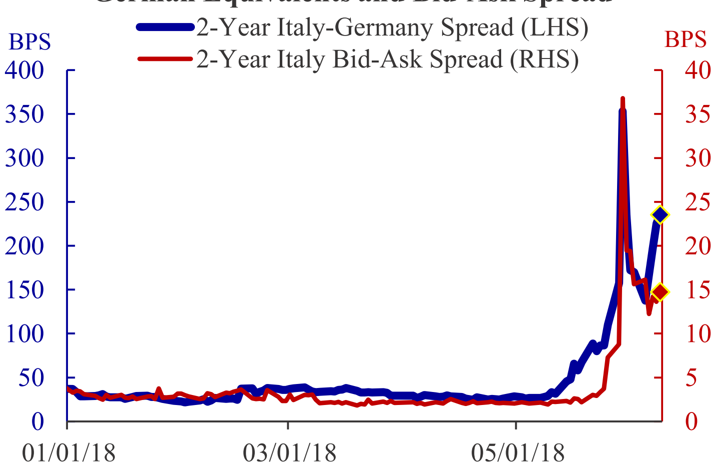



*Values shown indicate contribution to change in the Broad Trade-Weighted Dollar's 2.1% appreciation since 05/01/2018. TRY (Turkish lira) not included in Broad T.W. Dollar.
Source: Bloomberg, Desk Calculations, Federal Reserve Board

### (4) Net Speculative Mexican Peso-U.S. Dollar Position as Share of Open Interest*

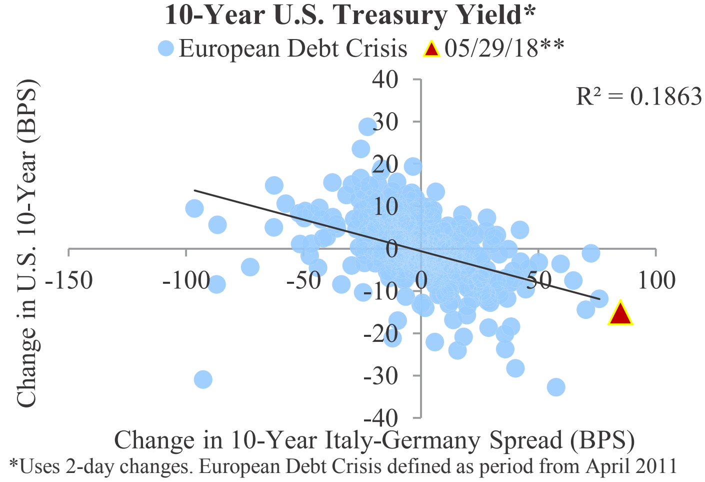

*Weekly data through 06/05/18.
Source: CFTC, Desk Calculations, Haver

### (5) 2-Year Italian Sovereign Bond Yield Spread to German Equivalents and Bid-Ask Spread*




*During the European Debt Crisis, 2-yr Italy-Germany spread reached high of 720 bps and 2-yr Italy bid-ask reached high of 76 bps.
Source: Bloomberg, TradeWeb

### (6) Changes in Italy-Germany Yield Spread and 10-Year U.S. Treasury Yield*

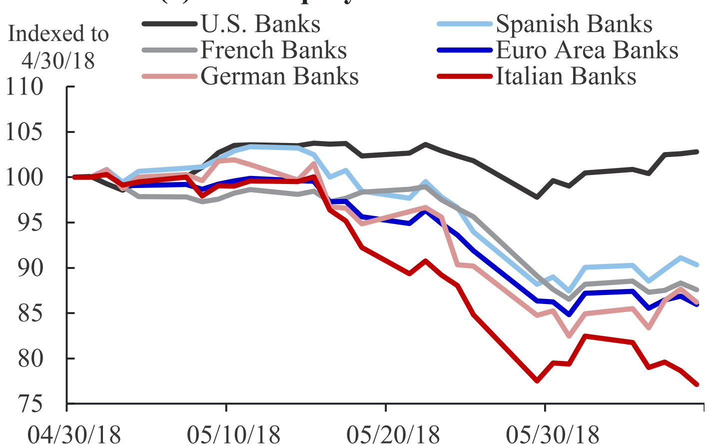



*Uses 2-day changes. European Debt Crisis defined as period from April 2011 to January 2013.
**Treasury market closed on 05/28/18.
Source: Bloomberg

Class II FOMC – Restricted (FR)

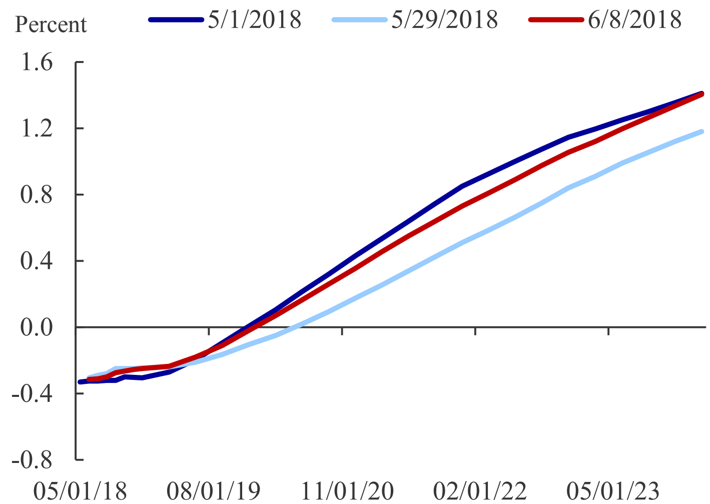
Exhibit 2

**(7) Bank Equity Performance***



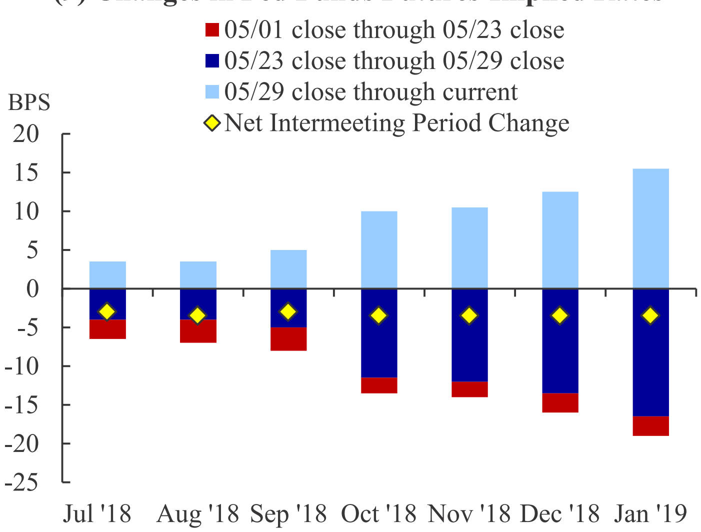

*Italian Banks (FTSE Italia Bank); Spanish Banks (IBEX 35 Bank); Euro Area Banks (Euro Stoxx Bank); French Banks (Market cap-weighted average of BNP Paribas, SocGen, Credit Agricole, and Natixis); US Banks (KBW); German Banks (Market cap-weighted average of DB and Commerzbank).
Source: Bloomberg

**(8) Euribor Futures Curve**



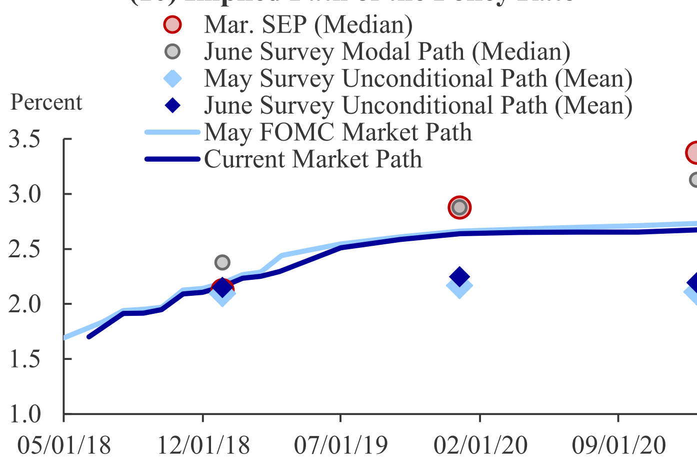

Source: Bloomberg

**(9) Changes in Fed Funds Futures-Implied Rates**



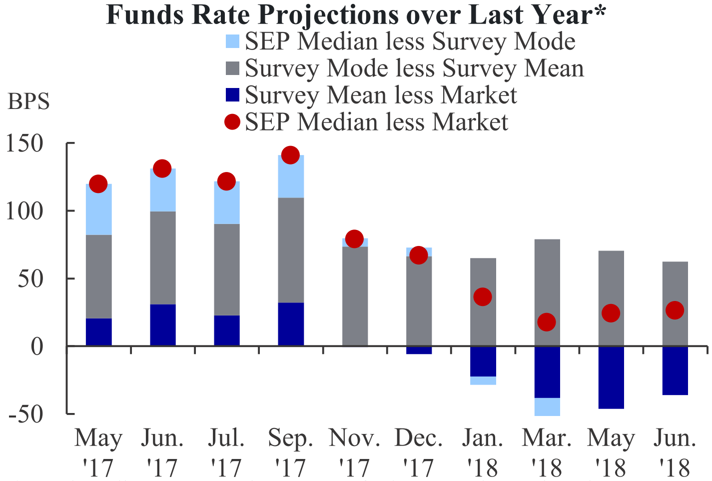

Source: Bloomberg

**(10) Implied Path of the Policy Rate***



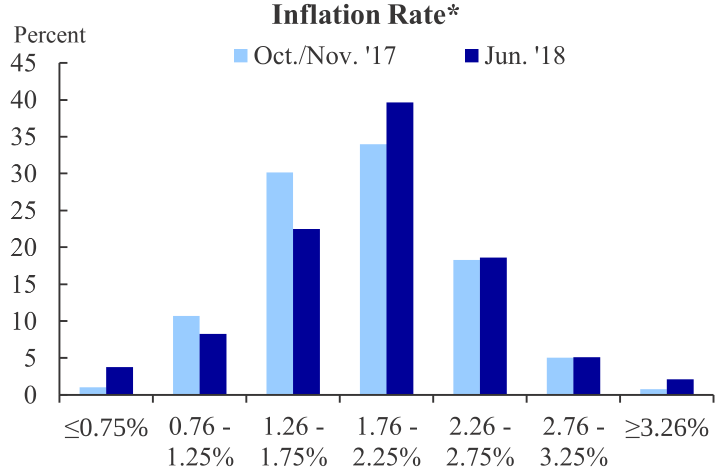

*Market-implied paths derived from federal funds and Eurodollar futures. Unconditional survey paths are the average PDF-implied means from the Surveys of Primary Dealers and Market Participants.
Source: Bloomberg, Desk Calculations, Federal Reserve Board, FRBNY

**(11) Differences Between Year-End 2019 Federal Funds Rate Projections over Last Year***




*Based on all responses to the Surveys of Primary Dealers and Market Participants.
Source: FRBNY

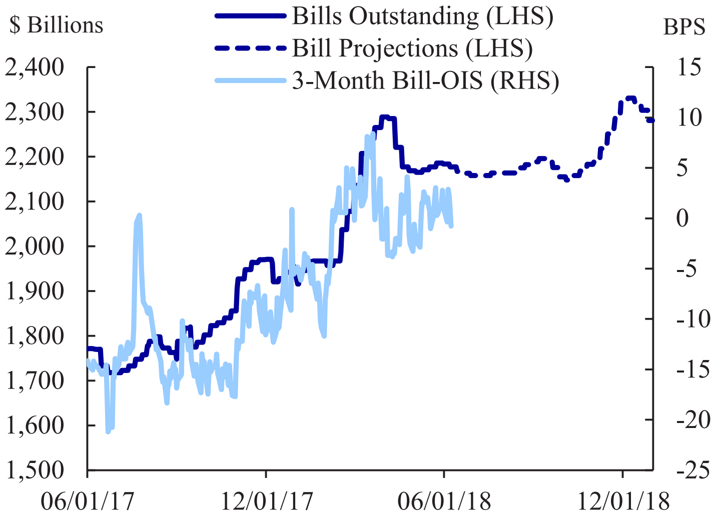
**(12) Average Probability Distribution of 2Y1Y PCE Inflation Rate***




*Based on a matched sample of responses to the Surveys of Primary Dealers and Market Participants.
Source: FRBNY, Staff Calculations

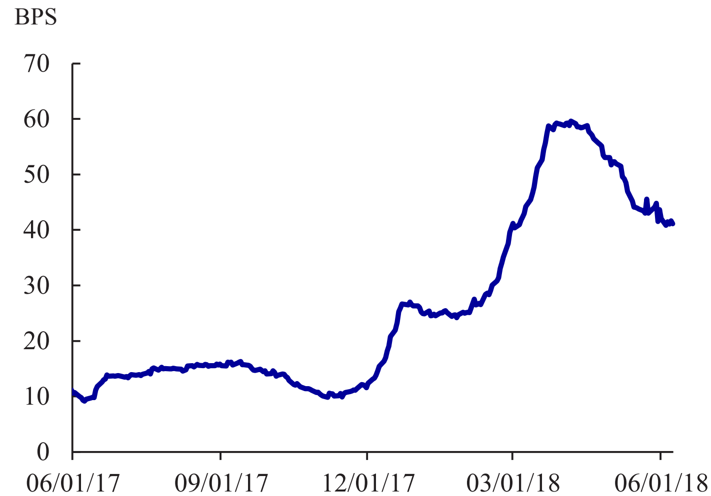
Class II FOMC – Restricted (FR) Exhibit 3

### (13) Treasury Bills Outstanding and 3-Month Bill-OIS



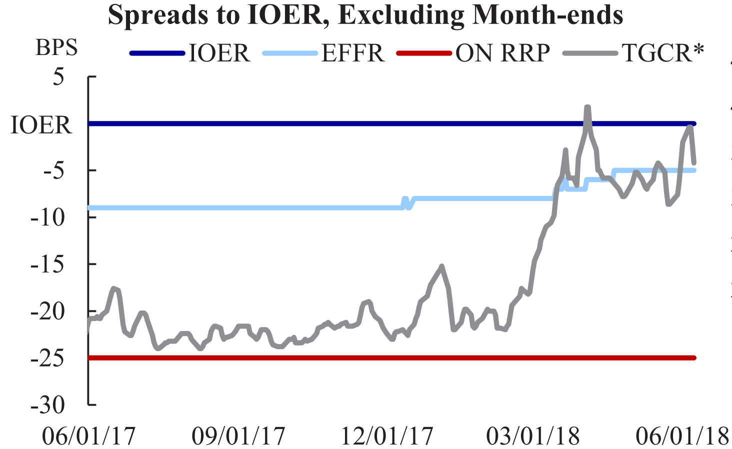

Source: Bloomberg, U.S. Treasury

### (14) 3-Month LIBOR-OIS Spread



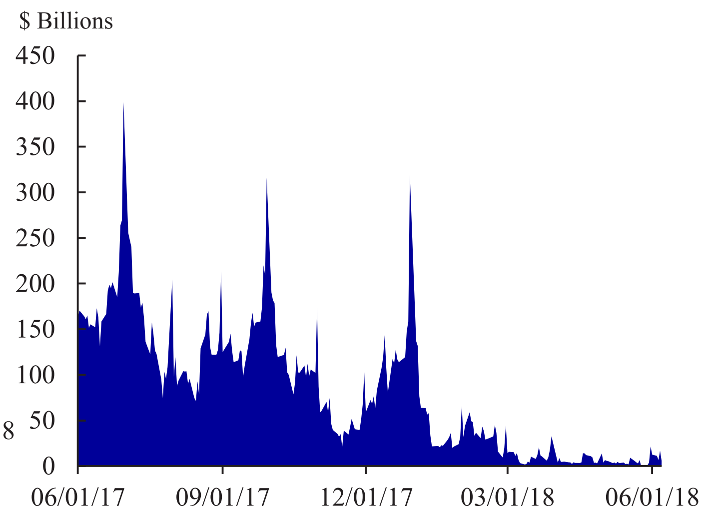

Source: Bloomberg

### (15) Effective Fed Funds and Tri-Party GC Repo Spreads to IOER, Excluding Month-ends



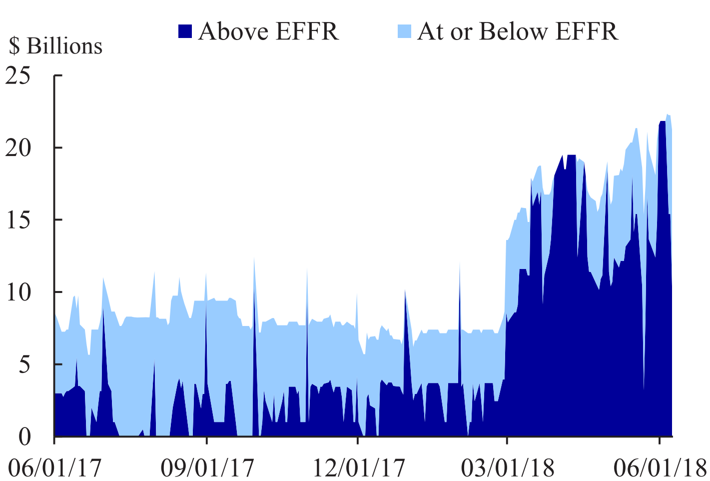

*5-day moving average of Tri-Party General Collateral Rate (TGCR), an overnight Treasury repo rate. Official TGCR data begins on April 2018, indicative data used prior to that.
Source: FRBNY

