Appendix 1: Materials used by Mr. Laubach

Class I FOMC – Restricted Controlled (FR)

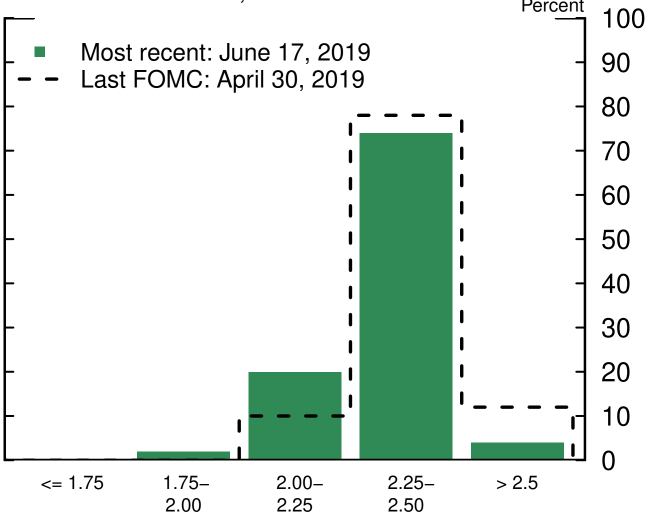
Material for the Briefing on

Monetary Policy Alternatives

Thomas Laubach
Exhibits by Gurubala Kotta
June 18-19, 2019

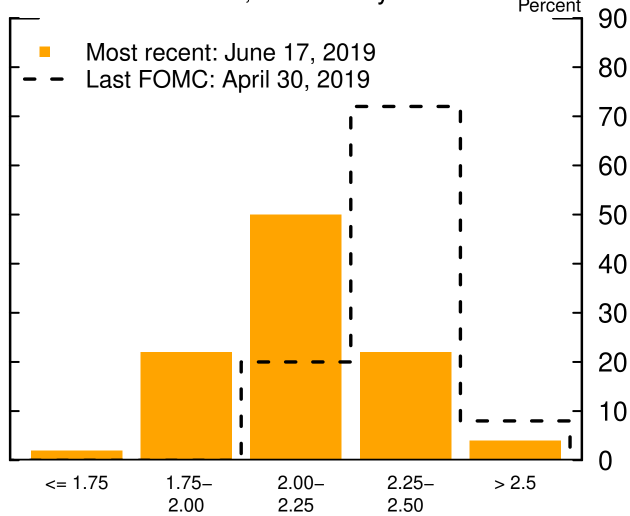
Monetary Policy Considerations

Market–Implied Probability Distribution of the Federal Funds Rate, End of June 2019



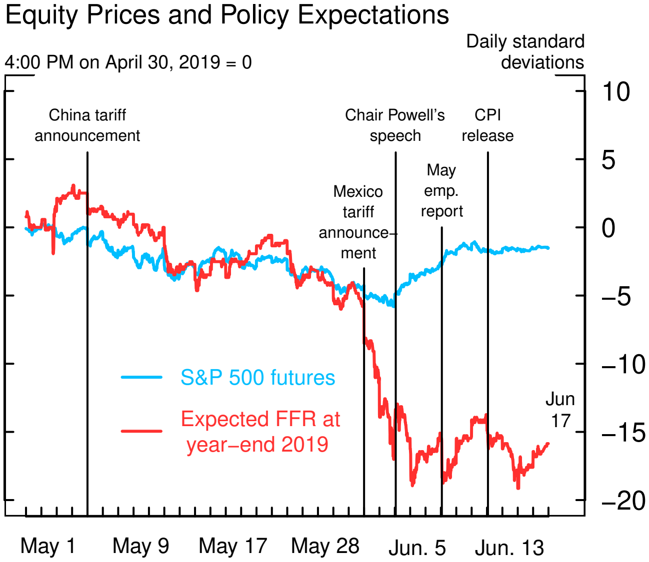
Source: CME Group; Board staff calculations.

Market–Implied Probability Distribution of the Federal Funds Rate, End of July 2019



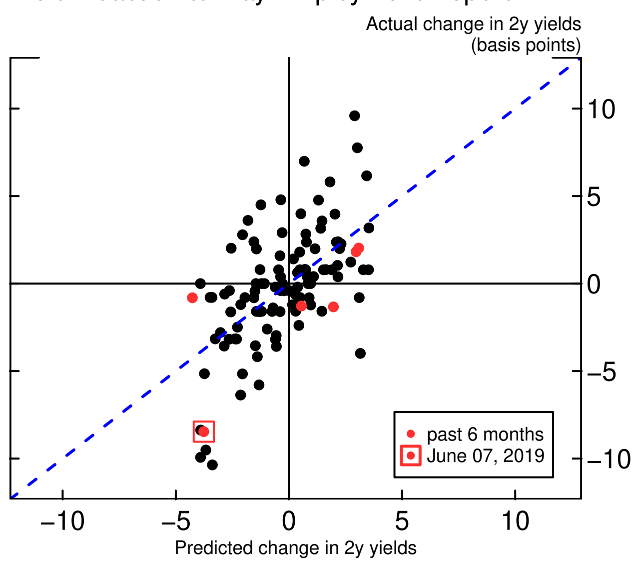
Source: CME Group; Board staff calculations.

Equity Prices and Policy Expectations



Note: Data are spaced at 5–minute intervals from 8:00 a.m. to 4:00 p.m. Series are scaled by the daily standard deviation of historical changes from January 2008 through May 2019.
Source: Bloomberg; Board staff calculations.

Yield Reaction to May Employment Report



Note: Changes are measured within a 1–hour window, from 30 minutes before to 30 minutes after the release. The regression line is based on data from March 2010 – June 2019.
Source: Bloomberg; Board staff calculations.

Policy Considerations

- Case for acting early:
  - Still not far away from ELB, respond early to emerging weakness.
  - Trade policy uncertainty may already affect economic outlook.
  - Return of inflation to 2 percent more protracted.
- Case for waiting for more information:
  - Change in policy stance now could increase pessimism.
  - Respond to economic and financial developments that are sustained.

Alternative B

- Waiting for a few more weeks to assess the effects of heightened uncertainty may be prudent.
- Emphasis on uncertainties, willingness to act leave impression you are ready to ease in July.
- Supported by notable downshift in dots, risk assessments.

MAY 2019 FOMC STATEMENT

1. Information received since the Federal Open Market Committee met in March indicates that the labor market remains strong and that economic activity rose at a solid rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Growth of household spending and business fixed investment slowed in the first quarter. On a 12-month basis, overall inflation and inflation for items other than food and energy have declined and are running below 2 percent. On balance, market-based measures of inflation compensation have remained low in recent months, and survey-based measures of longer-term inflation expectations are little changed.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In support of these goals, the Committee decided to maintain the target range for the federal funds rate at 2-1/4 to 2-1/2 percent. The Committee continues to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes. In light of global economic and financial developments and muted inflation pressures, the Committee will be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate to support these outcomes.

3. 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 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.

ALTERNATIVE A FOR JUNE 2019

1. Information received since the Federal Open Market Committee met in ~~March~~ **May** indicates that the labor market remains strong and that economic activity ~~rose~~ **is rising** at a ~~solid~~ **moderate** rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. **Although** growth of household spending ~~and~~ **appears to have picked up from earlier in the year, indicators of** business fixed investment ~~slowed in the first quarter~~ **have been soft**. On a 12-month basis, overall inflation and inflation for items other than food and energy ~~have declined and~~ are running below 2 percent. ~~On balance,~~ Market-based measures of inflation compensation have ~~remained low in recent months, and~~ **declined;** survey-based measures of longer-term inflation expectations are little changed.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In ~~support of these goals~~ **light of heightened uncertainties about the economic outlook and muted inflation pressures**, the Committee decided to ~~maintain~~ **lower** the target range for the federal funds rate ~~at~~ **to 2 to** 2-1/4 ~~to 2-1/2~~ percent. **The Committee also decided to conclude the reduction of its aggregate securities holdings in the System Open Market Account at the end of July; thereafter, reinvestments will occur as specified in the Committee's statement of Balance Sheet Normalization Principles and Plans. With these actions,** the Committee continues to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes. ~~In light of global economic and financial developments and muted inflation pressures,~~ The Committee ~~will be patient as it determines what future~~ **is prepared to** adjust~~ments to~~ the target range for the federal funds rate ~~may be~~ **as** appropriate to support these outcomes.

3. 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 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.

ALTERNATIVE B FOR JUNE 2019

1. Information received since the Federal Open Market Committee met in ~~March~~ **May** indicates that the labor market remains strong and that economic activity ~~rose~~ **is rising** at a ~~solid~~ **moderate** rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. **Although** growth of household spending ~~and~~ **appears to have picked up from earlier in the year, indicators of** business fixed investment ~~slowed in the first quarter~~ **have been soft**. On a 12-month basis, overall inflation and inflation for items other than food and energy ~~have declined and~~ are running below 2 percent. ~~On balance,~~ Market-based measures of inflation compensation have ~~remained low in recent months, and~~ **declined;** survey-based measures of longer-term inflation expectations are little changed.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In support of these goals, the Committee decided to maintain the target range for the federal funds rate at 2-1/4 to 2-1/2 percent. The Committee continues to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes**, but uncertainties about this outlook have increased**. In light of ~~global economic and financial developments~~ **these uncertainties** and muted inflation pressures, the Committee will ~~be patient as it determines what future adjustments to the target range for the federal funds rate may be~~ **closely monitor the implications of incoming information for the economic outlook and will** **act as** appropriate to ~~support these outcomes~~ **sustain the expansion, with a strong labor market and inflation near its symmetric 2 percent objective**.

3. 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 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.

ALTERNATIVE C FOR JUNE 2019

1. Information received since the Federal Open Market Committee met in ~~March~~ **May** indicates that the labor market remains strong and that economic activity ~~rose~~ **is rising** at a ~~solid~~ **moderate** rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Growth of household spending ~~and~~ **appears to have picked up from earlier in the year, while indicators of** business fixed investment ~~slowed in the first quarter~~ **have been soft**. On a 12-month basis, overall inflation and inflation for items other than food and energy ~~have declined and~~ are running below 2 percent. On balance, market-based measures of inflation compensation have remained low in recent months, and survey-based measures of longer-term inflation expectations are little changed.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. In support of these goals, the Committee decided to maintain the target range for the federal funds rate at 2-1/4 to 2-1/2 percent. The Committee continues to view sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective as the most likely outcomes. In light of global economic and financial developments and muted inflation pressures, the Committee will be patient as it determines what future adjustments to the target range for the federal funds rate may be appropriate to support these outcomes.

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Implementation Note for June 2019 Alternative A

Release Date: June 19, 2019

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 1, 2019~~ **June 19, 2019**:

- The Board of Governors of the Federal Reserve System voted **[** unanimously **]** to ~~set~~ **lower** the interest rate paid on required and excess reserve balances ~~at 2.35~~ **to 2.10** percent, effective ~~May 2, 2019~~ **June 20, 2019**. ~~Setting the interest rate paid on required and excess reserve balances 15 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 2, 2019~~ **June 20, 2019**, 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 **2 to** 2-1/4 ~~to 2-1/2~~ 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 ~~2.25~~ **2.00** 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.

  ~~Effective May 2, 2019,~~ The Committee directs the Desk to **continue** roll**ing** over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $15 billion~~. The Committee directs the Desk~~**, 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 that exceeds $20 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 decrease in** the primary credit rate ~~at the existing level of 3.00 percent~~ **to 2.75 percent, effective June 20, 2019**. **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.

Implementation Note for June 2019 Alternatives B and C

Release Date: June 19, 2019

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 1, 2019~~ **June 19, 2019**:

- The Board of Governors of the Federal Reserve System voted **[** unanimously **]** to ~~set~~ **maintain** the interest rate paid on required and excess reserve balances at 2.35 percent, effective ~~May 2, 2019~~ **June 20, 2019**. ~~Setting the interest rate paid on required and excess reserve balances 15 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 2, 2019~~ **June 20, 2019**, 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 2-1/4 to 2-1/2 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 2.25 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.

  ~~Effective May 2, 2019,~~ The Committee directs the Desk to **continue** roll**ing** over at auction the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $15 billion~~. The Committee directs the Desk~~**, 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 that exceeds $20 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 3.00 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.

Potential actions of the Board of Governors of the Federal Reserve System

Potential Board actions associated with FOMC Alternative A

Interest on required and excess reserve balances

> Reduce the interest rate paid on required and excess reserve balances to 2.10 percent, effective June 20, 2019.

Establishment of the primary, secondary, and seasonal credit rates

> Approve establishment of the primary credit rate by the Federal Reserve Bank of St. Louis at 2.75 percent effective June 20, 2019. This action will encompass approval of the establishment of a 2.75 percent primary credit rate by each of the remaining Federal Reserve Banks, effective on the later of June 20, 2019, or the date such Reserve Bank informs the Secretary of the Board of such a request; the Secretary of the Board would be authorized to inform each such Reserve Bank of the approval of the Board of Governors upon such notification by the Reserve Bank. Lastly, this vote will also encompass the establishment of the rates for secondary and seasonal credit under the existing formulas specified in staff's June 14, 2019, memorandum to the Board.

Potential Board actions associated with FOMC Alternatives B & C

Interest on required and excess reserve balances

> Leave the interest rates paid on required and excess reserve balances unchanged at 2.35 percent.

Establishment of the primary, secondary, and seasonal credit rates

> Approve establishment of the primary credit rate at the existing rate of 3.00 percent and establishment of the rates for secondary and seasonal credit under the existing formulas specified in the staff's June 14, 2019, memo to the Board.

Appendix 2: Materials used by Ms. Lipscomb and Mr. Wuerffel

Material for Briefing on

Standing Repurchase Facility

Nathaniel Wuerffel, Laura Lipscomb, and Steve Spurry
Exhibits by Rebecca Raub
June 18, 2019

Standing, Fixed-Rate Open Market Repo Facility

Nathaniel Wuerffel, Laura Lipscomb, Steve Spurry

A standing, fixed rate repo facility could support different monetary policy objectives depending on the design parameters. Different design parameters also lead to different policy issues and tradeoffs.

Key design parameters and effects

- Rate – the lower the fixed rate is set, the more often the facility would serve as a backstop to privately traded rates, and the more actively the facility would be used

- Counterparties – transacting with primary dealers would more directly affect repo markets, transacting with banks would more directly affect their reserve demand and unsecured markets

- Securities – broader eligibility range could encourage shift in counterparty portfolios

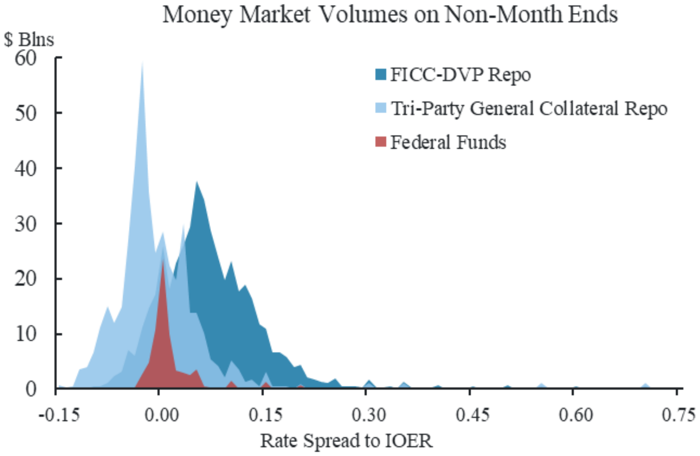
Key policy considerations

- Reliability of access in different states of firm health – degree of certainty about availability would likely affect bank demand for reserves versus other HQLA

- Potential for stigma – pricing that incents regularity of usage may lessen stigma risk, but result in more active operations and potential disintermediation

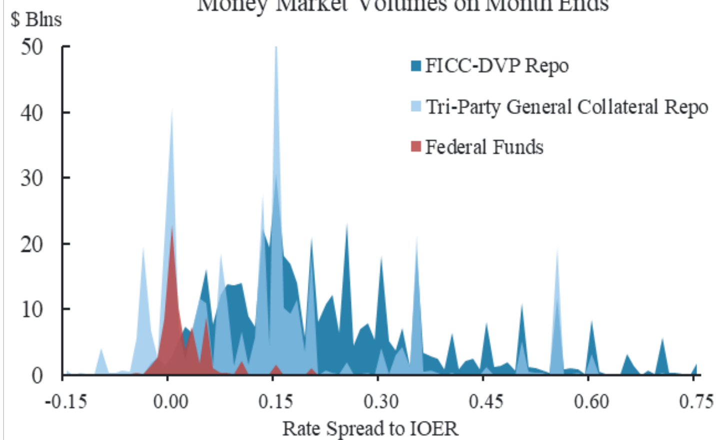
Illustrative Money Market Rates Relative to Interest on Reserves and Snap Shot of High-Quality Liquid Asset Portfolio Composition

Figure 1: Average Distribution of Overnight Secured and Unsecured Money Market Volumes on Non-Month Ends



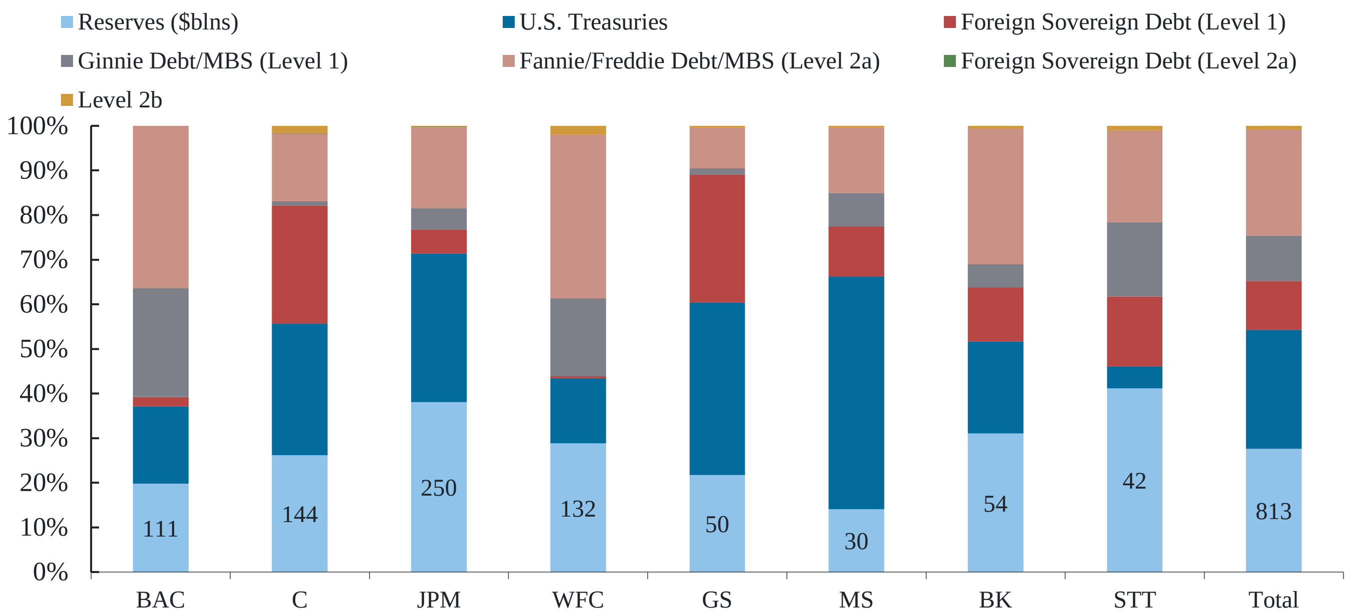
Note: Includes data from the period beginning October 1, 2018 and ending June 3, 2019.