### (16) ON RRP Take-Up



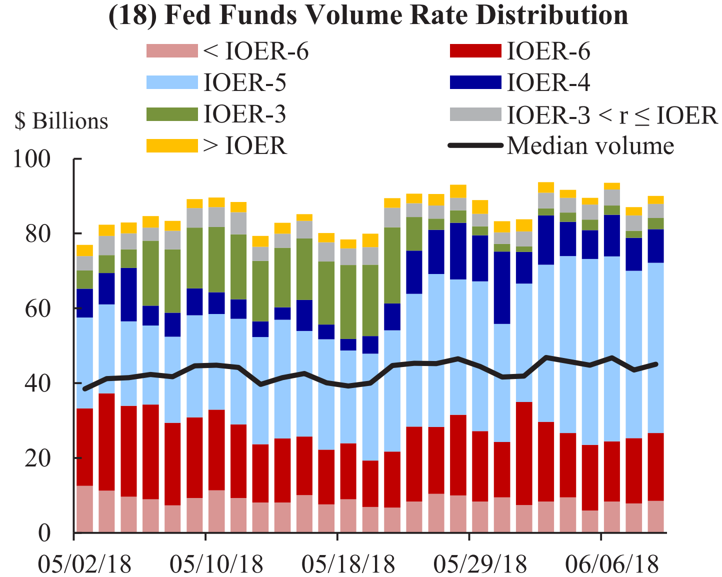

Source: FRBNY

### (17) FHLB Overnight Tri-Party Repo By Rate*




*Based on individual FHLB lending transactions in overnight Tri-party repo compared to the effective fed funds rate each day.
Source: BNYM, Desk Calculations, FRBNY, JPMC

### (18) Fed Funds Volume Rate Distribution

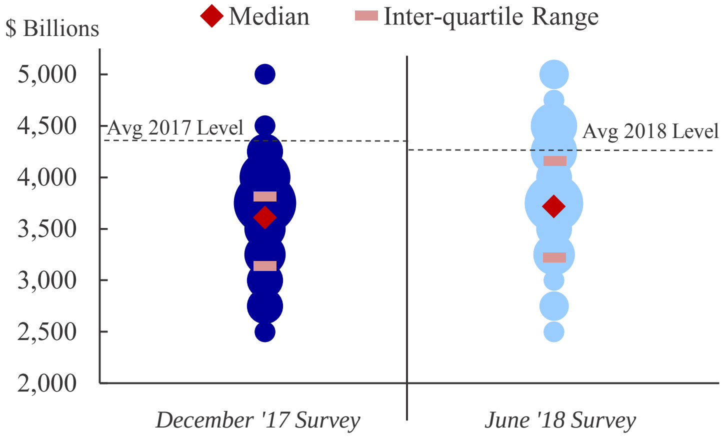



Source: FRBNY

Class II FOMC – Restricted (FR)

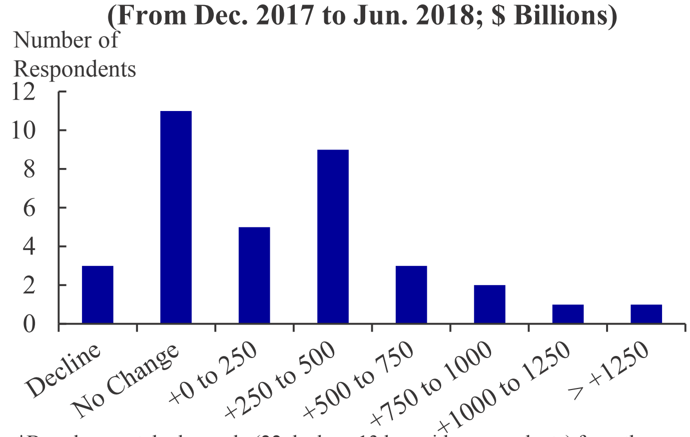
Exhibit 4

### (19) Expected Average Level of FRS Assets In 2025*



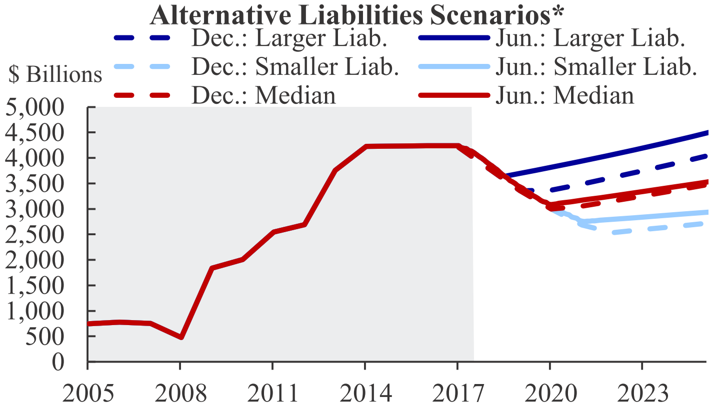

*Based on matched sample (22 dealers, 13 buy-side respondents) from the Surveys of Primary Dealers and Market Participants. Conditional on not moving to the ZLB before end of 2025. Dots scaled by percent of respondents.
Source: FRBNY

### (20) Changes in Individual Respondents' Expectations for the Average Level of Reserves in 2025* (From Dec. 2017 to Jun. 2018; $ Billions)




*Based on matched sample (22 dealers, 13 buy-side respondents) from the Surveys of Primary Dealers and Market Participants. Conditional on not moving to the ZLB before end of 2025
Source: FRBNY

### (21) Projected SOMA Domestic Securities Holdings: Alternative Liabilities Scenarios*



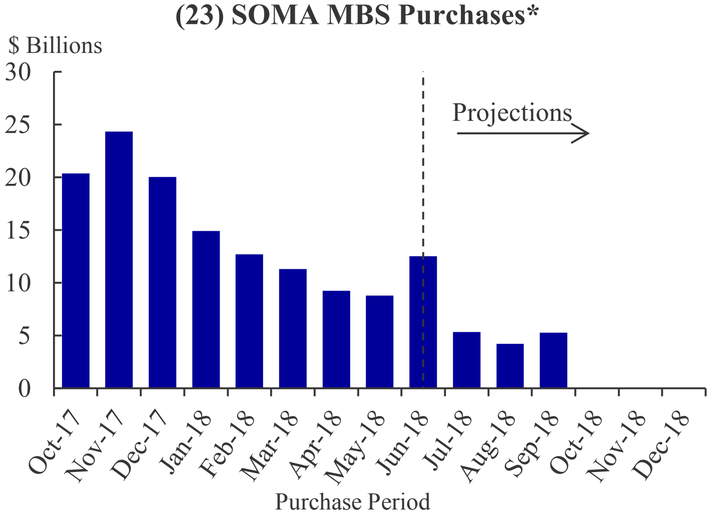

*Figures in shaded area are historical settled holdings. Smaller and larger liab. are based, respectively, on 25th and 75th percentile responses to a question in Desk surveys about the size and composition of the Fed's bal. sheet in 2025 conditional on not returning to ZLB in the Surveys of Primary Dealers and Market Participants. Projected figures are rounded.
Source: Desk Calculations, FRBNY

### (22) Projected SOMA Domestic Securities Holdings*

| | Liability Scenario | Date of Normalization | Portfolio Size | Level of Reserves |
|---|---|---|---|---|
| June 2018 | Larger | 06/2019 | 3,640 | 1185 |
| | Median | 12/2020 | 3,087 | 750 |
| | Smaller | 01/2022 | 2,753 | 625 |
| December 2017 | Larger | 02/2020 | 3,269 | 750 |
| | Median | 01/2021 | 2,970 | 600 |
| | Smaller | 08/2022 | 2,518 | 412 |

*Smaller and larger liab. are based, respectively, on 25th and 75th percentile responses to a question in Desk surveys about the size and composition of the Fed's bal. sheet in 2025 conditional on not returning to ZLB.in the Surveys of Primary Dealers and Market Participants.
Source: Desk Calculations, FRBNY

### (23) SOMA MBS Purchases*




*FRBNY Markets model calculations based on June survey-implied rates. June reinvestment cycle includes $1.98 billion of agency debt maturities.
Source: Desk Calculations, FRBNY

### (24) MBS Operational Readiness

- Desk model projects MBS reinvestment purchases will cease in October 2018
- Models indicate nontrivial likelihood principal payments will exceed cap again
- To maintain readiness, Desk intends to conduct monthly small value purchases of up to $300 million
- Desk intends to communicate plan prior to principal payments falling below cap
- June FOMC minutes could provide a summary, with Desk Statement and updated FAQs later this summer

## (25) Reference Rate Updates

- A Federal Register Notice was issued in mid-May requesting public comment on revised instructions to the FR 2420 report to capture onshore overnight wholesale borrowing activity in the Overnight Bank Funding Rate, or OBFR.
    - Over the last couple of years, a few large Eurodollar borrowers changed the way that some of their overnight wholesale borrowing activity is booked, from offshore to onshore.
    - As a result, at least $35 billion, or about 47 percent of current FR 2420 Eurodollar activity, is no longer captured.
    - We anticipate the data collection will begin in October, with the new data included in the OBFR calculations in 2019.
- On May 7, the CME launched 1-month and 3-month futures based on the Secured Overnight Financing Rate (SOFR), one of the Fed's new overnight Treasury repo rates and the rate the Alternative Reference Rates Committee selected as its recommended alternative to U.S. dollar LIBOR for use in certain derivatives contracts.
    - The combination of SOFR futures, SOFR-linked OIS and term rates linked to SOFR is expected to help facilitate reduced reliance on US dollar LIBOR.
    - Thus far, trading activity in futures has been modest but in line with expectations.
- Over the next intermeeting period, the New York Fed plans to update its Statement of Compliance with the IOSCO Principles for Financial Benchmarks to include the three overnight Treasury repo reference rates. This statement was initially issued in January to cover the EFFR and OBFR.
    - The IOSCO Principles represent a set of international best practices for all aspects of Benchmark administration, which have been endorsed by the Financial Stability Board.
    - The purpose of releasing such a statement is to increase transparency surrounding our administration of these rates.

# Appendix 1

## (1) Summary of Operational Testing

*Summary of Operational Tests in prior period:*

- Domestic Authorization
  - May 9: Term repo for $64 million
  - May 14: Term reverse repo for $87 million
  - May 16: Overnight repo for $65 million
  - May 22 and 24: Outright MBS sales (specified pool) for $120 million, total
  - May 23: Overnight reverse repo (with MBS collateral) for $67 million
- Foreign Authorization
  - None
- TDF Test Operation
  - May 17: 7-day operation with total take-up of $3.7 billion

*Upcoming Operational Tests:*

- No tests scheduled under the Domestic Authorization
- One test scheduled under the Foreign Authorization
  - July 10: Euro-denominated repo with private counterparties for €1 million

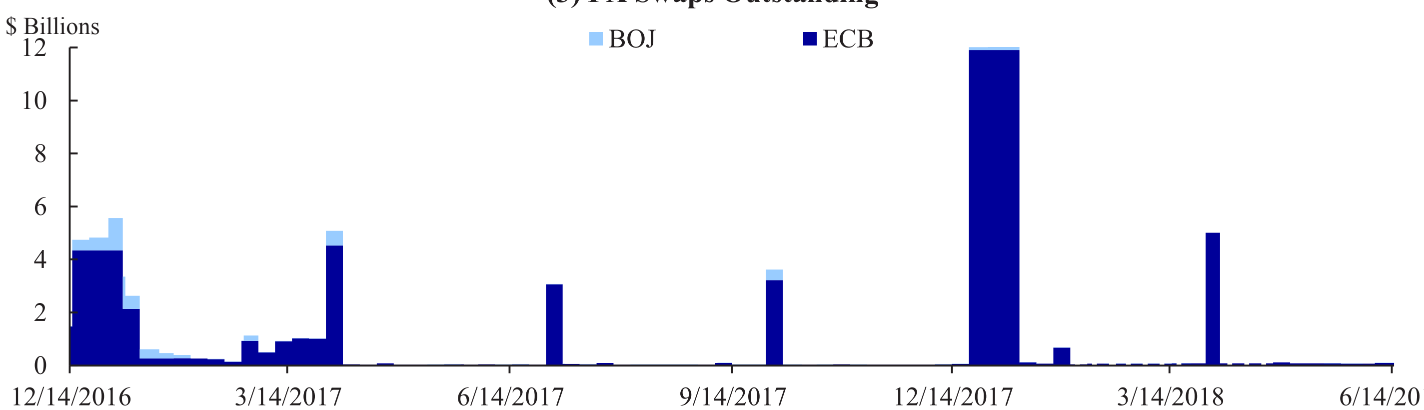
## (2) MBS Purchase Summary Since Cap Implementation Through June 08, 2018 ($ Millions)

| Purchase Period | | | Actual Paydowns | Cap | Actual Purchases | Net Deviation | Cumulative Deviation |
|---|---|---|---|---|---|---|---|
| Oct | 10/16/17 | 11/13/17 | 24,353 | 4,000 | 20,355 | 2 | 2 |
| Nov* | 11/14/17 | 12/13/17 | 28,316 | 4,000 | 24,327 | 11 | 13 |
| Dec | 12/14/17 | 01/12/18 | 24,032 | 4,000 | 20,038 | 6 | 19 |
| Jan | 01/16/18 | 02/13/18 | 22,909 | 8,000 | 14,921 | 12 | 31 |
| Feb | 02/14/18 | 03/13/18 | 20,689 | 8,000 | 12,684 | (5) | 26 |
| Mar | 03/14/18 | 04/12/18 | 19,294 | 8,000 | 11,308 | 14 | 40 |
| Apr | 04/13/18 | 05/11/18 | 21,233 | 12,000 | 9,234 | 1 | 41 |
| May** | 05/14/18 | 06/13/18 | 20,793 | 12,000 | 7,509 | | |

*November included agency debt maturity of $2,366 million.

**Actual purchases ongoing, reflect data through 06/08/18. Target amount for May purchase period is $8,793 million.

## (3) FX Swaps Outstanding




Source: FRBNY

## (4) FX Intervention

- There were no intervention operations in foreign currencies for the System's account during the intermeeting period

**Appendix 2: Materials used by Messrs. Morin and Kamin**

**Class II FOMC - Restricted (FR)**

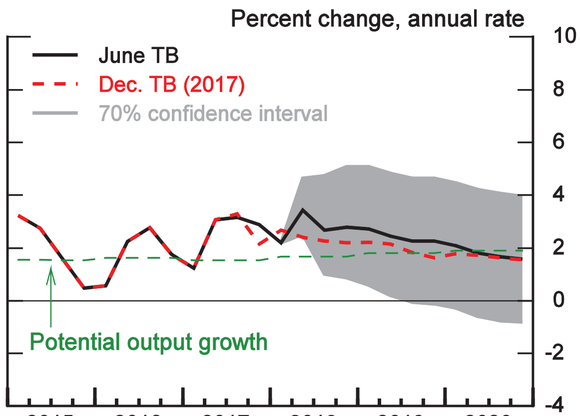
*Material for*

# Staff Presentation on the Economic and Financial Situation

**Steven B. Kamin and Norman J. Morin**
**Exhibits by Mandy Bowers and Bo Yeon Jang**
**June 12, 2018**

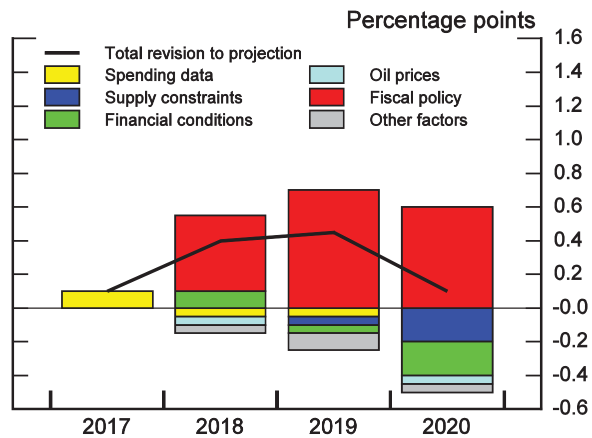
# Economy Expanding at Above-Trend Pace

**Real GDP**



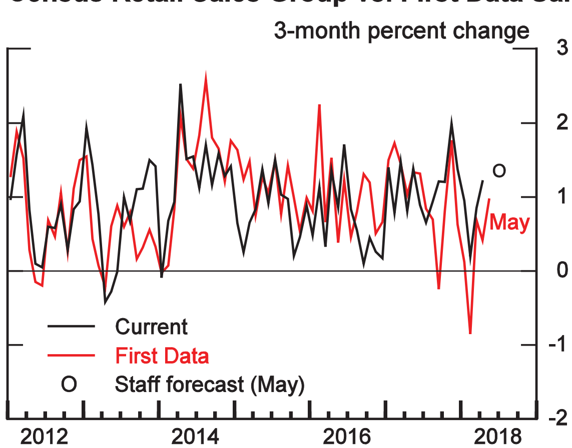

Note: Confidence interval is based on FRB/US stochastic simulations.