Figure 2: Average Distribution of Overnight Secured and Unsecured Money Market Volumes on Month Ends



Note: Includes data from the period beginning on October 1, 2018 and ending June 3, 2019.
Source: FRBNY, FR2420

Figure 3: HQLA Portfolio Composition for U.S. GSIBs



Source: Federal Reserve, FR2052a, May 31, 2019
Firms: Bank of America (BAC), Citigroup (C), JPMorgan (JPM), Wells Fargo (WFC), Goldman Sachs (GS), Morgan Stanley (MS), Bank of New York Mellon (BK), State Street (STT).

Appendix 3: Materials used by Ms. Logan

Material for Briefing on

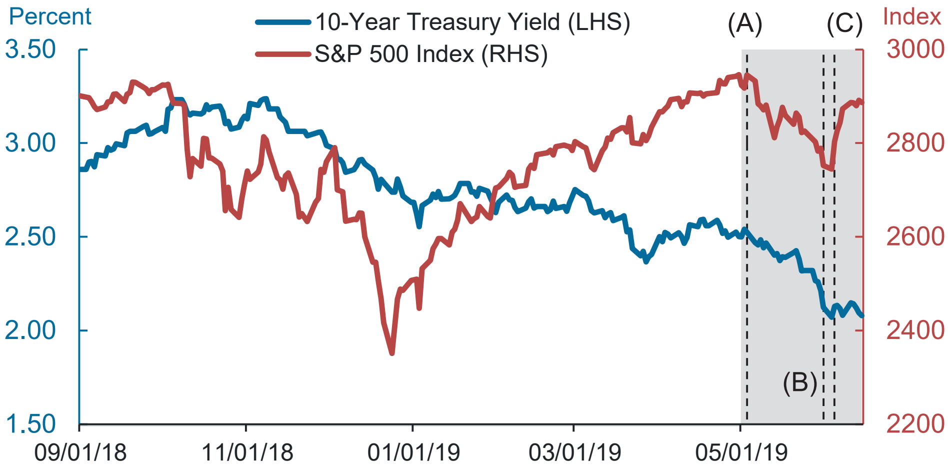
Financial Developments and Open Market Operations

Lorie Logan
Exhibits by Ashley Rhodes
June 18, 2019

Class II FOMC – Restricted (FR)

Exhibit 1

(1) 10-Year Treasury Yield and S&P 500 Index*

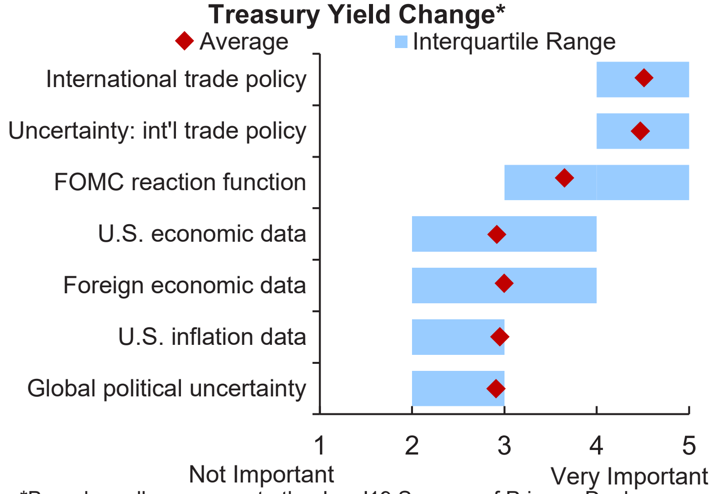


(A) Announcement of tariff rate increase on Chinese imports (B) Announcement of tariff schedule on Mexican imports (C) Chair Powell's Chicago comments
*Shaded area indicates June intermeeting period.
Source: Bloomberg

Key Questions

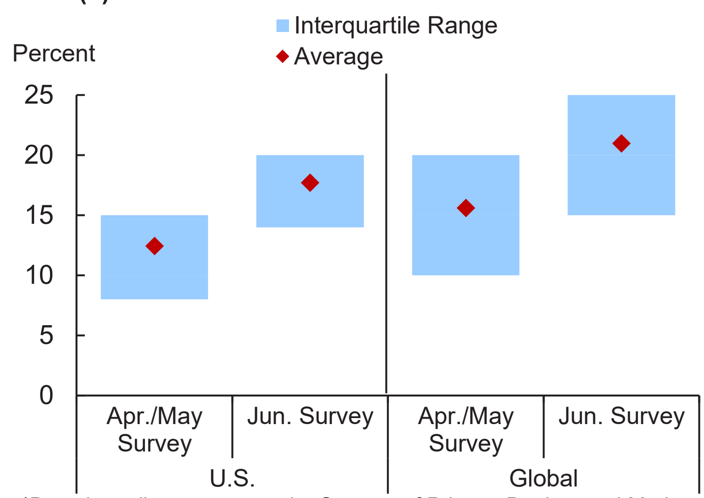
1. What has driven the sharp moves in risk assets and interest rates over the period?
2. How have market expectations for monetary policy evolved?
3. To what extent do policy expectations reflect differing views among market participants on the outlook for trade and its economic impact?

(2) Importance of Factors in Explaining the 10-Year Treasury Yield Change*



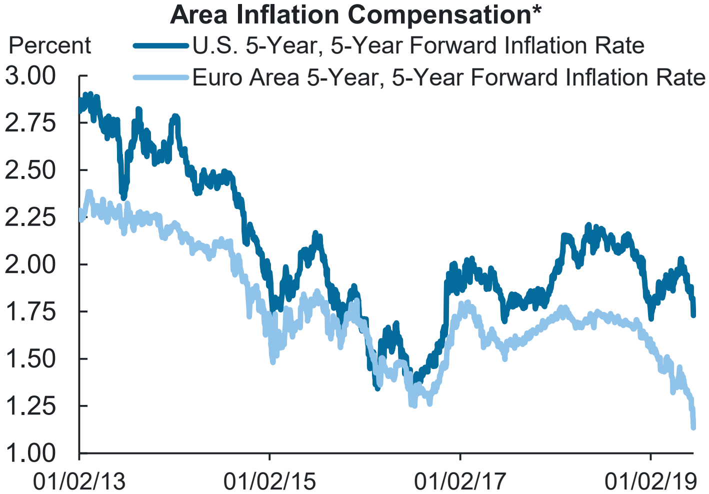
*Based on all responses to the Jun. '19 Surveys of Primary Dealers and Market Participants.
Source: FRBNY

(3) Probabilities of Recession in Six Months*



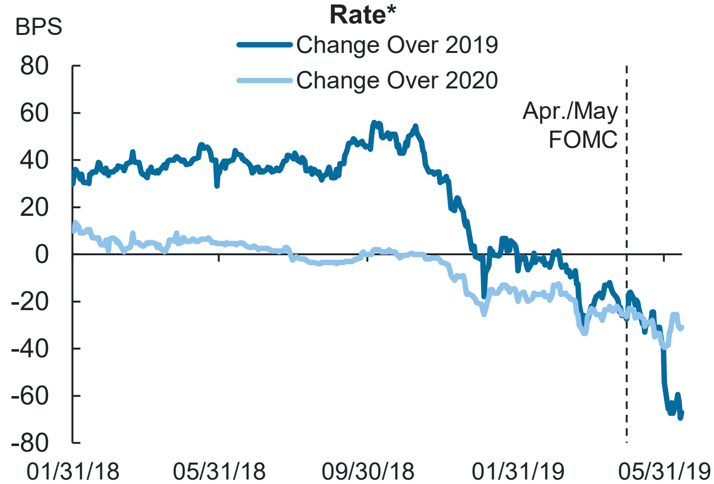
*Based on all responses to the Surveys of Primary Dealers and Market Participants.
Source: FRBNY

(4) Market-Based Measures of Forward U.S. and Euro Area Inflation Compensation*



*U.S. measure is derived from TIPS-implied breakevens, euro area derived from inflation swap rates.
Source: Bloomberg, Federal Reserve Board of Governors

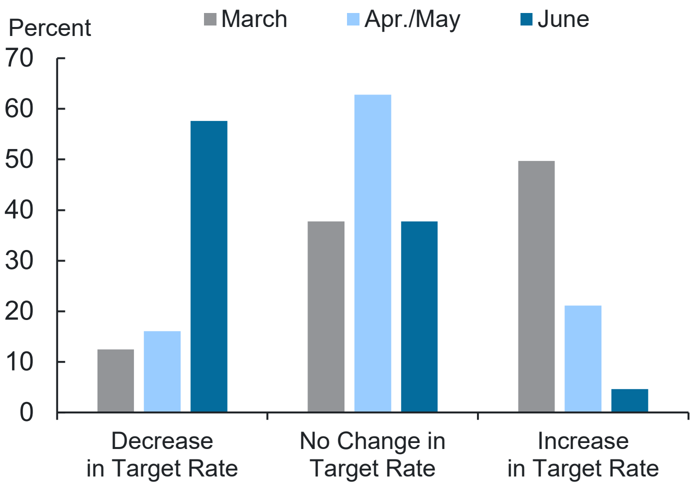
(5) Market-Implied Changes in the Effective Fed Funds Rate*



*Calculated from implied yields on fed funds futures; not adjusted for term premiums.
Source: Bloomberg, FRBNY

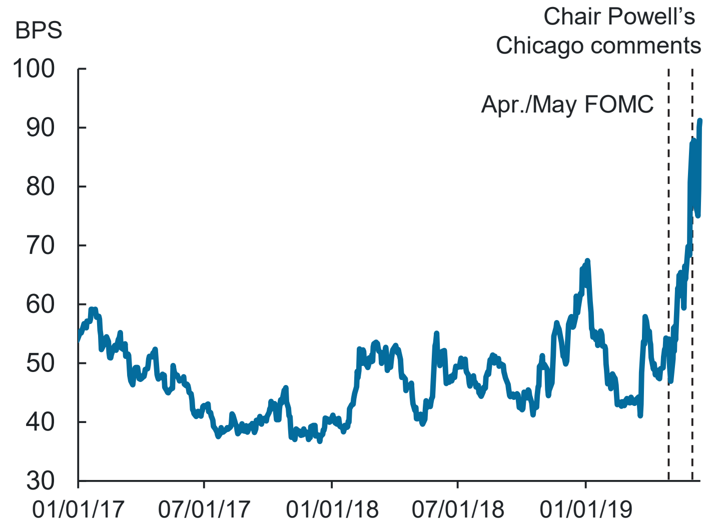
Class II FOMC – Restricted (FR) Exhibit 2

(6) Probability of Next Policy Action This Year*



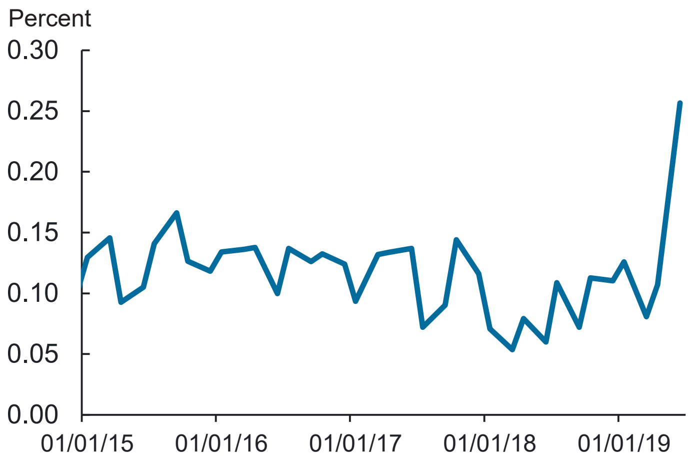
*Based on all responses to the Surveys of Primary Dealers and Market Participants.
Source: FRBNY

(7) 3-Month, 2-Year Swaption Implied Volatility



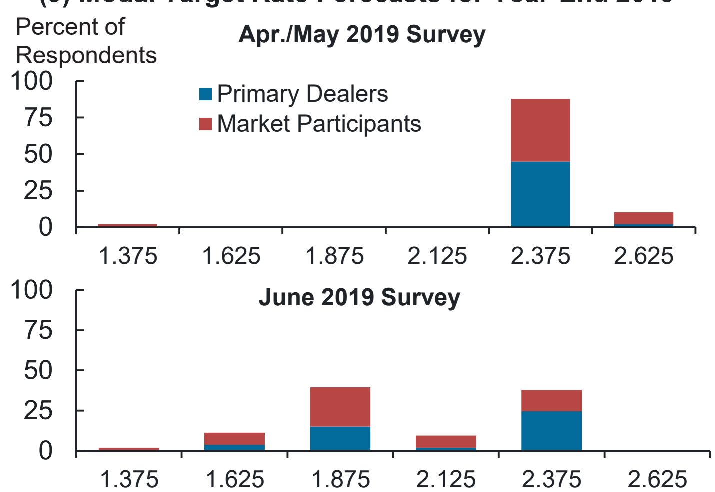
Source: Citigroup

(8) Standard Deviation of Modal Target Rate Forecasts Four FOMC Meetings Ahead*



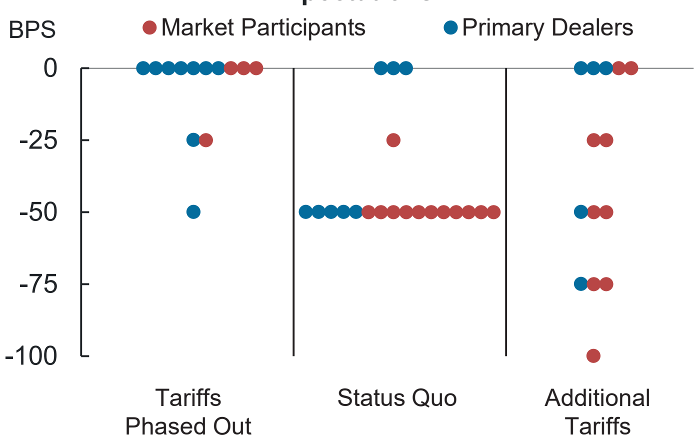
*Based on all responses to the Surveys of Primary Dealers and Market Participants.
Source: FRBNY

(9) Modal Target Rate Forecasts for Year-End 2019*



*Based on all responses to the Surveys of Primary Dealers and Market Participants. Includes revision from one dealer published after the survey.
Source: FRBNY

(10) Year-End 2019 Decline in Modal Path, by Trade Expectations*



*Based on responses to the Jun. '19 Surveys of Primary Dealers and Market Participants; only respondents who answered both questions included. Includes revision from one dealer published after the survey.
Source: FRBNY

(11) Expectations for this Meeting

- No change in policy at this meeting, though 18 out of 53 expect cut in July.*
- Some expect removal of "patient" from statement.
- Some expect communications to emphasize flexibility, willingness to act.
- Highlight downside risks or uncertainty, possibly including those posed by trade-related developments.
- Median SEP projections for 2020 and 2021 to decline by 25 basis points, show flat path through 2021.

*Includes revision from one dealer published after the survey.
Source: FRBNY

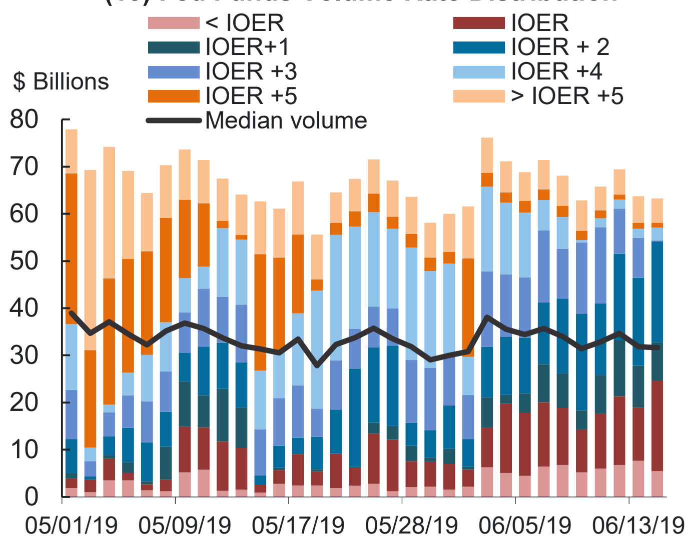
Class II FOMC – Restricted (FR)

Exhibit 3

(12) Money Market Overview

- April tax and month-end effects were transitory. Technical adjustment passed through.
- The volume-weighted average fed funds rate continued to show sensitivity to changes in reserve levels.
- Expected developments regarding reserve balances:
  - o Reserves fell on June mid-month tax date
  - o Debt ceiling will likely bind in Sept. or Oct.
  - o Reserves will decline rapidly thereafter to a new low in Dec.

(13) Fed Funds Volume Rate Distribution



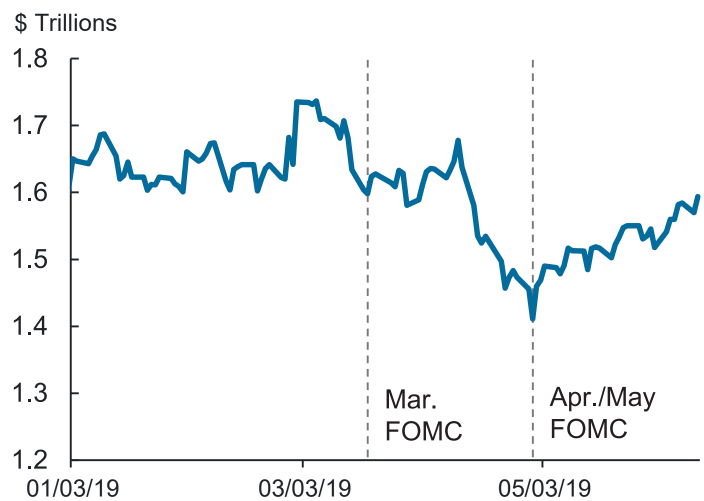
Source: FRBNY

(14) Select Money Market Rates Around the Technical Adjustment

	IOER	EFFR	OBFR	SOFR
Week Prior Average	2.40	2.44	2.43	2.52
5/1/2019 (FOMC)	2.40	2.45	2.44	2.54
5/2/2019	2.35	2.41	2.40	2.50
Difference from 5/1	-0.05	-0.04	-0.04	-0.04
Week After Average	2.35	2.39	2.38	2.43
Difference from 5/1	-0.05	-0.06	-0.06	-0.11