**Sources of Revisions to GDP Growth**
**December 2017 TB to June 2018 TB**




Note: Other factors include revisions to historical wealth, to foreign growth, and to potential output resulting from population projections. All values include multiplier effects.

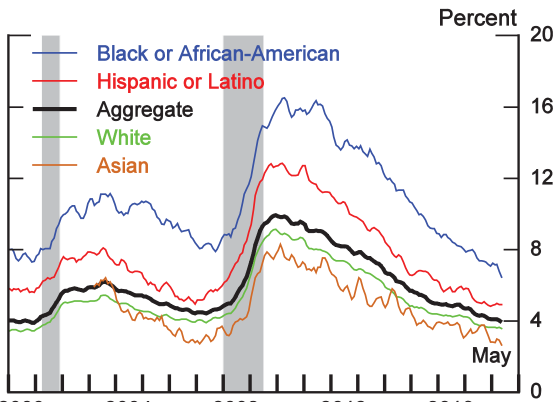
**Census Retail Sales Group vs. First Data Sales**




- GDP expands at an above-trend rate
- Upward revisions since the December Tealbook are more than accounted for by the net effects of the TCJA and BBA
- We expect the Thursday's retail sales report to support our view of a rebound in PCE growth from its Q1 lull

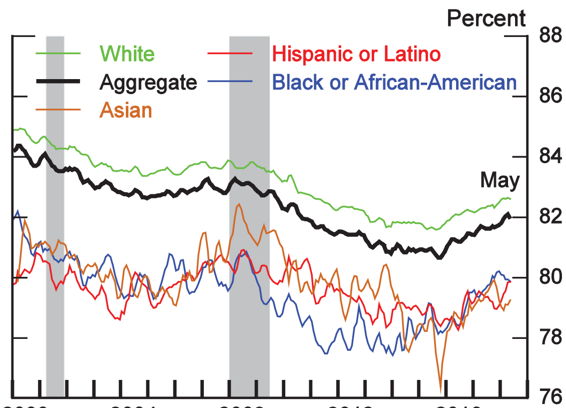
# Labor Market Tightens Further

**Unemployment Rates**




Note: Three-month moving averages. Shaded bars indicate NBER recessions.

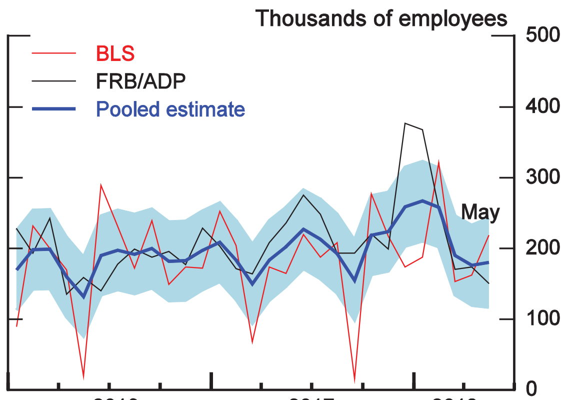
**Prime-Age Labor Force Participation Rates**




Note: Three-month moving averages. Data cover persons between the ages of 25 and 54; data by race or ethnicity are seasonally adjusted by Board staff. Shaded bars indicate NBER recessions.

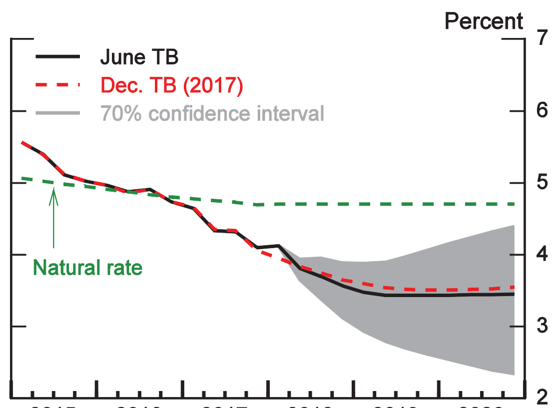
- Overall unemployment rate is lowest since 1969
  - Continued improvement across most races and ethnicities
- Prime-age LFPR has been rising, on net

**Estimates of Private Nonfarm Payroll Gains**




Note: Shaded region denotes 90% confidence interval for pooled estimate. The May FRB/ADP value includes data through 5/26.

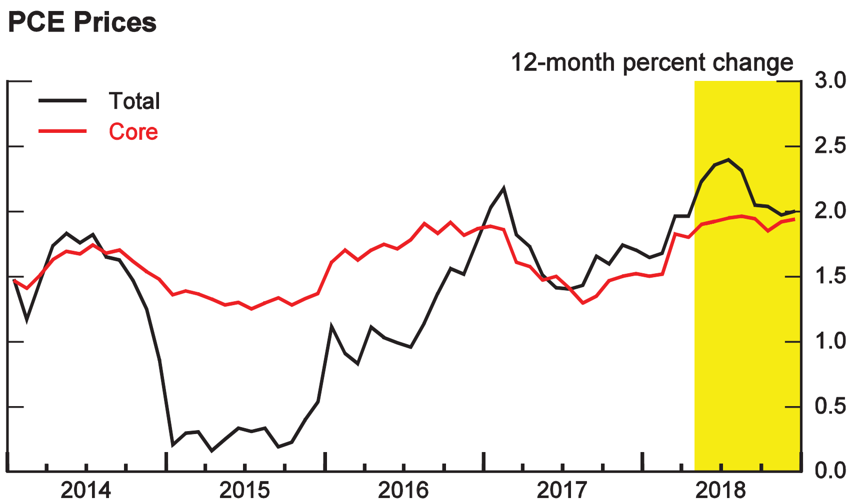
**Unemployment Rate**




Note: Confidence interval is based on FRB/US stochastic simulations.

- Combining ADP company-level data and the BLS data provides our best estimate of pace of private job gains—around 175,000 in recent months
- Compared with December, the unemployment rate is a tenth lower through 2020

# Inflation Running Near 2 Percent



Note: Shaded yellow region indicates forecast period.

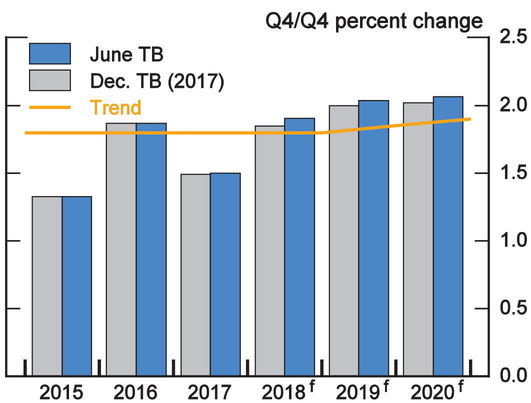
**PCE Prices, 12-month Percent Changes**

| | Apr. | Jun. | Sept. |
|---|---|---|---|
| Total PCE | 2.0 | 2.4 | 2.0 |
| *April TB* | *2.1* | *2.5* | *2.2* |
| Core PCE | 1.8 | 1.9 | 1.9 |
| *April TB* | *1.9* | *2.1* | *2.1* |

- The 12-month changes in April for total PCE prices, 2.0 percent, and for core PCE prices, 1.8 percent, were a tenth lower than expected
- We expect both measures to move up a bit over the next few months
- This morning's CPI release…

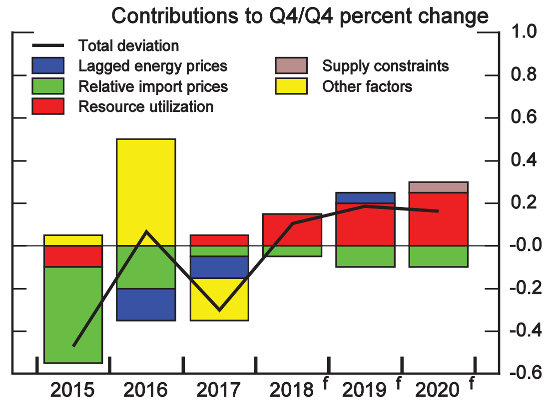
# Inflation Projected to Remain Near 2 Percent

**Core PCE Price Inflation**



f. Staff forecast.

**Decomposition of Deviations of Core Inflation from Trend**

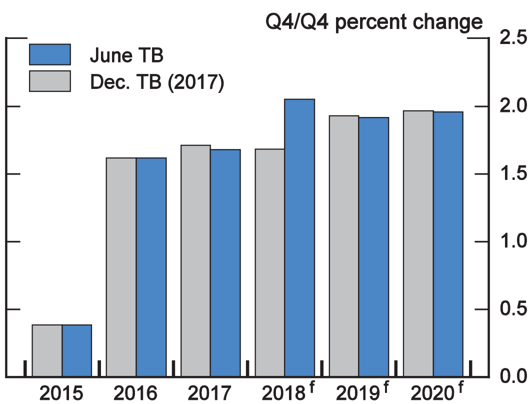


f. Staff forecast.

Core PCE price inflation edges above 2.0 percent by 2020

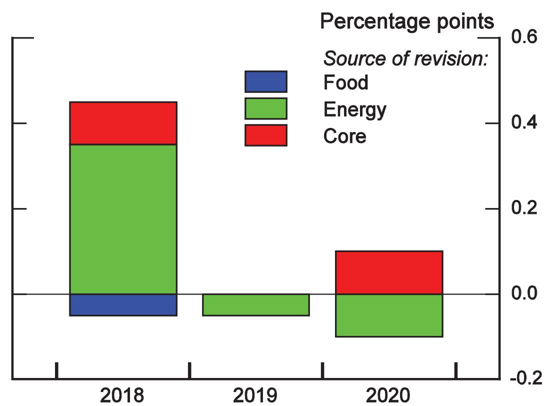
- PCE inflation rises above its underlying trend, reflecting tighter resource utilization
- Supply constraints in 2020
- Some offsetting drag from import prices

**Total PCE Price Inflation**



f. Staff forecast.

**Inflation Revisions Since December TB: Total PCE**

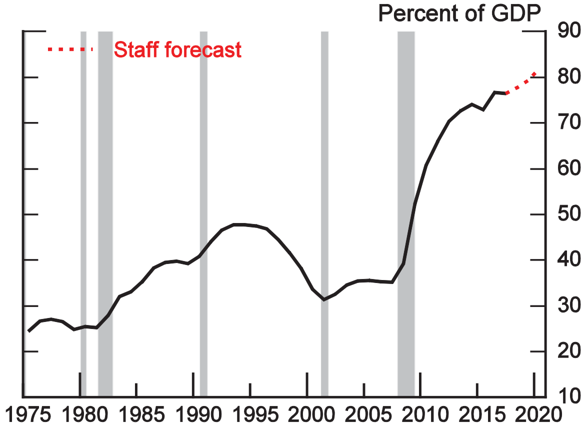



Inflation outlook little revised compared to December

- Total PCE inflation up in 2018 on energy prices
- Core PCE inflation just a touch higher

# Fiscal Stability

**Federal Debt Held by the Public**




Note: Fiscal years. Shaded bars indicate NBER recessions.

**Debt Dynamics Equation**

$$\Delta d_t = p_t + (i_t - g_t) d_{t-1}$$

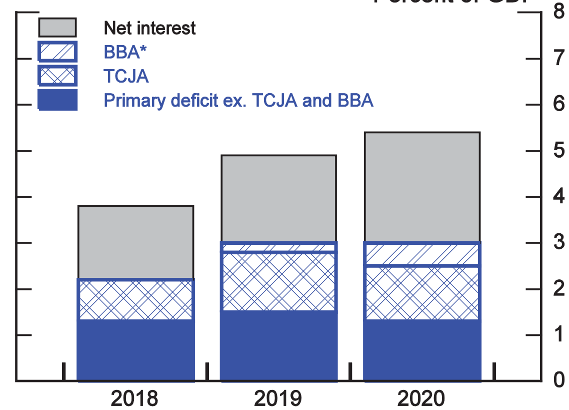
$d_t$: public debt-to-GDP ratio

$p_t$: primary deficit-to-GDP ratio

$i_t$: average Treasury borrowing rate

$g_t$: nominal GDP growth rate

**Projected Budget Deficits**

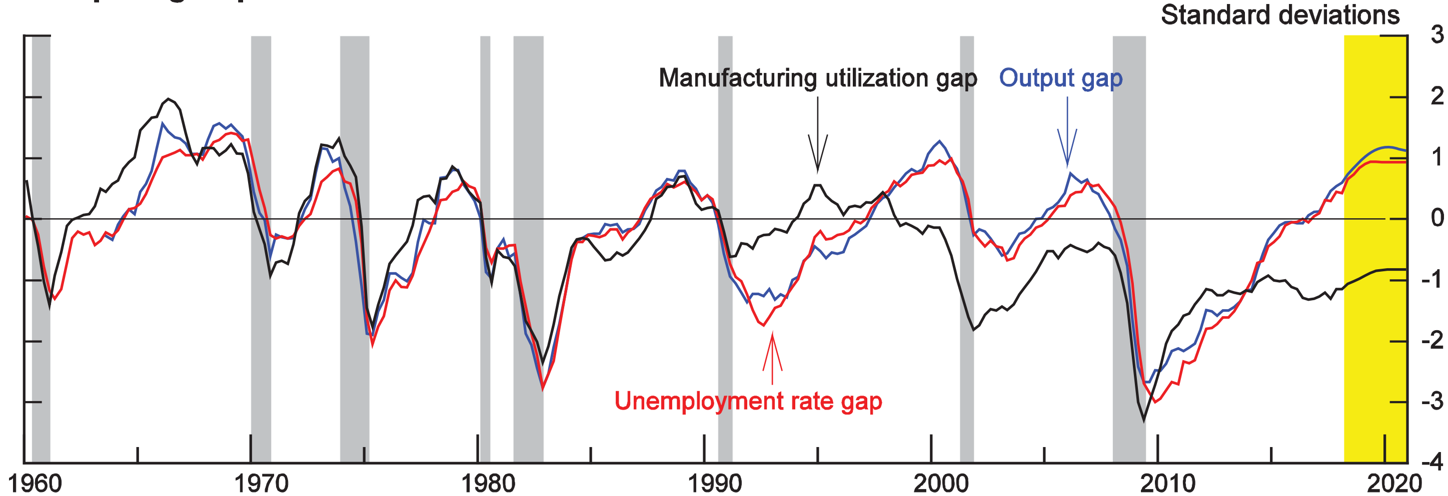



Note: Fiscal years. * The BBA 2018 temporarily increased appropriations for FY2018-FY2019. The staff projection assumes appropriations grow with inflation in FY2020 rather than reverting to caps set by the BCA.

- Federal debt as percent of GDP continues to increase through the medium term (and much more thereafter)
- The forecast assumes the debt-to-GDP ratio stabilizes in the longer run
- The debt-to-GDP ratio stabilizes when the *primary deficit is roughly zero* and the difference between borrowing rate and nominal GDP growth is small
- Eliminating the primary deficit will require reductions approximately equal to deficit effects from the BBA plus *two times* the TCJA

# Capacity Utilization (CU) Has Diverged from Other Resource Utilization Measures

**Comparing Gaps**

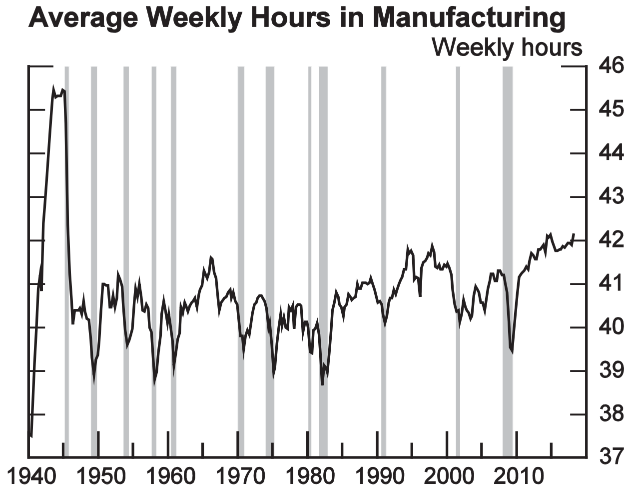



Note: Normalized by their standard deviations from 1964 to 2017. The unemployment gap is inverted and the utilization gap assumes 81.2 is a neutral CU rate. Shaded bars indicate NBER recessions. Shaded yellow region indicates forecast period.

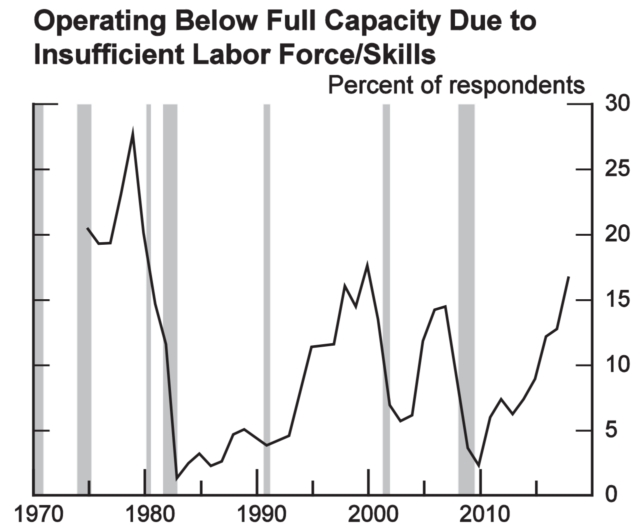
- From the early 1960s to the early 1990s, manufacturing CU closely tracked other measures of resource utilization, but then trended far below them and remains well below its long-run average

- Since 2012, CU moved roughly sideways even as the broad measures tightened well past their estimated sustainable levels—the largest "gap in the gaps"

# Labor in Manufacturing Appears Stretched…




Note: Shaded bars indicate NBER recessions.



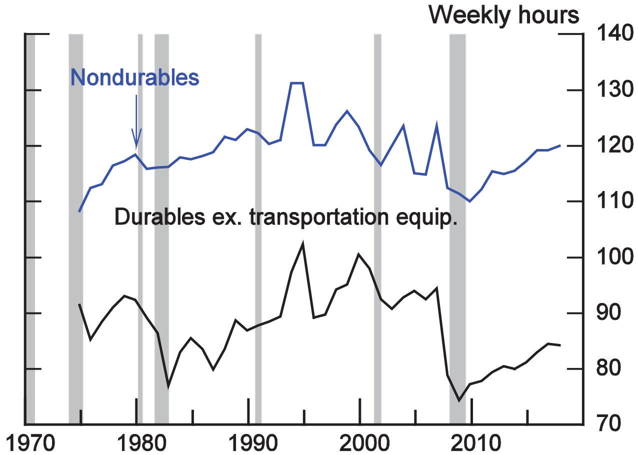

Note: Share of respondents to the Survey of Plant Capacity indicating the reason for operating at less than full capacity. Shaded bars indicate NBER recessions.

Even as reported utilization rates are low…

- Workers are working longer hours (LHS chart)
- Managers increasingly report a lack of available labor/skills (RHS chart)
- Even so, manufacturing employment is just half way to pre-recession levels

# …But Capital Not So Much

**Plant Hours in Manufacturing**




Note: Shaded bars indicate NBER recessions.

Capacity utilization = Industrial Production / Capacity

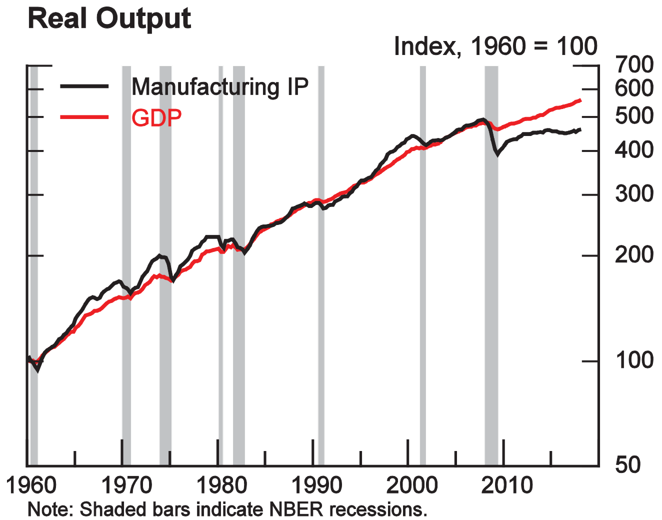
In the Survey of Plant Capacity (SPC), capacity is defined as the value of production a plant could produce assuming

- Machinery and equipment in place
- Labor and materials are fully available
- Shifts and hours of operation that can be sustained under normal conditions in the long run.

- The "workweek of capital", weekly plant hours, remains low
  - For durables producers (ex. Transportation equipment), it is as if half the plants dropped a shift during the Great Recession, and have only recovered modestly
- The CU responses in the SPC are based on assuming "normal" shift patterns

→ Reduced plant hours may be contributing to low reported CU and less than full recovery in jobs at many plants

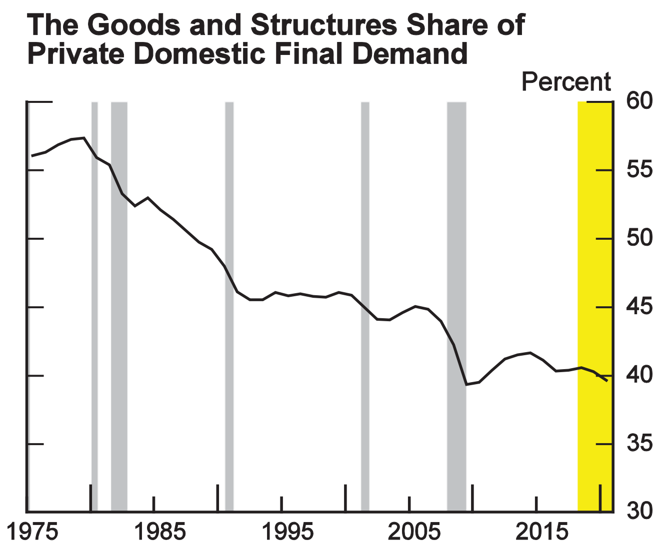
# Main Culprit for Low CU: Manufacturing Production Has Been Anemic…



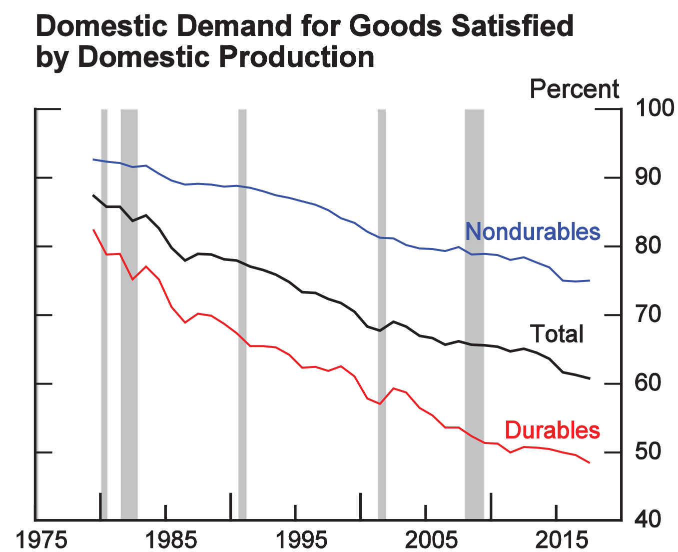

| Annual Growth (percent) | 1960-2007 | 2011-2017 |
|---|---|---|
| GDP | 3.4 | 2.1 |
| Manufacturing IP | 3.4 | 1.0 |
| | | |
| Manuf. capacity | 3.5 | 0.4 |

- GDP and IP trended upward at a remarkably similar pace until the Great Recession
- However, post-recession GDP growth has been sub-par
- And manufacturing IP has grown half as fast as GDP

# Manufacturing Output Weak Partly Because of …Weak Domestic Demand for Domestic Goods



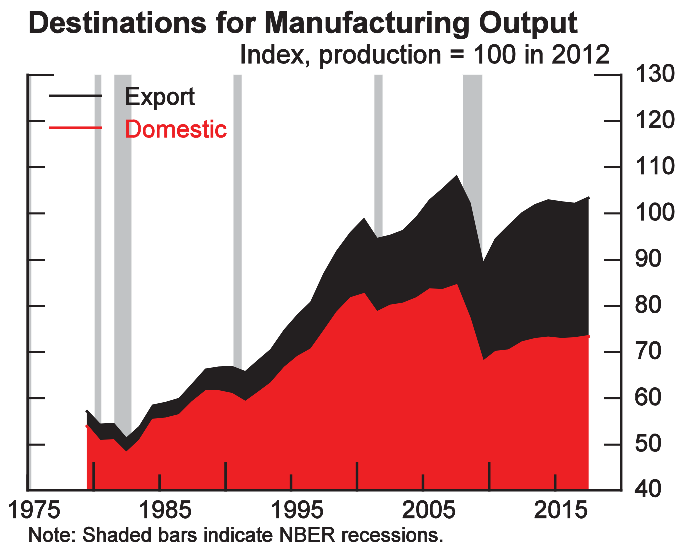

Note: Shaded bars indicate NBER recessions. Shaded yellow region indicates forecast period.




Note: Shaded bars indicate NBER recessions.

- A smaller share of private domestic final demand goes towards goods and structures (LHS chart), more toward services
- … and a smaller share of those goods consumed domestically is produced here at home (RHS chart)

# …While Exports Have Been a Silver Lining




**Cumulative Contributions to Manufacturing IP**

| 2011-2017 | Percentage points |
|---|---|
| Domestic demand | 2.5 |
| Export demand | 4.2 |

- **Exports** have supported the recovery in manufacturing (such as it is)
- From 2011-2017, exports accounted for **nearly 2/3** of the growth in manufacturing output

# The Weakness in Capacity Utilization...

...Perhaps masks a "short-run" CU a bit higher than published CU

- Average labor workweek at post-War highs plus growing shortages of skilled labor
- Plant hours (capital workweek) below pre-recession levels, but "new normal" may suggest more intense use than reported.

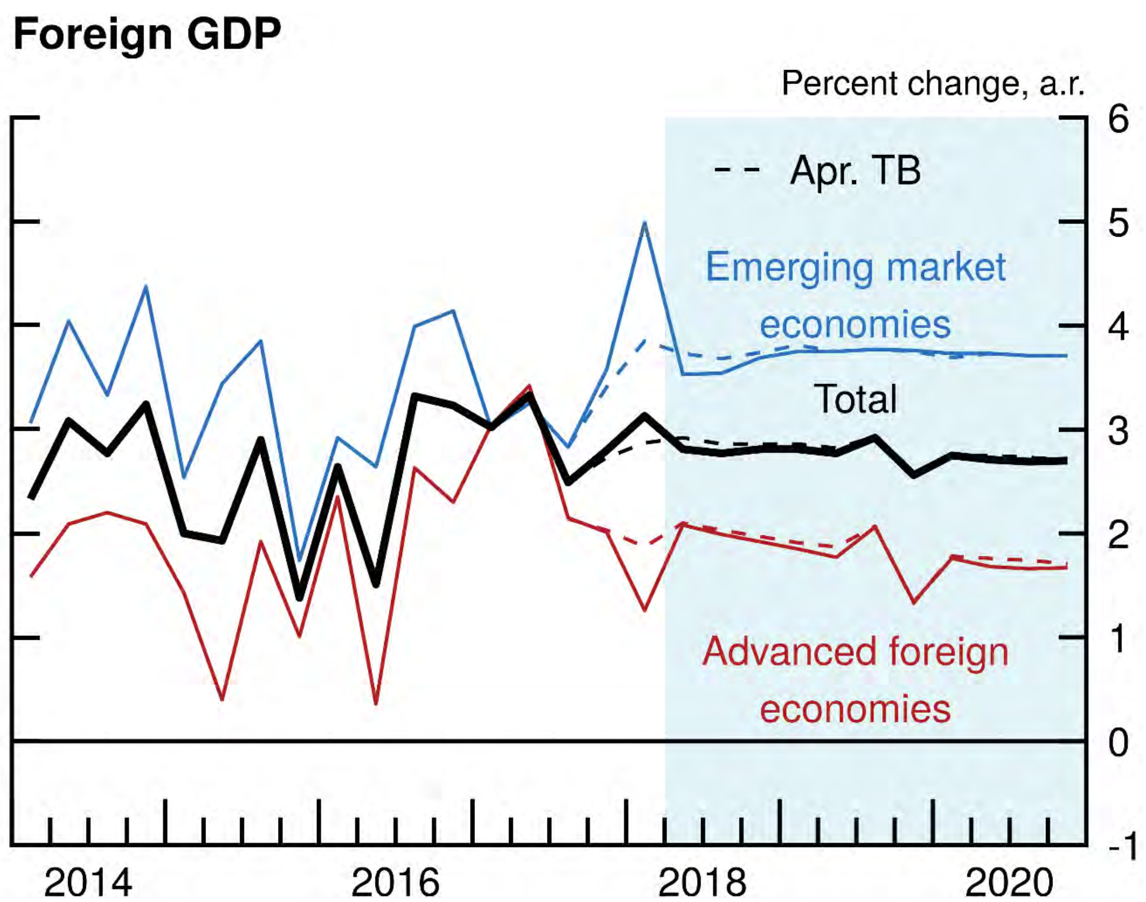
...Principally reflects a **historically weak manufacturing recovery**

- Largely explained by tepid recovery in GDP and by the composition and sourcing of demand
- The manufacturing recovery has been supported by exports

...Could represent additional factors, such as

- A lower target utilization rate by plant managers
- A reduction in business dynamism

# Still-Solid Foreign Outlook Despite the Chaos

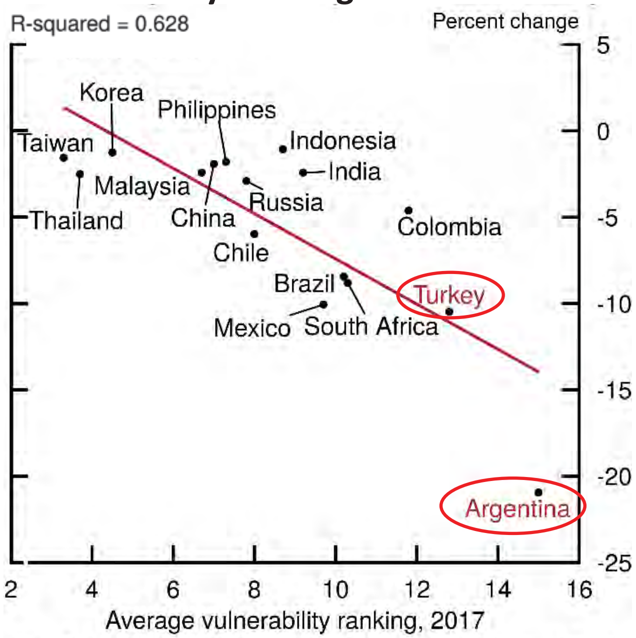


# Trade Policies

- The U.S. rescinded exemptions for the EU, Canada, and Mexico from its steel and aluminum tariffs.
- Tariffs on Chinese imports (Section 301, worth $50bn) to be finalized on June 15, investment restrictions on China on June 30.
- A new national security investigation (Section 232) on automobile and auto part imports.
- Negotiations on NAFTA stalled.

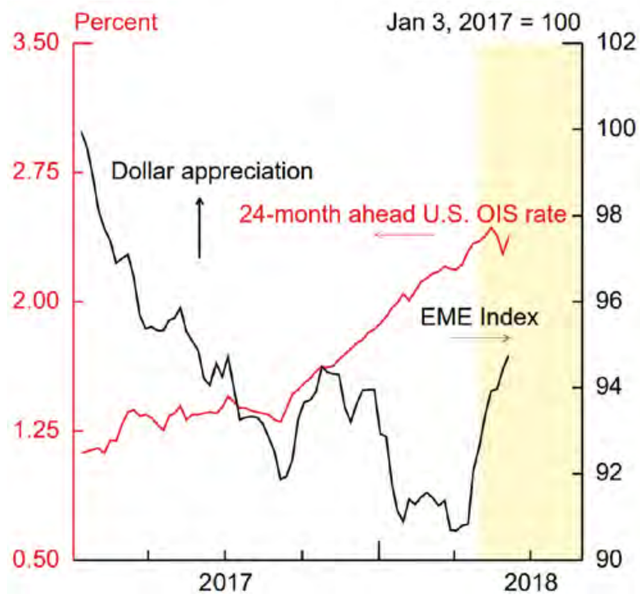
# Financial Stresses Emerge in Emerging Markets

## 1. Exchange Rate Changes vs. Vulnerability Ranking

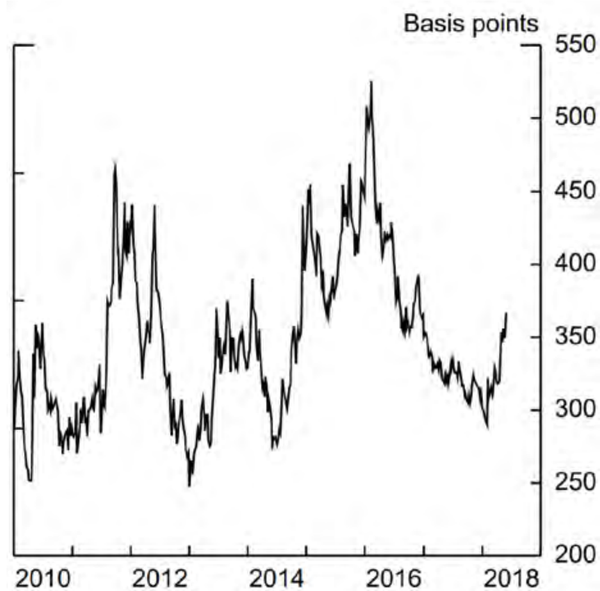



Note: Exchange rate appreciation from April 19, 2018, to June 11, 2018.
Source: Bloomberg; Haver Analytics; International Monetary Fund (IMF); International Financial Statistics and World Economic Outlook; World Bank-IMF Quarterly External Debt Statistics; staff calculations.