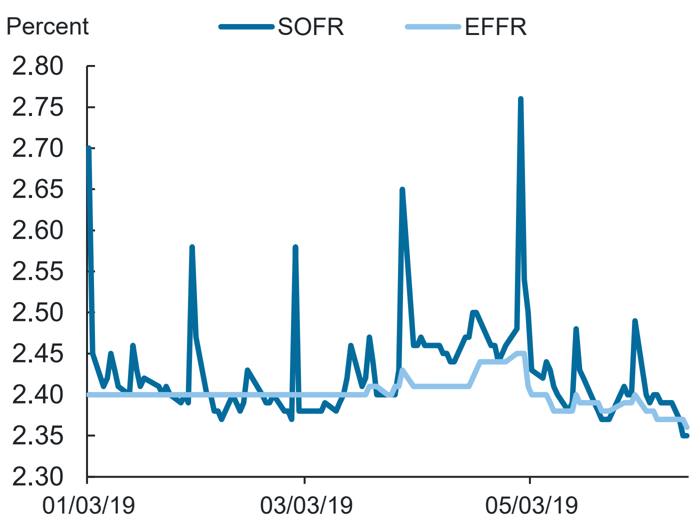
Source: Federal Reserve Board of Governors, FRBNY

(15) Reserve Balances of Depository Institutions



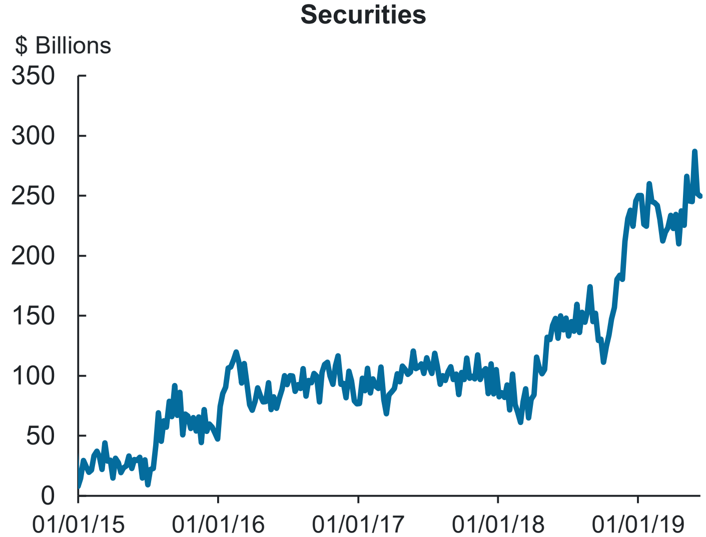
Source: FRBNY

(16) Money Market Rates



Source: FRBNY

(17) Primary Dealer Net Positioning in Treasury Securities

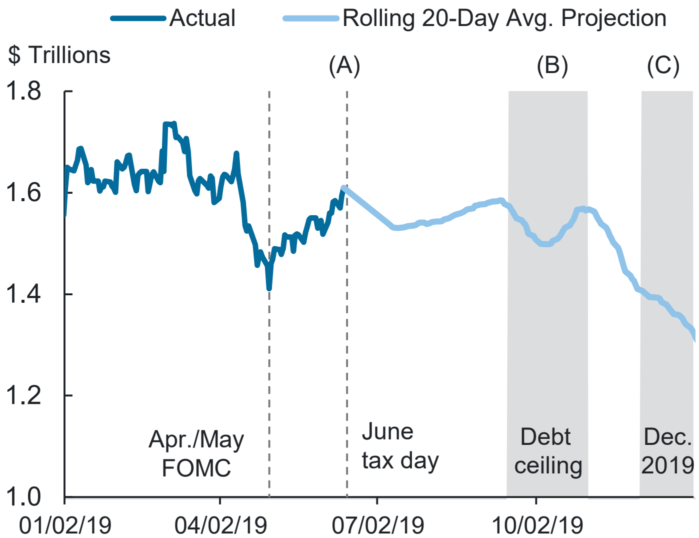


Source: FRBNY

Class II FOMC – Restricted (FR)

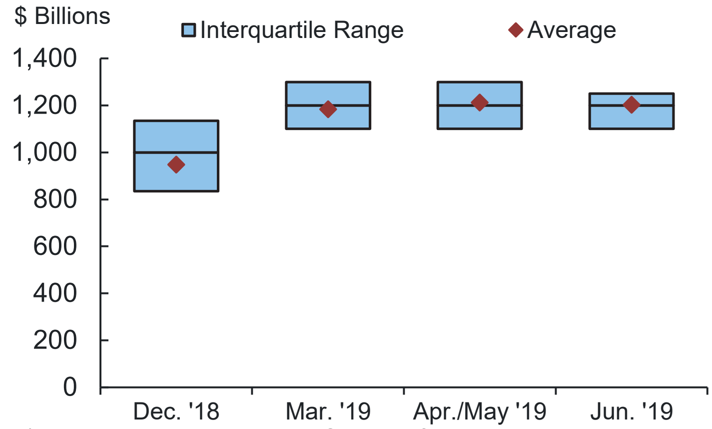
Exhibit 4

(18) Actual and Projected Reserve Balances



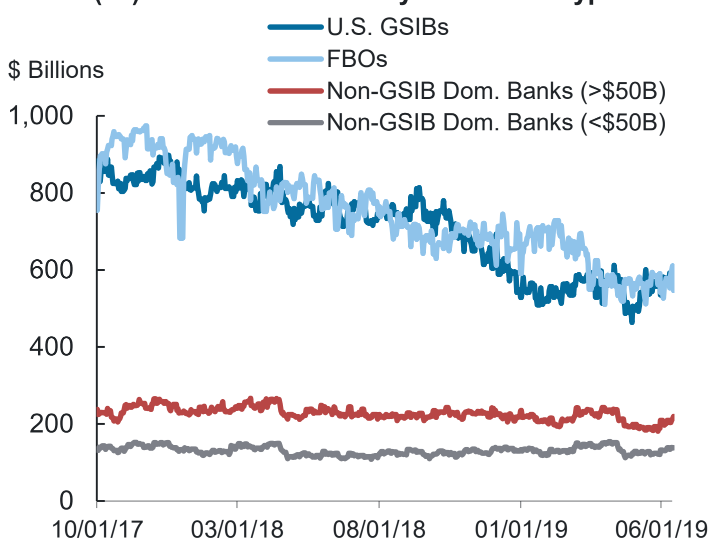
Source: Desk Calculations, FRBNY

(19) Lowest Expected Average Weekly Reserve Balances Level Between Now and 2025, Conditional on Not Moving to the ZLB*



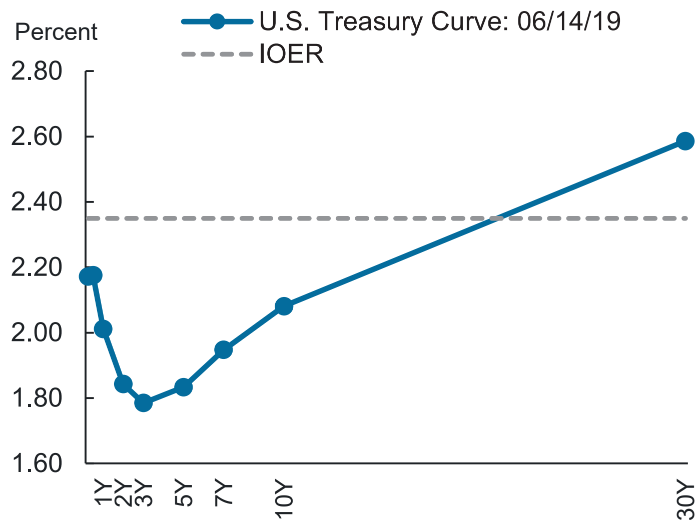
*Based on all responses to the Surveys of Primary Dealers and Market Participants.
Source: FRBNY

(20) Reserve Balances by Institution Type



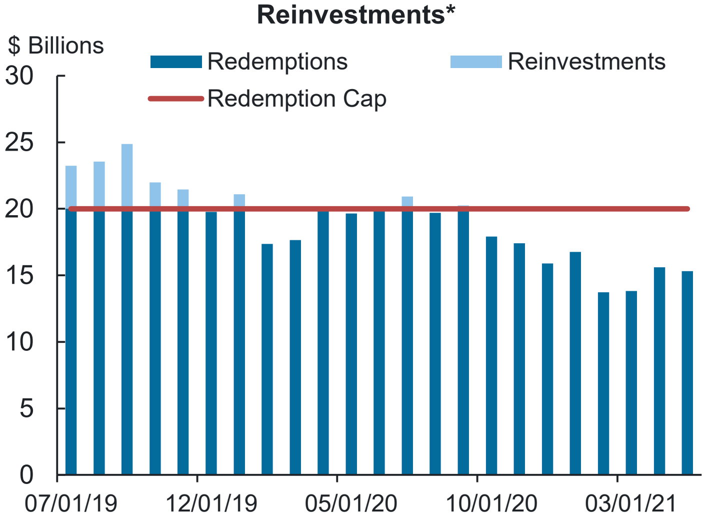
Source: FRBNY

(21) U.S. Treasury Yield Curve and IOER



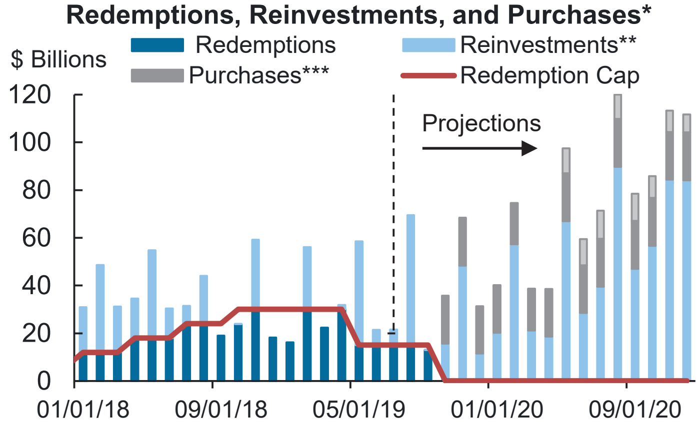
Source: Bloomberg, Federal Reserve Board of Governors