## 2. EME Exchange Rate & U.S. Interest Rate

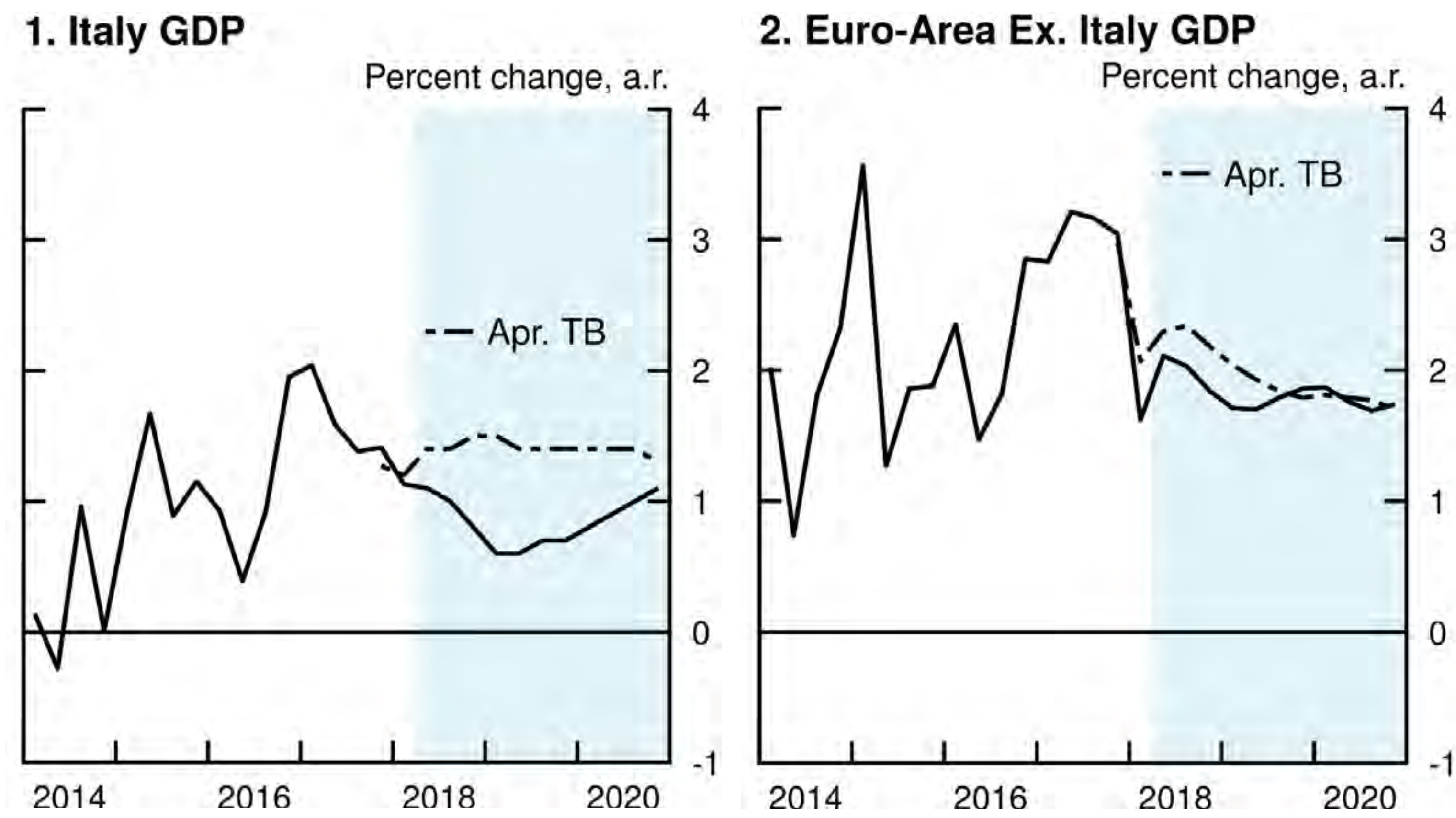



## 3. EMBI Global Credit Spreads




* Emerging market bond spreads over zero-coupon Treasury securities through June 11, 2018.

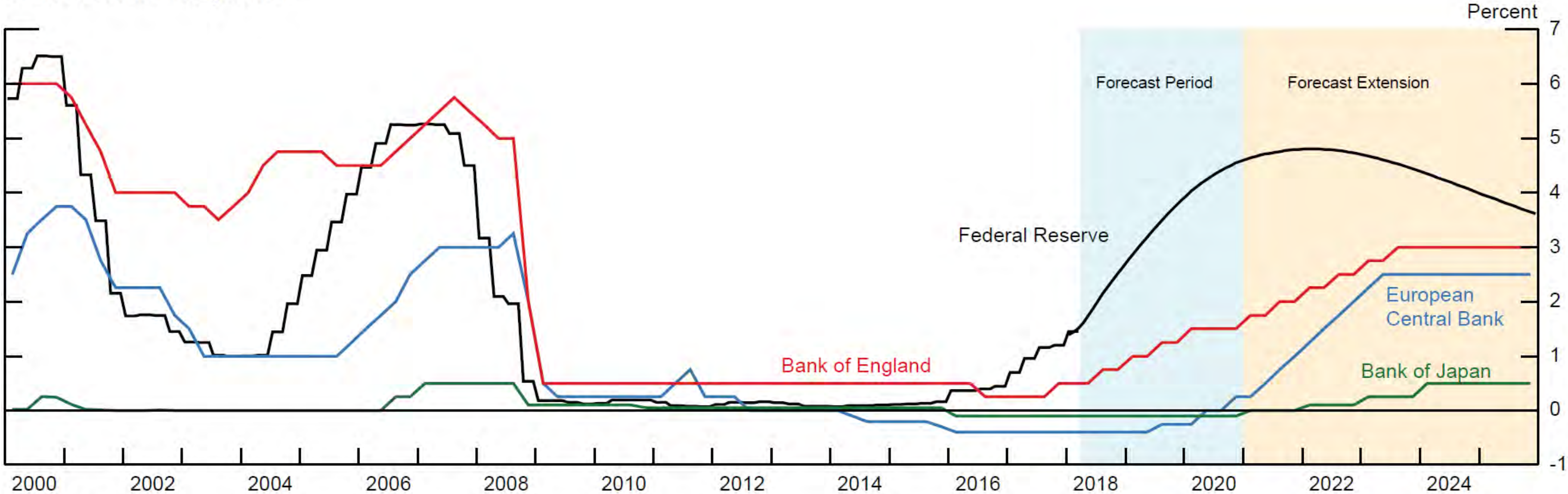
# Arrivederci Roma



# Low Interest Rates and their Implications for Financial Stability

- Might a further prolonged period of extremely low rates reduce bank profitability, incentivize risk-taking, and threaten financial stability?
- BIS Committee on the Global Financial System (CGFS) study group.
- 19 Central banks, led by Ulrich Bindseil (ECB) and me.

**Central Bank Policy Rates***

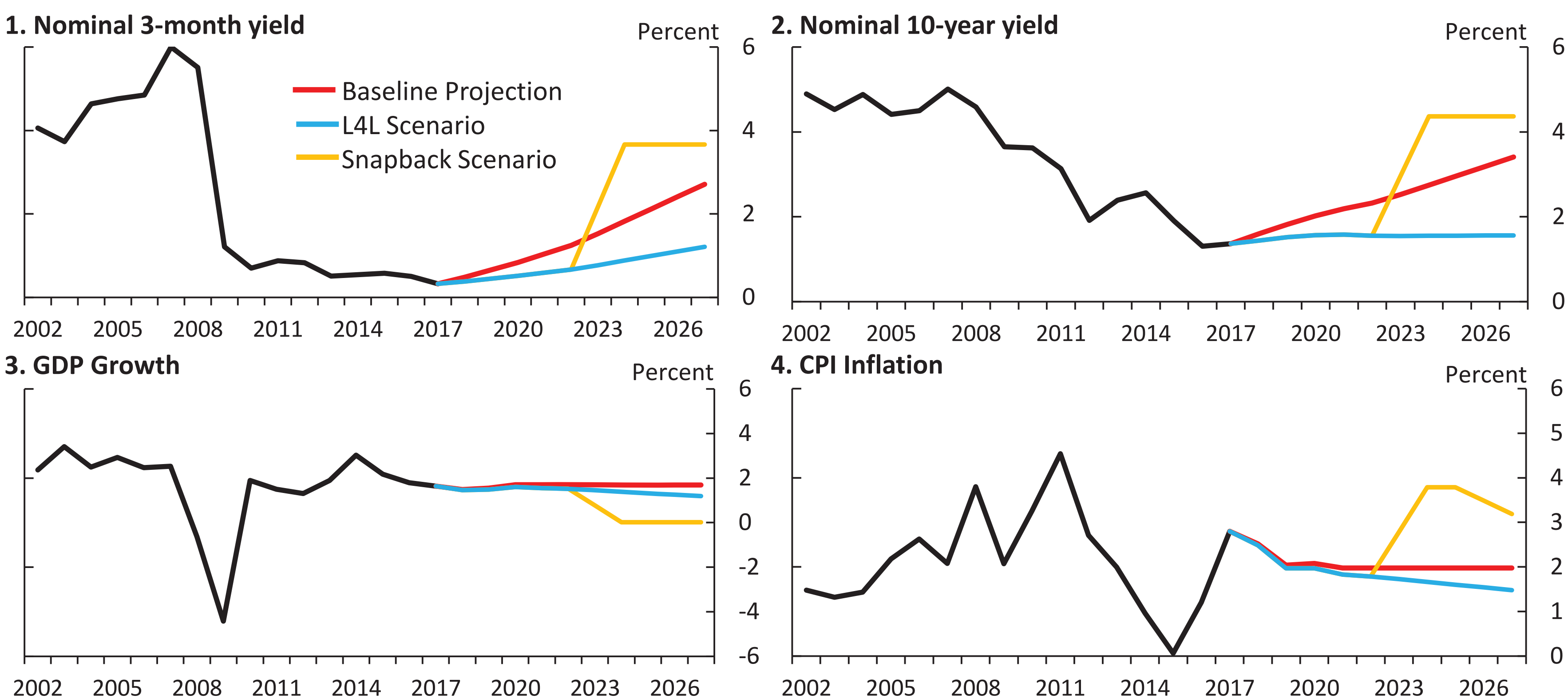



* FRB staff projections.

# Low Rates Study Group: 3 Scenarios

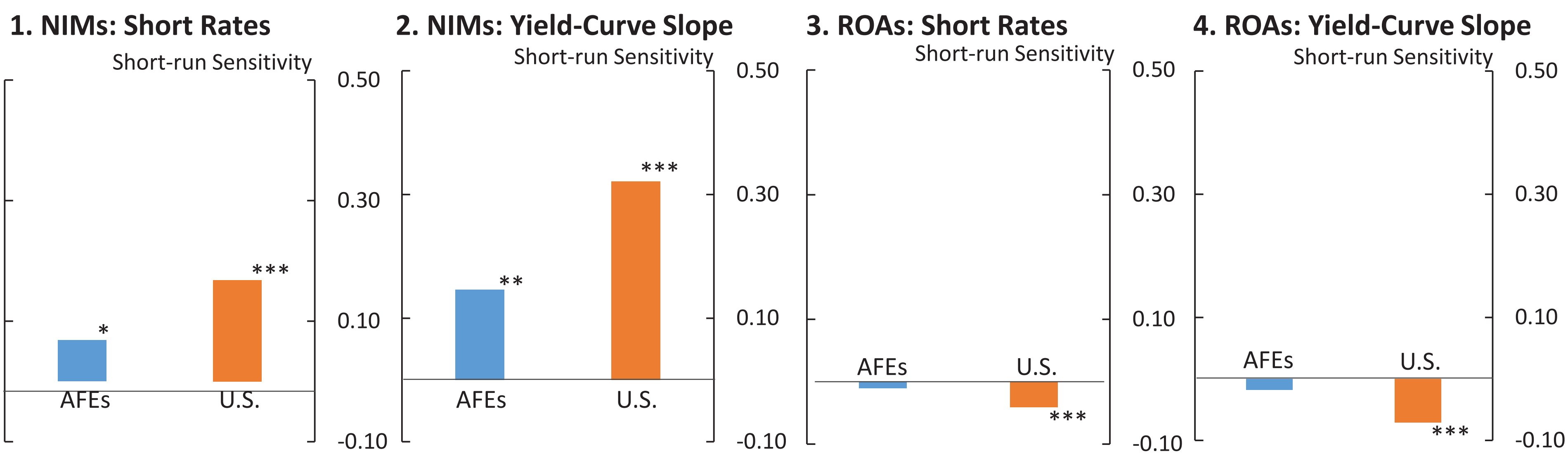
- Baseline: rates gradually rise to more normal levels.
- Low-for-long (L4L): continued weakness in demand and inflation keep rates low.
- Snapback: rates later rise sharply in response to higher inflation.

**United Kingdom**



# Estimated Effects of Rates on Bank Profitability

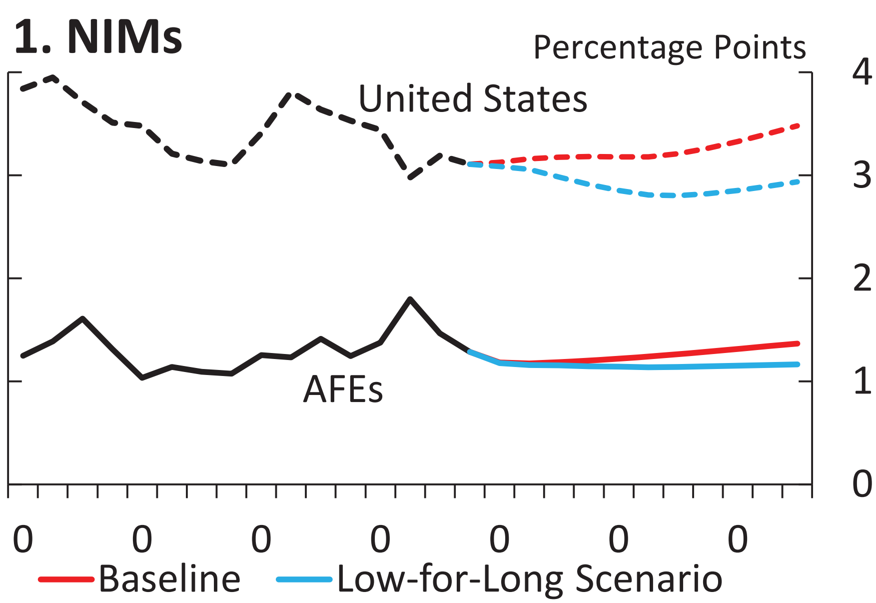
- Panel regression:
  - Dependent Variables: net interest margin (NIM), return on assets (ROA).
  - Explanatory Variables: short rate, yield-curve slope, GDP growth, inflation, lagged dependent variable.
  - 2,442 banks in 24 foreign countries and 6,993 U.S. banks, 2005-2015.
- Both short rate and yield-curve slope positively affect net interest margin (NIM).
- But effects of rates on ROA are small.
- Suggests banks offset lower NIMs by cutting costs and increasing fee-based activities.