(22) Projected SOMA MBS Redemptions and Reinvestments*



*Based on market-implied rates as of 06/10/19.
Source: Desk Calculations, FRBNY

(23) Realized and Projected SOMA Treasury Security Redemptions, Reinvestments, and Purchases*



*Based on market-implied rates as of 06/10/19.
**Rollovers of maturing Treasuries into primary market (light blue).
***Outright market purchases include reinvesting MBS principal receipts (dark grey) and offsetting liabilities growth (light grey), based on Jun. '19 Desk survey inputs.
Source: Desk Calculations, FRBNY

Appendix 1

(1) Summary of Operational Testing

Summary of Operational Tests in prior period:

- Domestic Authorization
    - May 2 to May 13: Outright MBS TBA purchase for $143 million, total
    - May 7 and 8: Coupon swap with unsettled agency MBS holdings for $20 million, total
    - May 8: Term repo for $65 million
    - May 13: Overnight repo for $65 million
    - May 15: Term reverse repo for $102 million
    - May 15: Treasury outright sale for $50 million
    - May 21: Overnight reverse repo with MBS collateral for $73 million
    - June 6: Treasury bill rollover of $5 million
    - June 18: Treasury bill maturity of $45 million
- Foreign Authorization
    - May 22: Canadian dollar liquidity swap for CAD 51,000

Upcoming Operational Tests:

- Three tests scheduled under the Domestic Authorization
    - June 25 and 27: MBS specified pool sale for up to $180 million, total
    - July 9: Treasury bill maturity of $2.7 million
    - July 25: Outright FRN purchase for up to $50 million
- One test scheduled under the Foreign Authorization
    - July 9: Euro-denominated repo with private counterparties for €1 million

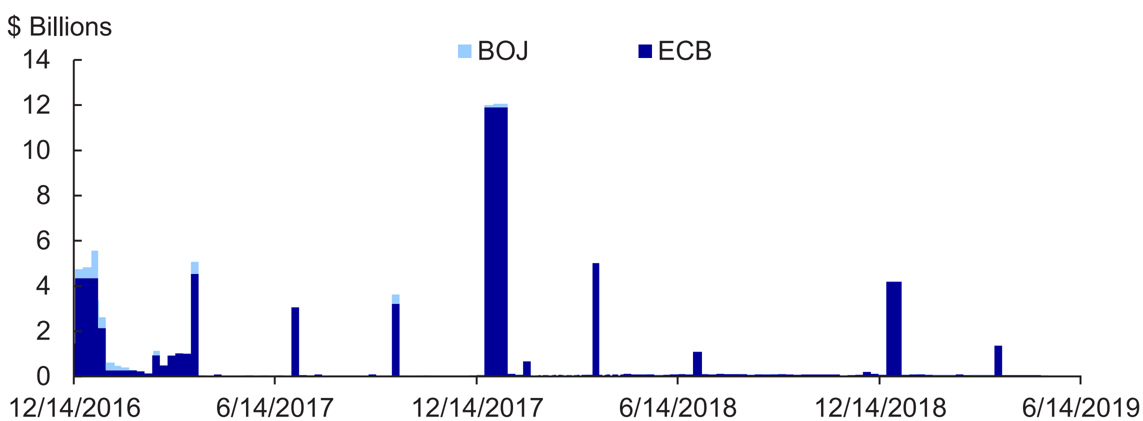
Appendix 2

(1) MBS Purchase Summary Since Cap Implementation Through 06/14/19 ($ Millions)

Purchase Period	Actual Paydowns	Cap	Reinvestment Purchases	Net Deviation	Cumulative Deviation
Oct-17	24,353	4,000	20,355	2	2
Nov-17 *	28,316	4,000	24,327	11	13
Dec-17	24,032	4,000	20,038	6	19
Jan-18	22,909	8,000	14,921	12	31
Feb-18	20,689	8,000	12,684	-5	26
Mar-18	19,294	8,000	11,308	14	40
Apr-18	21,233	12,000	9,234	1	41
May-18	20,793	12,000	8,807	14	55
Jun-18 *	24,526	12,000	12,534	8	63
Jul-18	22,729	16,000	6,725	-4	59
Aug-18	21,602	16,000	5,607	5	64
Sep-18	21,759	16,000	5,755	-4	60
Oct-18	17,878	20,000	0	0	60
Nov-18	18,462	20,000	0	0	60
Dec-18	16,424	20,000	0	0	60
Jan-19	15,602	20,000	0	0	60
Feb-19	14,492	20,000	0	0	60
Mar-19 *	15,234	20,000	0	0	60
Apr-19	17,636	20,000	0	0	60
May-19	20,221	20,000	221	0	60
Jun-19	est. 22,962	20,000			

*Actual paydowns include agency debt maturities. Nov-17: $2,366 million; Jun-18: $1,982 million; Mar-19 $62 million.

(2) FX Swaps Outstanding



Source: FRBNY

(3) FX Intervention

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

Appendix 4: Materials used by Mr. Rudd

Class II FOMC - Restricted (FR)

Material for

Staff Presentation on the Domestic Economic Situation

Jeremy B. Rudd
Exhibits by Bo Yeon Jang and Rosemary Rhodes
June 18, 2019

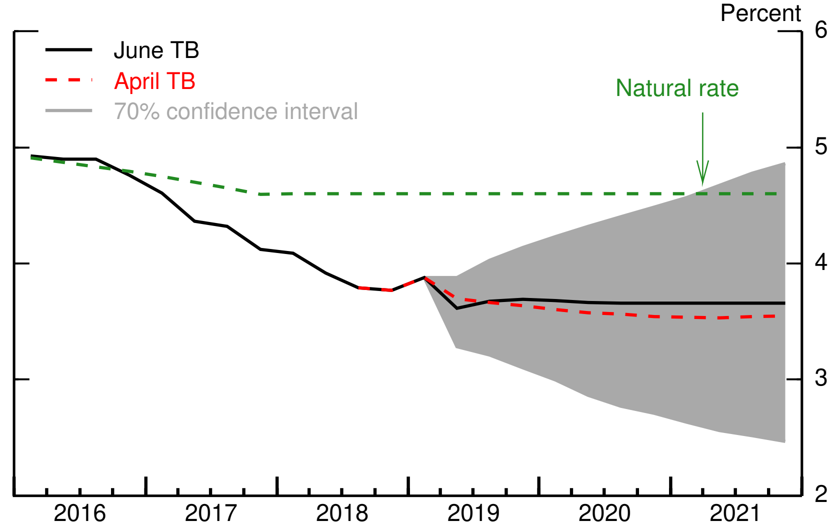
Real Activity and Inflation

1. Near-term GDP Projection

	2019		
	Q1[e]	Q2[f]	H2[f]
1. Real GDP*	2.9	2.3	1.6
2. (April TB)	*(2.1)*	*(2.0)*	*(2.3)*
*Selected contributions to GDP growth ***			
3. PDFP	1.0	2.4	1.9
4. (April TB)	*(.8)*	*(1.9)*	*(2.6)*
5. PCE	.7	2.4	1.6
6. (April TB)	*(.8)*	*(1.7)*	*(1.8)*
7. Business fixed investment	.4	.0	.0
8. (April TB)	*(.1)*	*(.3)*	*(.5)*
9. Inventory investment	.6	-.7	-.4
10. Net exports	.9	-.3	.0

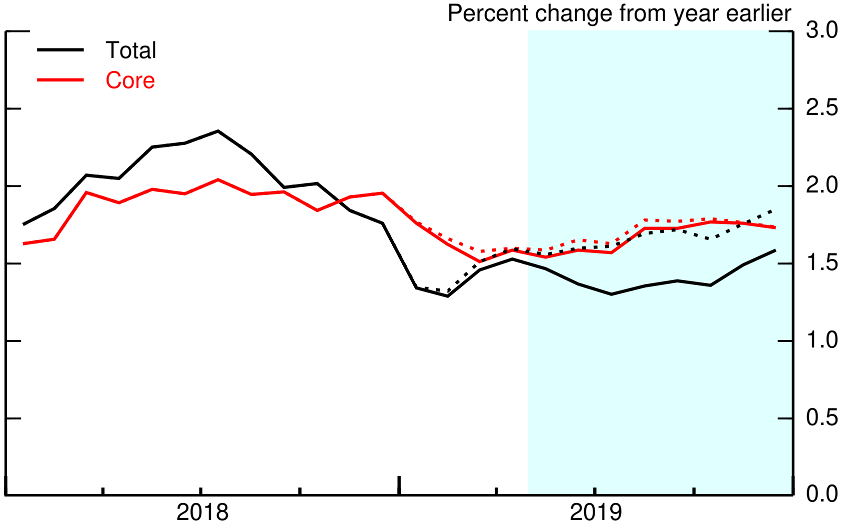
* Percent change at annual rate. ** Percentage points.
e. Staff estimate. f. Staff forecast.