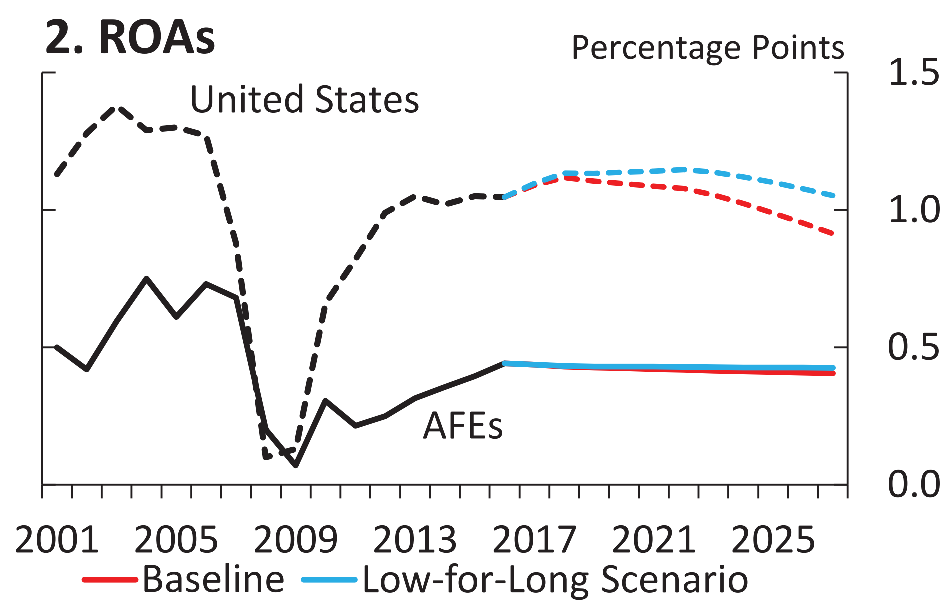



**Significance:** * $p<0.10$, **$p<0.05$, ***$p<0.01$

# NIM and ROA Projections under Scenarios

- Simulations imply that net interest margins (NIMs) would fall materially in a low-for-long scenario.
- But return on assets (ROAs) would not.

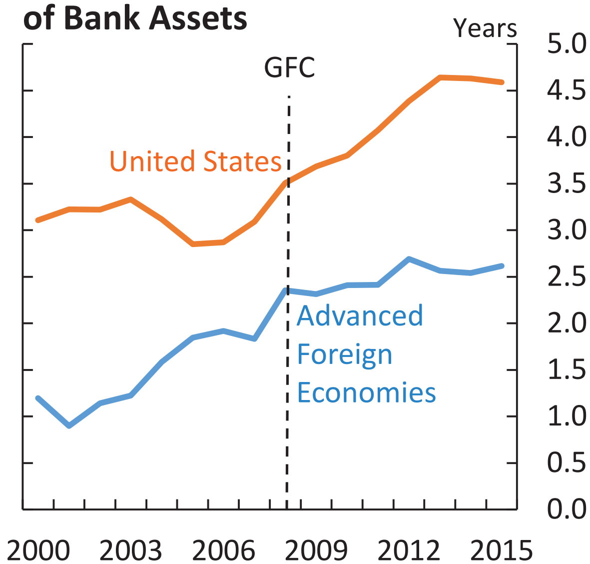


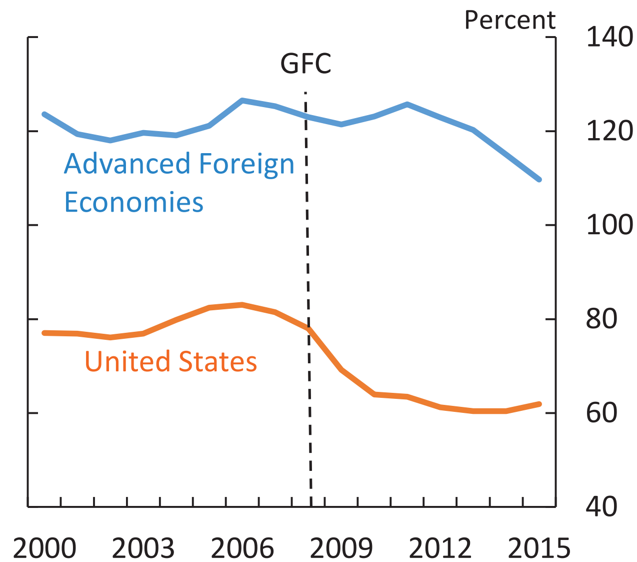
# Limited Signs of Low Rates Encouraging Risk-Taking

- Banks have shifted assets toward longer maturities (panel 1); also increased concentration in real estate loans in some economies.
- But credit-to-deposit ratios have declined (panel 2), and bank credit-to-GDP ratios are subdued in euro area and Japan (panel 3).
- Extensive panel analysis revealed little correlation between rates and risk-taking.

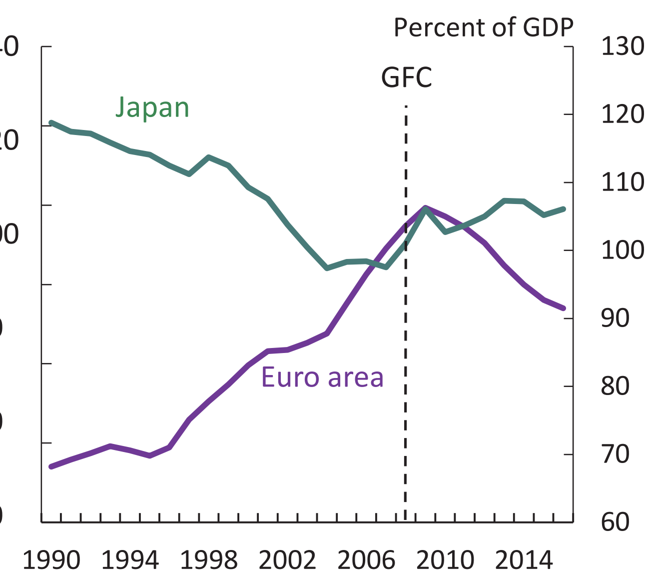
**1. Weighted-Average Maturity of Bank Assets**




**2. Credit-to-Deposit Ratio**




**3. Bank Credit to Private Sector**



# Caveat 1: Rate Sensitivity Stronger for Some Banks

Stronger effect on bank profits:

- In countries with already low yields.
- Where banking markets are more competitive.
- For banks that depend on deposit funding, such as retail banks.

Small retail banks in Europe and Japan are most at risk.

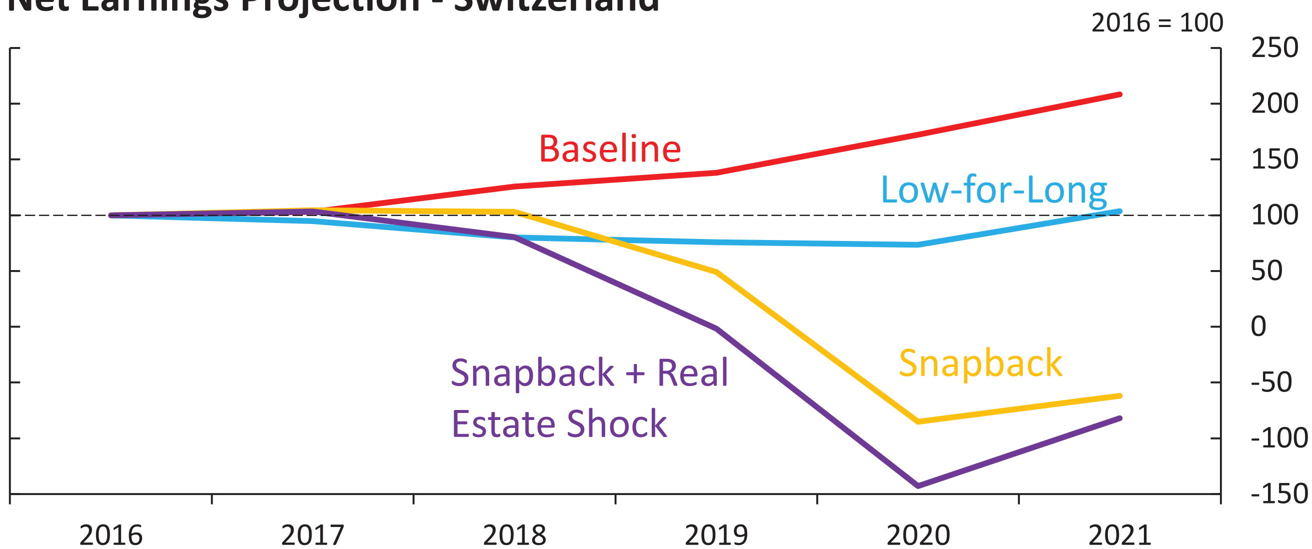
# Caveat 2: Subdued Risk-Taking May Not Continue

- Recent experience reflects de-risking and tightening of prudential standards and other regulations in wake of the GFC.
- Restraint might erode if rates remain low and depress returns and profitability.
- Heightened risk-taking might be most likely where growth picks up, but low inflation restrains policy tightening.

# Caveat 3: Future Snapback in Interest Rates

- Snapback could lead to valuation and credit losses.
  - Effects could be exacerbated if banks responded to prior low rates by extending durations and shifting loans to real estate sector.
- Simulation analysis for Swiss retail banks:
  - Net earnings fall more in Snapback than Low-for-Long.
  - With 30 percent fall in real estate prices, earnings fall still more.
- Recent U.S. stress tests also show adverse impact of snapback.

**Net Earnings Projection - Switzerland**



**Appendix 3: Materials used by Ms. Li**

*Material for Briefing on*

# Summary of Economic Projections

**Dan Li**
**Exhibits and support by Melanie Josselyn and Zack Saravay**
**June 12, 2018**

Exhibit 1. Medians, central tendencies, and ranges of economic projections, 2018–20 and over the longer run


NOTE: The data for the actual values of the variables are annual. The percent changes in real GDP and inflation are measured Q4/Q4. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. One participant did not submit longer-run projections for the change in real GDP or the unemployment rate.

Exhibit 2. Economic projections for 2018–20 and over the longer run (percent)

### Change in real GDP

| | 2018 | 2019 | 2020 | Longer run |
|---|---|---|---|---|
| Median | 2.8 | 2.4 | 2.0 | 1.8 |
| March projection | 2.7 | 2.4 | 2.0 | 1.8 |
| Range | 2.5 – 3.0 | 2.1 – 2.7 | 1.5 – 2.2 | 1.7 – 2.1 |
| March projection | 2.5 – 3.0 | 2.0 – 2.8 | 1.5 – 2.3 | 1.7 – 2.2 |
| Memo: Tealbook | 2.8 | 2.4 | 1.8 | 1.7 |
| March projection | 2.9 | 2.6 | 2.1 | 1.7 |

### Unemployment rate

| | 2018 | 2019 | 2020 | Longer run |
|---|---|---|---|---|
| Median | 3.6 | 3.5 | 3.5 | 4.5 |
| March projection | 3.8 | 3.6 | 3.6 | 4.5 |
| Range | 3.5 – 3.8 | 3.3 – 3.8 | 3.3 – 4.0 | 4.1 – 4.7 |
| March projection | 3.6 – 4.0 | 3.3 – 4.2 | 3.3 – 4.4 | 4.2 – 4.8 |
| Memo: Tealbook | 3.6 | 3.4 | 3.4 | 4.7 |
| March projection | 3.5 | 3.1 | 3.1 | 4.7 |

### PCE inflation

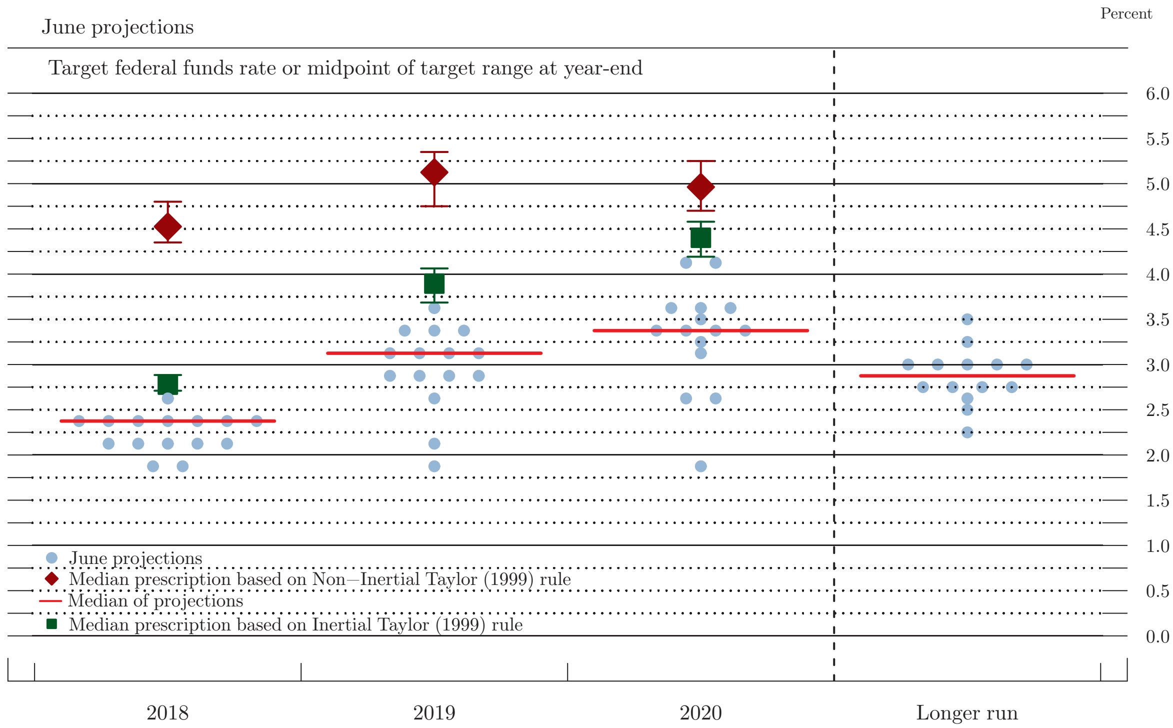
| | 2018 | 2019 | 2020 | Longer run |
|---|---|---|---|---|
| Median | 2.1 | 2.1 | 2.1 | 2.0 |
| March projection | 1.9 | 2.0 | 2.1 | 2.0 |
| Range | 2.0 – 2.2 | 1.9 – 2.3 | 2.0 – 2.3 | 2.0 |
| March projection | 1.8 – 2.1 | 1.9 – 2.3 | 2.0 – 2.3 | 2.0 |
| Memo: Tealbook | 2.0 | 1.9 | 2.0 | 2.0 |
| March projection | 1.8 | 2.0 | 2.1 | 2.0 |

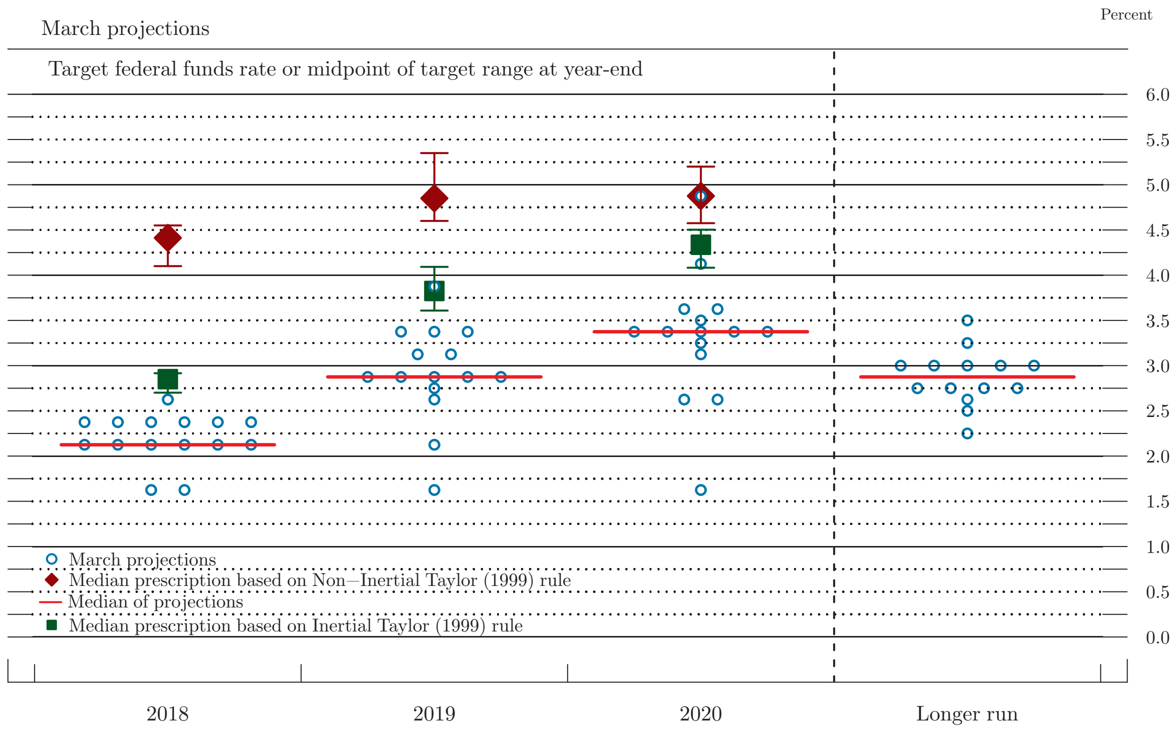
### Core PCE inflation

| | 2018 | 2019 | 2020 |
|---|---|---|---|
| Median | 2.0 | 2.1 | 2.1 |
| March projection | 1.9 | 2.1 | 2.1 |
| Range | 1.9 – 2.1 | 2.0 – 2.3 | 2.0 – 2.3 |
| March projection | 1.8 – 2.1 | 1.9 – 2.3 | 2.0 – 2.3 |
| Memo: Tealbook | 1.9 | 2.0 | 2.1 |
| March projection | 1.9 | 2.1 | 2.2 |

Note: Updated June Tealbook values are reported. The percent changes in real GDP and inflation are measured Q4/Q4. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. One participant did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate in conjunction with the March 20–21, 2018, meeting, and one participant did not submit such projections in conjunction with the June 12–13, 2018, meeting.

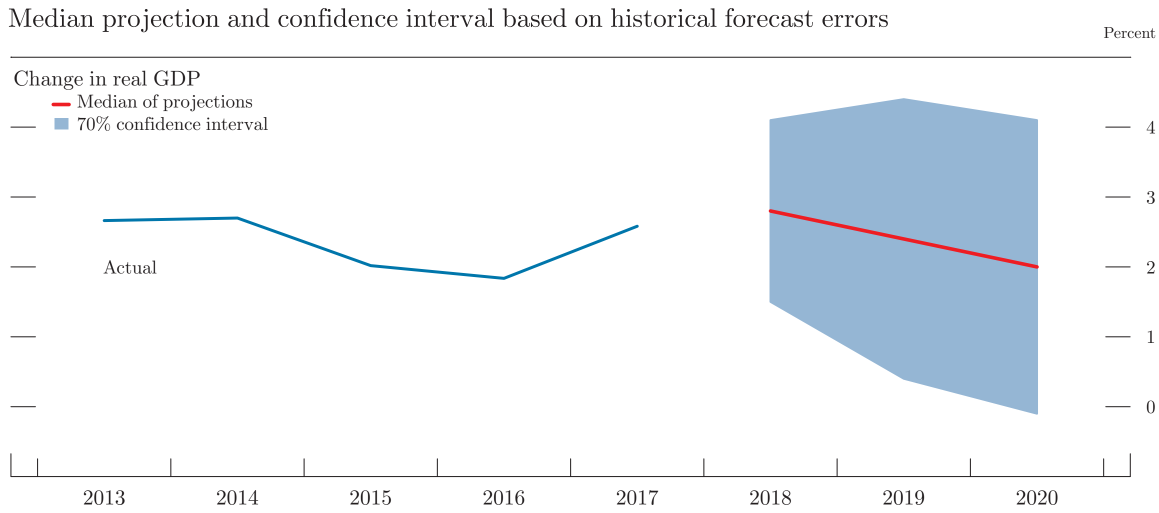
Exhibit 3. Overview of FOMC participants' assessments of appropriate monetary policy

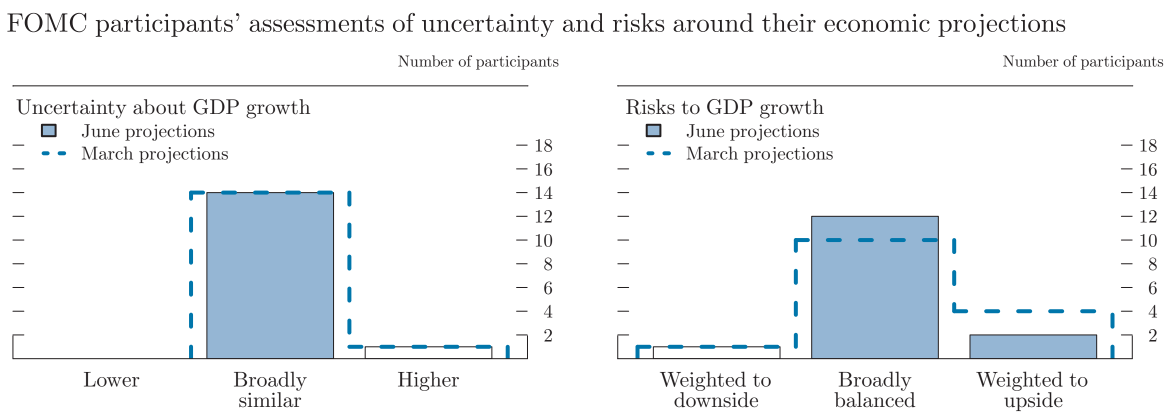



NOTE: In these two panels, each blue dot indicates the value (rounded to 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate, or the appropriate target level for that rate, at the end of the specified year or over the longer run. Each red diamond is the median value, for the indicated year, of the set of prescriptions for the federal funds rate that are generated by inserting into the non-inertial Taylor (1999) rule each participant's projections of core PCE inflation and the unemployment rate along with the participant's projections of the longer-run nominal federal funds rate and longer-run unemployment rate. The green squares are the medians of prescriptions generated using the inertial Taylor (1999) rule. The red and green whiskers show the central tendency, for each year, of the prescriptions that result from using the non-inertial Taylor (1999) rule and the inertial Taylor (1999) rule, respectively. One participant did not submit longer-run projections for the federal funds rate or unemployment rate.

Exhibit 4.A. Uncertainty and risks in projections of GDP growth

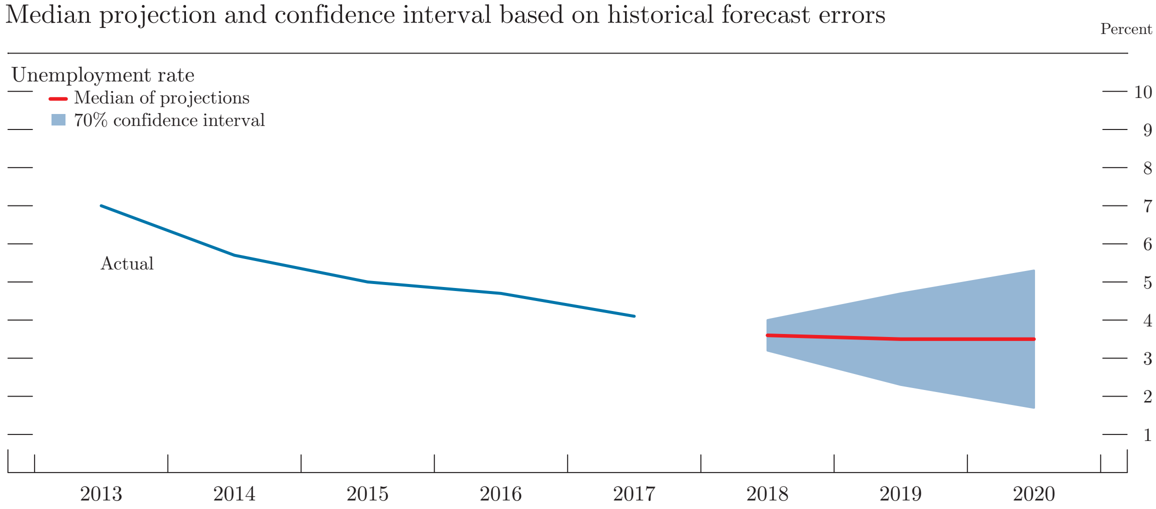


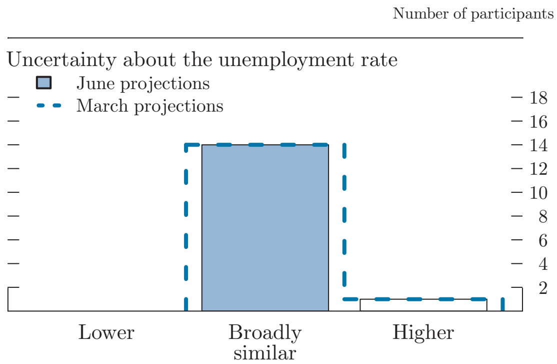

NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in real gross domestic product (GDP) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2 of the Summary of Economic Projections (SEP). Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty" in the SEP.

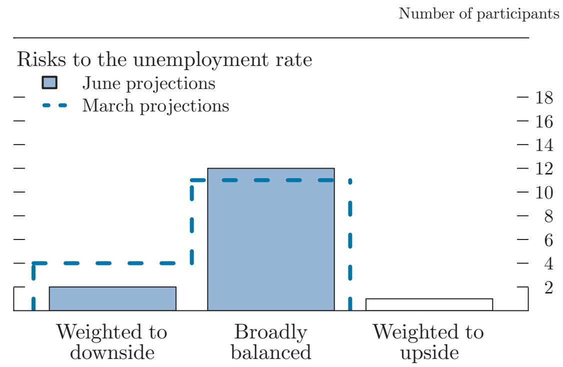
Exhibit 4.B. Uncertainty and risks in projections of the unemployment rate

Median projection and confidence interval based on historical forecast errors




FOMC participants' assessments of uncertainty and risks around their economic projections

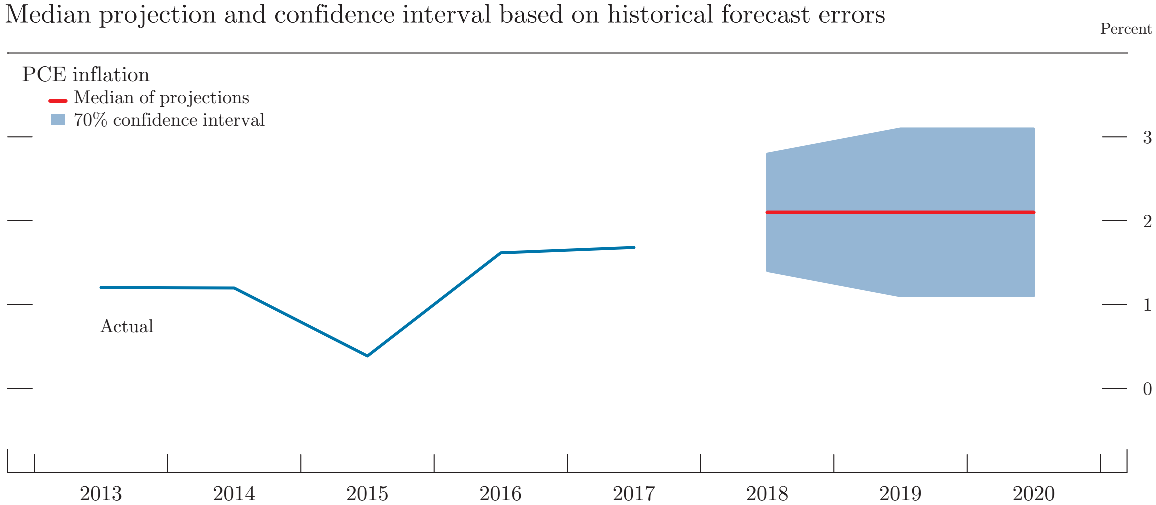


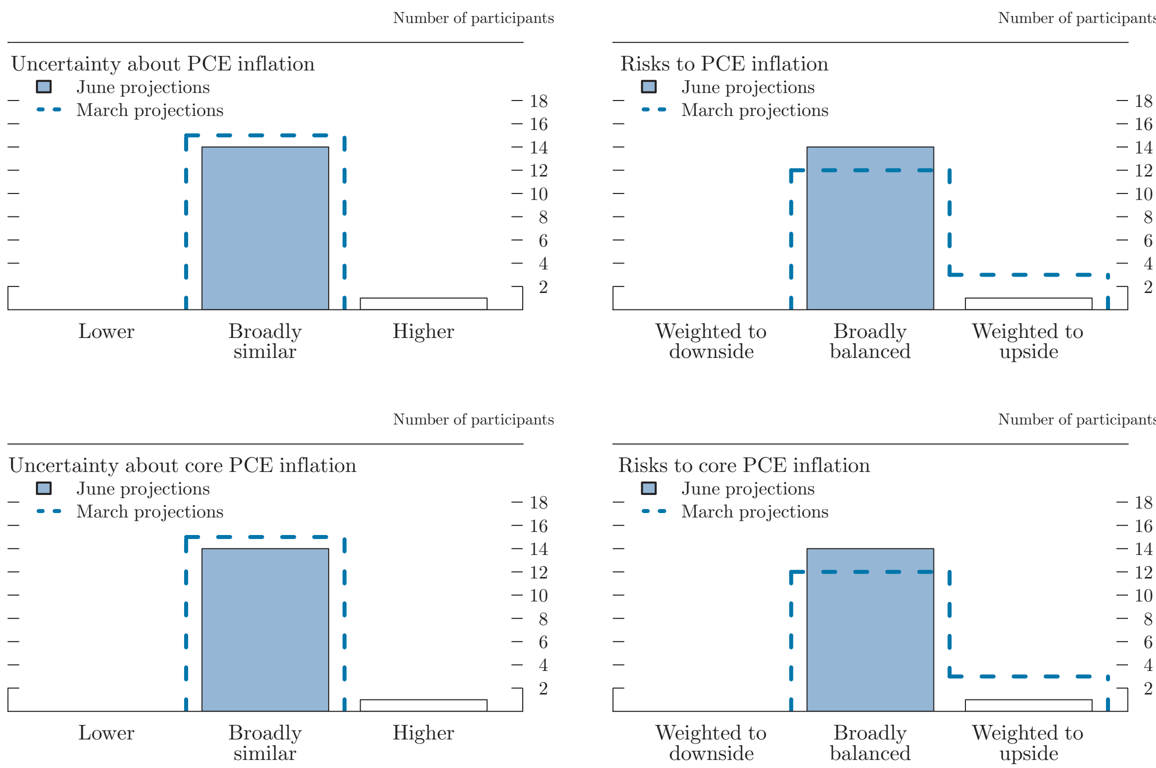

NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the average civilian unemployment rate in the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2 of the Summary of Economic Projections (SEP). Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty" in the SEP.

Exhibit 4.C. Uncertainty and risks in projections of PCE inflation

Median projection and confidence interval based on historical forecast errors



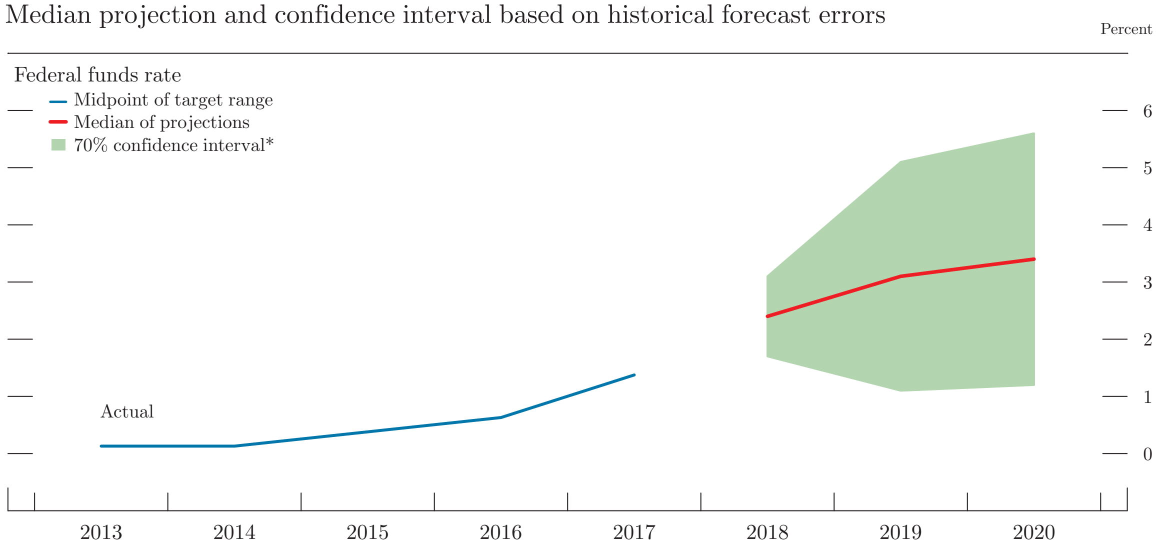

FOMC participants' assessments of uncertainty and risks around their economic projections




NOTE: The blue and red lines in the top panel show actual values and median projected values, respectively, of the percent change in the price index for personal consumption expenditures (PCE) from the fourth quarter of the previous year to the fourth quarter of the year indicated. The confidence interval around the median projected values is assumed to be symmetric and is based on root mean squared errors of various private and government forecasts made over the previous 20 years; more information about these data is available in table 2 of the Summary of Economic Projections (SEP). Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections; these current assessments are summarized in the lower panels. Generally speaking, participants who judge the uncertainty about their projections as "broadly similar" to the average levels of the past 20 years would view the width of the confidence interval shown in the historical fan chart as largely consistent with their assessments of the uncertainty about their projections. Likewise, participants who judge the risks to their projections as "broadly balanced" would view the confidence interval around their projections as approximately symmetric. For definitions of uncertainty and risks in economic projections, see the box "Forecast Uncertainty" in the SEP.