2. Unemployment Rate



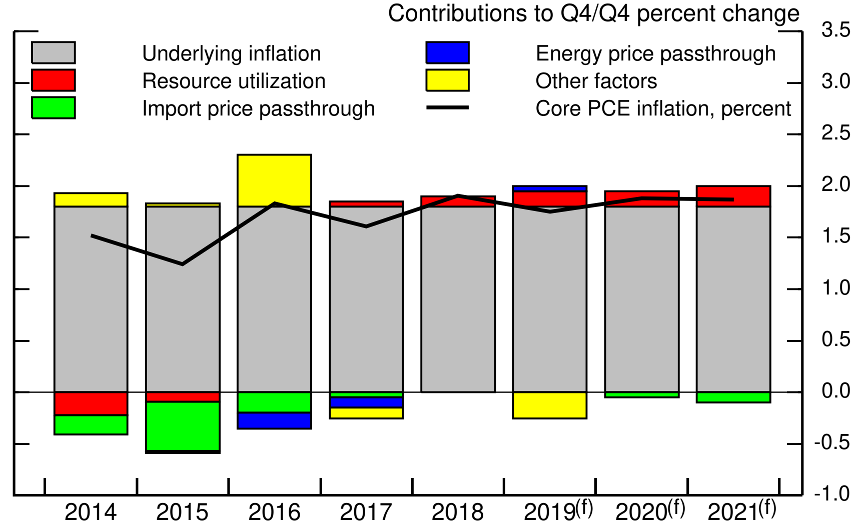
Note: Confidence interval based on FRB/US stochastic simulation.

3. PCE Price Inflation



Note: Dotted lines are April TB projections; solid lines are current projections.

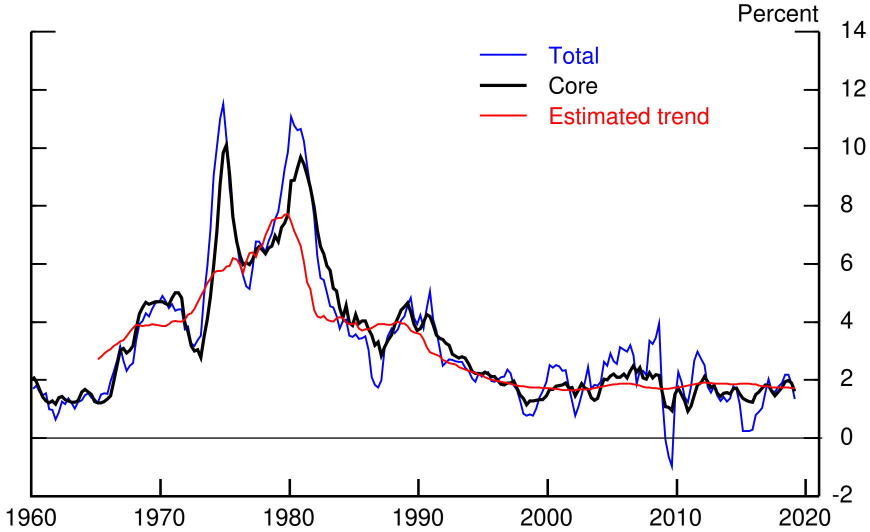
4. Decomposition of Core PCE Price Inflation



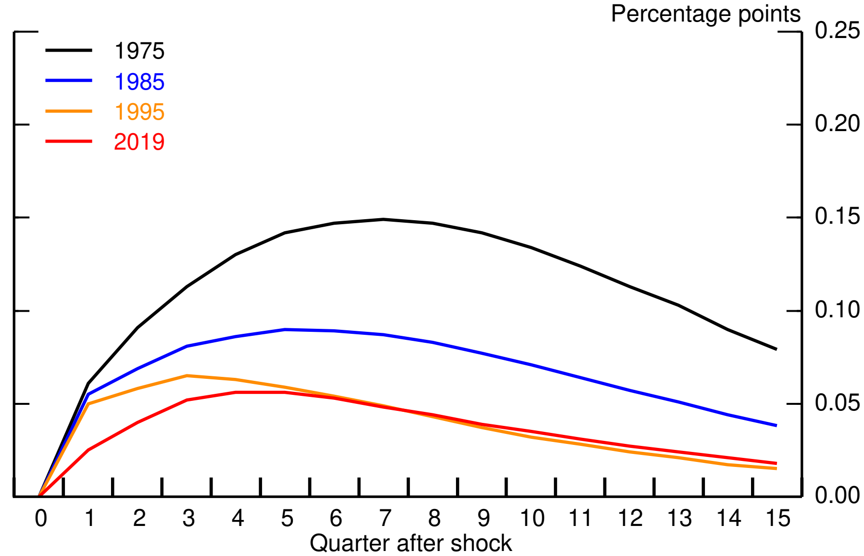
(f) Staff forecast.

Stable Inflation Trend, Flat (Price) Phillips Curve

5. Total and Core PCE Price Inflation Since 1960

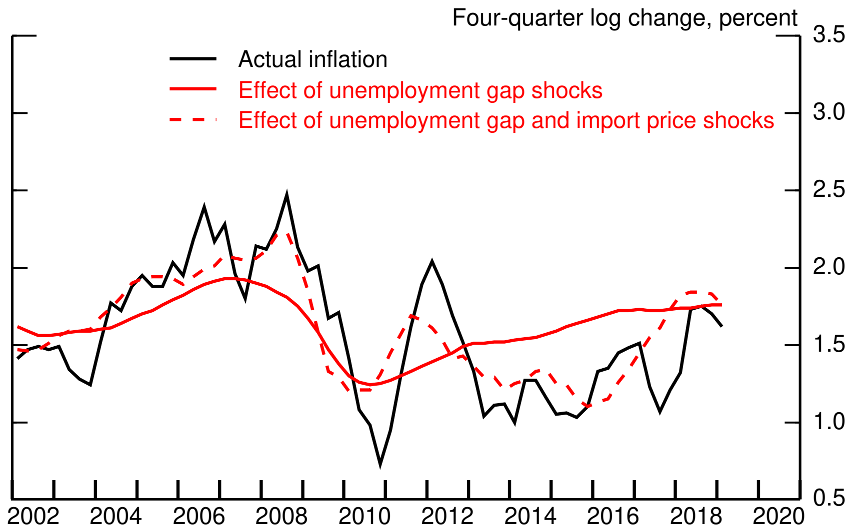


6. Response of Core Inflation to an Unemployment Gap Shock

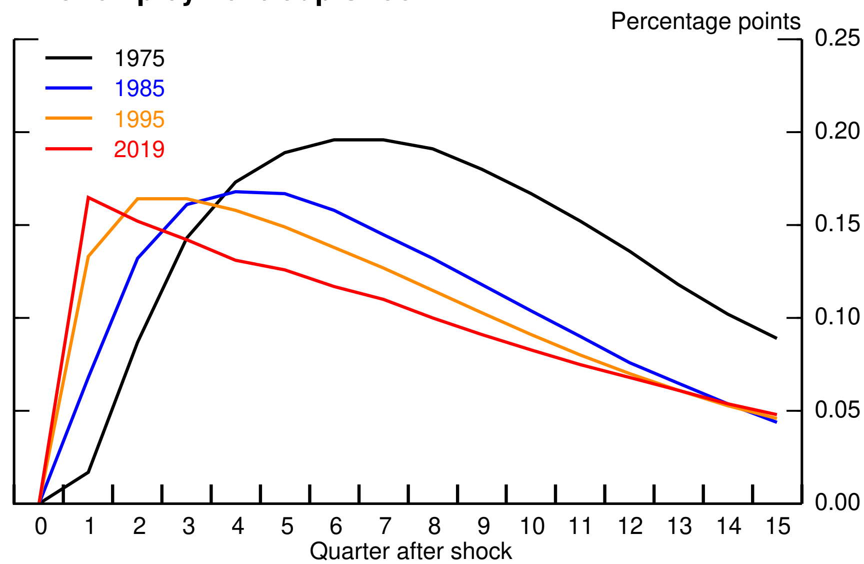


Note: Core inflation defined using market-based PCE price index.