Exhibit 5. Uncertainty in projections of the federal funds rate

Median projection and confidence interval based on historical forecast errors




NOTE: The blue and red lines are based on actual values and median projected values, respectively, of the Committee's target for the federal funds rate at the end of the year indicated. The actual values are the midpoint of the target range; the median projected values are based on either the midpoint of the target range or the target level. The confidence interval around the median projected values is based on root mean squared errors of various private and government forecasts made over the previous 20 years. The confidence interval is not strictly consistent with the projections for the federal funds rate, primarily because these projections are not forecasts of the likeliest outcomes for the federal funds rate, but rather projections of participants' individual assessments of appropriate monetary policy. Still, historical forecast errors provide a broad sense of the uncertainty around the future path of the federal funds rate generated by the uncertainty about the macroeconomic variables as well as additional adjustments to monetary policy that may be appropriate to offset the effects of shocks to the economy.

The confidence interval is assumed to be symmetric except when it is truncated at zero—the bottom of the lowest target range for the federal funds rate that has been adopted in the past by the Committee. This truncation would not be intended to indicate the likelihood of the use of negative interest rates to provide additional monetary policy accommodation if doing so was judged appropriate. In such situations, the Committee could also employ other tools, including forward guidance and large-scale asset purchases, to provide additional accommodation. Because current conditions may differ from those that prevailed, on average, over the previous 20 years, the width and shape of the confidence interval estimated on the basis of the historical forecast errors may not reflect FOMC participants' current assessments of the uncertainty and risks around their projections.

* The confidence interval is derived from forecasts of the average level of short-term interest rates in the fourth quarter of the year indicated; more information about these data is available in table 2 of the Summary of Economic Projections. The shaded area encompasses less than a 70 percent confidence interval if the confidence interval has been truncated at zero.

**Appendix 4: Materials used by Mr. Laubach**

*Material for the Briefing on*

# Monetary Policy Alternatives

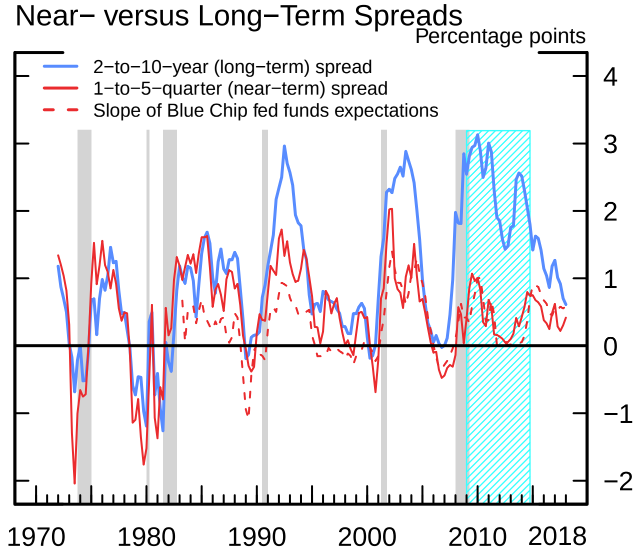
Thomas Laubach
Exhibits by Mark Wilkinson
June 12-13, 2018

# Monetary Policy Considerations

## Alternative B

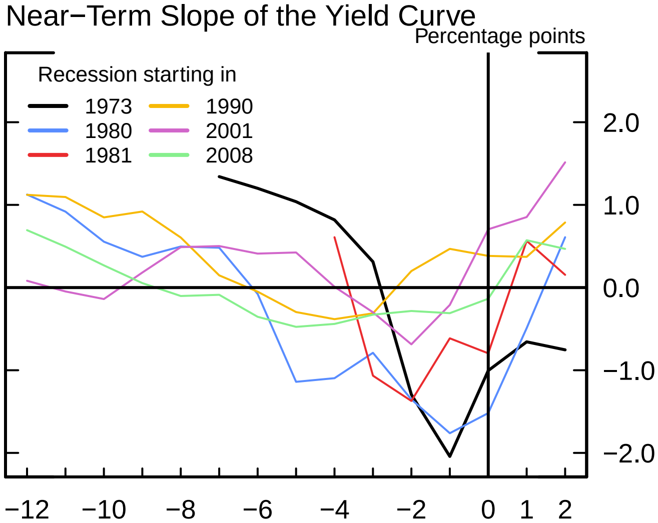
- Gradual increases in the funds rate consistent with
  - sustaining strong labor market and inflation near 2 percent
  - balancing risks
- Policy path will move from accommodative to somewhat restrictive
  - Slope of expected policy path will likely be negative

## Near− versus Long−Term Spreads



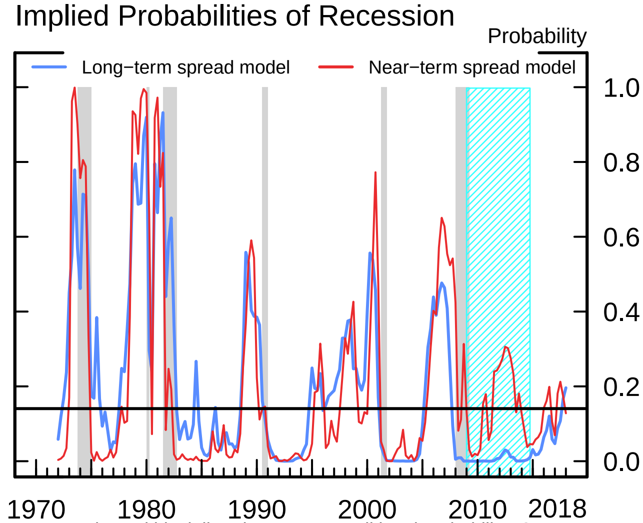

Note: Slope of Blue Chip federal funds rate expectations is computed as 4 quarter − 1 quarter ahead. Gray areas are recessions; hatched blue area is the effective lower bound period.
Source: Board staff calculations; Blue Chip Financial Forecasts.

## Near−Term Slope of the Yield Curve



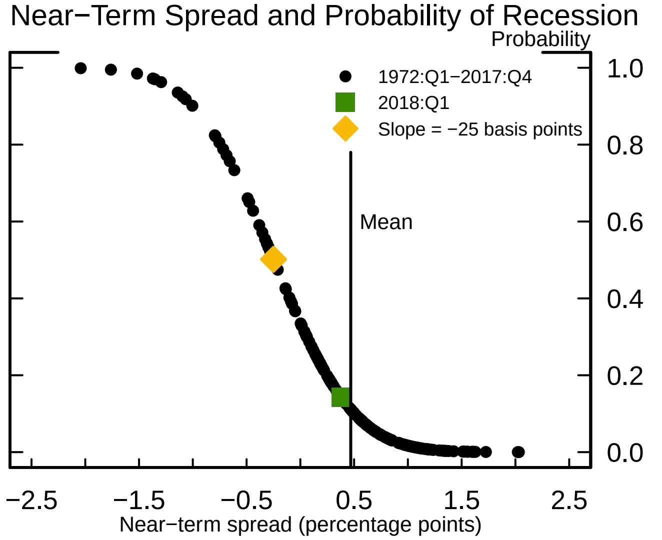

Note: The near−term slope is the difference between 5−quarter−ahead and 1−quarter−ahead forward interest rates.
Source: Board staff calculations.

## Implied Probabilities of Recession




Note: Horizontal black line denotes unconditional probability. Gray areas are recessions; hatched blue area is the effective lower bound period.
Source: Board staff calculations.

## Near−Term Spread and Probability of Recession




Source: Board staff calculations.

## Policy Implications

- Treat models with caution
- The near−term spread model suggests
  - an elevated risk associated with a modest funds rate overshoot
  - gradually raising the funds rate then gradually lowering it would reduce recession risk

## May 2018 FOMC Statement

1. Information received since the Federal Open Market Committee met in March indicates that the labor market has continued to strengthen and that economic activity has been rising at a moderate rate. Job gains have been strong, on average, in recent months, and the unemployment rate has stayed low. Recent data suggest that growth of household spending moderated from its strong fourth-quarter pace, while business fixed investment continued to grow strongly. On a 12-month basis, both overall inflation and inflation for items other than food and energy have moved close to 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that, with further gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace in the medium term and labor market conditions will remain strong. Inflation on a 12-month basis is expected to run near the Committee's symmetric 2 percent objective over the medium term. Risks to the economic outlook appear roughly balanced.

3. In view of realized and expected labor market conditions and inflation, the Committee decided to maintain the target range for the federal funds rate at 1-1/2 to 1-3/4 percent. The stance of monetary policy remains accommodative, thereby supporting strong labor market conditions and a sustained return to 2 percent inflation.

4. In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant further gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.

## ALTERNATIVE A FOR JUNE 2018

1. Information received since the Federal Open Market Committee met in ~~March~~ **May** indicates that the labor market has continued to strengthen and that economic activity has been rising at a moderate rate. Job gains have been strong, on average, in recent months, and the unemployment rate has ~~stayed low~~ **declined**. Recent data suggest that growth of household spending ~~moderated from its strong fourth-quarter pace~~ **has picked up**, while business fixed investment **has** continued to grow strongly. On a 12-month basis, both overall inflation and inflation for items other than food and energy **recently** have moved close to 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that, with ~~further gradual adjustments in the stance of~~ **appropriate** monetary policy **accommodation**, economic activity will expand at a moderate pace in the medium term and labor market conditions will remain strong. Inflation on a 12-month basis is expected to **move modestly above 2 percent for a time and then** run near the Committee's symmetric 2 percent objective ~~over the medium term~~. Risks to the economic outlook appear roughly balanced.

3. In view of realized and expected labor market conditions and inflation, the Committee decided to maintain the target range for the federal funds rate at 1-1/2 to 1-3/4 percent. The stance of monetary policy remains accommodative, thereby supporting strong labor market conditions and a ~~sustained return to~~ **period of inflation modestly above** 2 percent ~~inflation~~. **This inflation outcome should help ensure that longer-term inflation expectations rise to a level consistent with the Committee's symmetric objective for 2 percent inflation.**

4. In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. ~~The Committee expects that economic conditions will evolve in a manner that will warrant further gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.~~

## ALTERNATIVE B FOR JUNE 2018

1. Information received since the Federal Open Market Committee met in ~~March~~ **May** indicates that the labor market has continued to strengthen and that economic activity has been rising at a ~~moderate~~ **solid** rate. Job gains have been strong, on average, in recent months, and the unemployment rate has ~~stayed low~~ **declined**. Recent data suggest that growth of household spending ~~moderated from its strong fourth-quarter pace~~ **has picked up**, while business fixed investment **has** continued to grow strongly. On a 12-month basis, both overall inflation and inflation for items other than food and energy have moved close to 2 percent. ~~Market-based measures of inflation compensation remain low; survey-based measures~~ **Indicators** of longer-term inflation expectations are little changed, on balance.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that~~, with~~ further gradual ~~adjustments in the stance of monetary policy,~~ **increases in the target range for the federal funds rate will be consistent with sustained expansion of** economic activity**,** ~~will expand at a moderate pace in the medium term and~~ **strong** labor market conditions**,** ~~will remain strong.~~ **and** inflation ~~on a 12-month basis is expected to run~~ near the Committee's symmetric 2 percent objective over the medium term. Risks to the economic outlook appear roughly balanced.

3. In view of realized and expected labor market conditions and inflation, the Committee decided to ~~maintain~~ **raise** the target range for the federal funds rate ~~at 1-1/2~~ to 1-3/4 **to 2** percent. The stance of monetary policy remains accommodative, thereby supporting strong labor market conditions and a sustained return to 2 percent inflation.

4. In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its ~~objectives of~~ maximum employment **objective** and **its symmetric** 2 percent inflation **objective**. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. ~~The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant further gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.~~

## ALTERNATIVE C FOR JUNE 2018

1. Information received since the Federal Open Market Committee met in ~~March~~ **May** indicates that the labor market has continued to strengthen and that economic activity has been rising at a ~~moderate~~ **solid** rate. Job gains have been strong, on average, in recent months, and the unemployment rate has ~~stayed low~~ **declined**. Recent data suggest that growth of household spending ~~moderated from its strong fourth-quarter pace~~ **has strengthened**, while business fixed investment **has** continued to grow strongly. On a 12-month basis, both overall inflation and inflation for items other than food and energy ~~have moved~~ **remain** close to 2 percent. ~~Market-based measures of inflation compensation remain low; survey-based measures~~ **Indicators** of longer-term inflation expectations are little changed, on balance.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that~~, with~~ further ~~gradual adjustments in the stance of monetary policy,~~ **increases in the target range for the federal funds rate will be warranted to achieve a sustainable expansion of** economic activity **and employment** ~~will expand at a moderate pace in the medium term and labor market conditions will remain strong.~~ **and to maintain** inflation ~~on a 12-month basis is expected to run~~ near the Committee's symmetric 2 percent objective over the medium term. Risks to the economic outlook appear roughly balanced**, but the Committee is closely monitoring the implications of high levels of resource utilization**.

3. In view of realized and expected labor market conditions and inflation, the Committee decided to ~~maintain~~ **raise** the target range for the federal funds rate ~~at 1-1/2~~ to 1-3/4 **to 2** percent. The stance of monetary policy remains accommodative~~, thereby supporting strong labor market conditions and a sustained return to 2 percent inflation~~.

~~4.~~ In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its ~~objectives of~~ maximum employment **objective** and **its symmetric** 2 percent inflation **objective**. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. ~~The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant further gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.~~

## Implementation Note for June 2018 Alternative A

*Release Date: June 13, 2018*

### Decisions Regarding Monetary Policy Implementation

The Federal Reserve has made the following decisions to implement the monetary policy stance announced by the Federal Open Market Committee in its statement on ~~May 2~~ **June 13**, 2018:

- The Board of Governors of the Federal Reserve System voted **[** unanimously **]** to maintain the interest rate paid on required and excess reserve balances at 1.75 percent, effective ~~May 3~~ **June 14**, 2018.

- As part of its policy decision, the Federal Open Market Committee voted to authorize and direct the Open Market Desk at the Federal Reserve Bank of New York, until instructed otherwise, to execute transactions in the System Open Market Account in accordance with the following domestic policy directive:

> "Effective ~~May 3~~ **June 14**, 2018, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 1-1/2 to 1-3/4 percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 1.50 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during ~~each calendar month~~ **June** that exceeds $18 billion, and to continue reinvesting in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during ~~each calendar month~~ **June** that exceeds $12 billion. **Effective in July, the Committee directs the Desk to roll over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $24 billion, and to reinvest in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month that exceeds $16 billion.** Small deviations from these amounts for operational reasons are acceptable.

The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

- In a related action, the Board of Governors of the Federal Reserve System voted [ unanimously ] to approve the establishment of the primary credit rate at the existing level of 2.25 percent.

This information will be updated as appropriate to reflect decisions of the Federal Open Market Committee or the Board of Governors regarding details of the Federal Reserve's operational tools and approach used to implement monetary policy.

More information regarding open market operations and reinvestments may be found on the Federal Reserve Bank of New York's website.

## Implementation Note for June 2018 Alternatives B and C

*Release Date: June 13, 2018*

### Decisions Regarding Monetary Policy Implementation

The Federal Reserve has made the following decisions to implement the monetary policy stance announced by the Federal Open Market Committee in its statement on ~~May 2~~ **June 13**, 2018:

- The Board of Governors of the Federal Reserve System voted **[** unanimously **]** to ~~maintain~~ **raise** the interest rate paid on required and excess reserve balances ~~at~~ **to** ~~1.75~~ **1.95** percent, effective ~~May 3~~ **June 14**, 2018. **Setting the interest rate paid on required and excess reserve balances 5 basis points below the top of the target range for the federal funds rate is intended to foster trading in the federal funds market at rates well within the FOMC's target range.**

- As part of its policy decision, the Federal Open Market Committee voted to authorize and direct the Open Market Desk at the Federal Reserve Bank of New York, until instructed otherwise, to execute transactions in the System Open Market Account in accordance with the following domestic policy directive:

> "Effective ~~May 3~~ **June 14**, 2018, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of ~~1-1/2 to~~ 1-3/4 **to 2** percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of ~~1.50~~ **1.75** percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during ~~each calendar month~~ **June** that exceeds $18 billion, and to continue reinvesting in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during ~~each calendar month~~ **June** that exceeds $12 billion. **Effective in July, the Committee directs the Desk to roll over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $24 billion, and to reinvest in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month that exceeds**

**$16 billion.** Small deviations from these amounts for operational reasons are acceptable.

The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

- In a related action, the Board of Governors of the Federal Reserve System voted **[** unanimously **]** to approve ~~the establishment of~~ **a 1/4 percentage point increase in** the primary credit rate ~~at the existing level of 2.25~~ **to 2.50** percent**, effective June 14, 2018**. **In taking this action, the Board approved requests to establish that rate submitted by the Boards of Directors of the Federal Reserve Banks of . . .**

This information will be updated as appropriate to reflect decisions of the Federal Open Market Committee or the Board of Governors regarding details of the Federal Reserve's operational tools and approach used to implement monetary policy.

More information regarding open market operations and reinvestments may be found on the Federal Reserve Bank of New York's website.