7. VAR Decomposition of Core Market-Based PCE Price Inflation



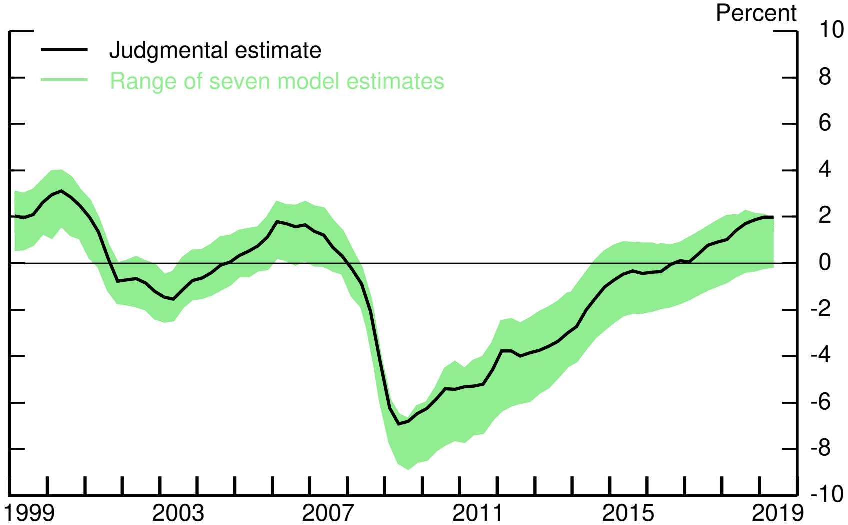
8. Response of Labor Cost Growth to an Unemployment Gap Shock



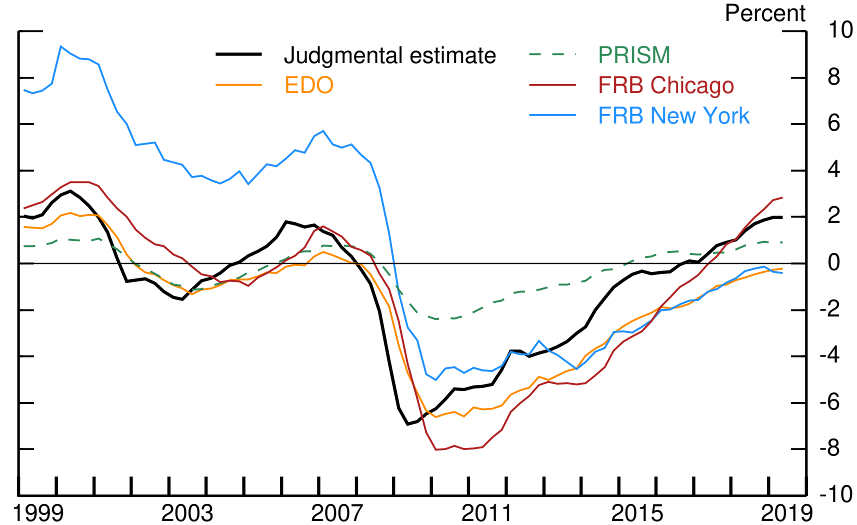
Note: Trend unit labor costs defined using BLS Productivity and Costs data.

Perspectives on Slack

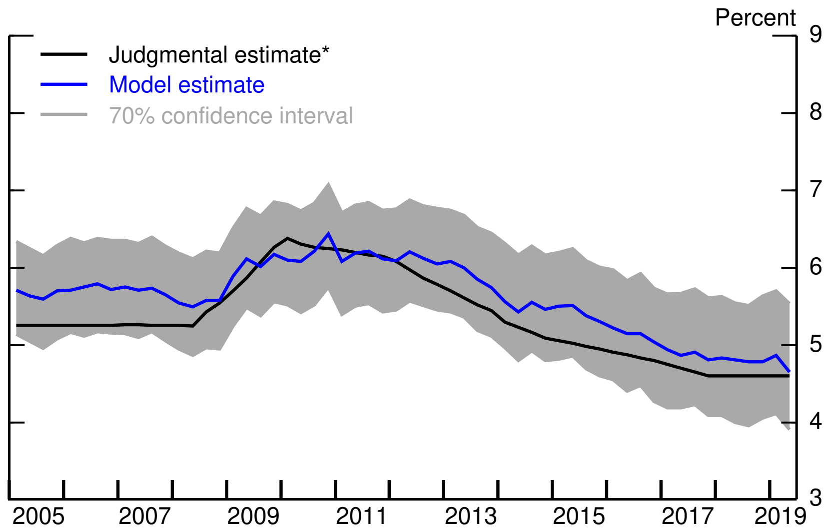
9. Output Gap Estimates from Statistical Models



10. Output Gap Estimates from DSGE Models

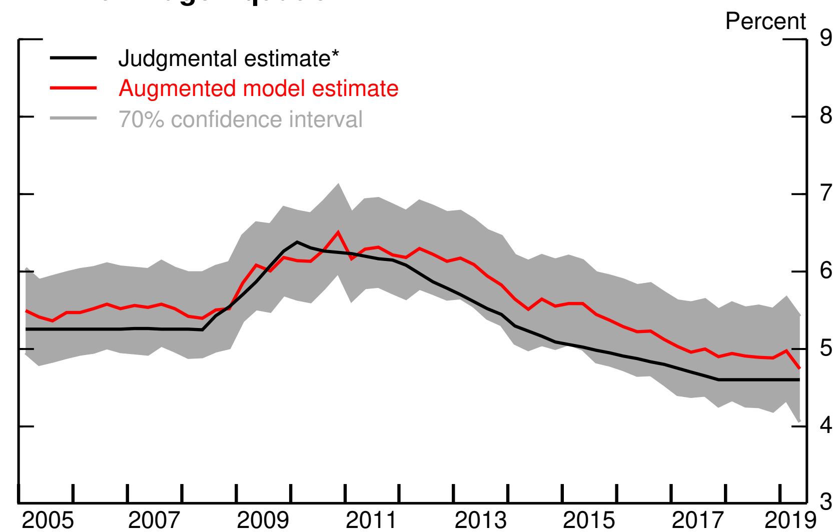


11. Natural Rate Estimate from Statistical Model



* Judgmental estimate includes EEB effects.

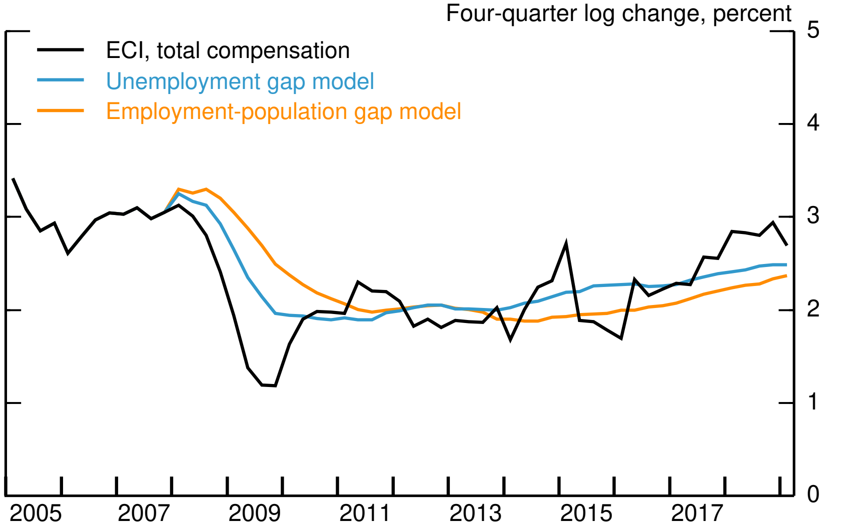
12. Natural Rate Estimate from Statistical Model with Wage Equation



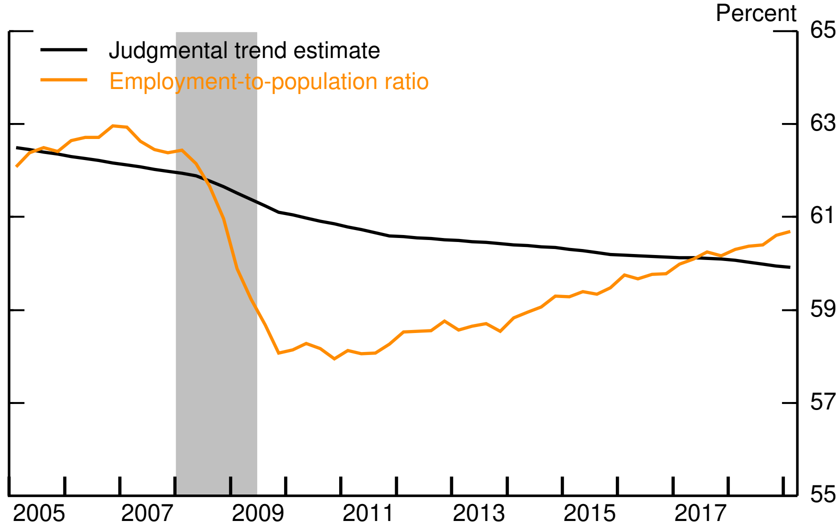
* Judgmental estimate includes EEB effects.

Wage Inflation and Labor Market Slack

13. ECI Growth Implied by Model Simulations

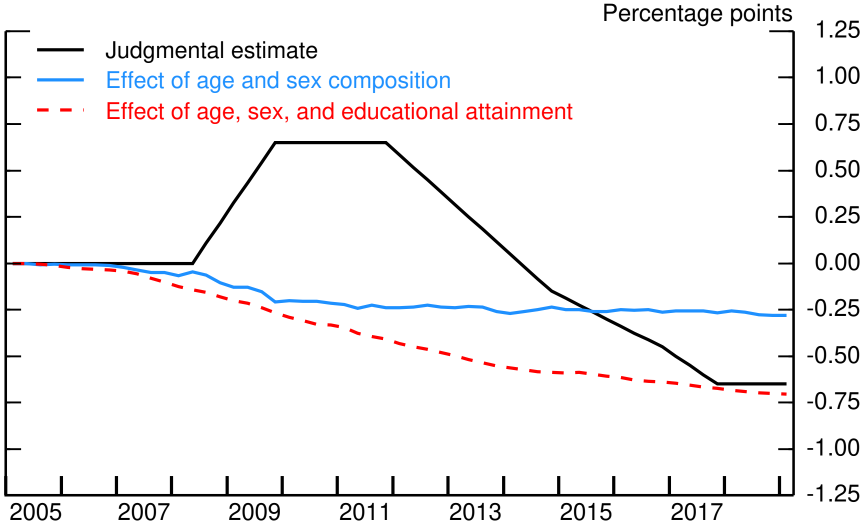


14. Employment-to-Population Ratio

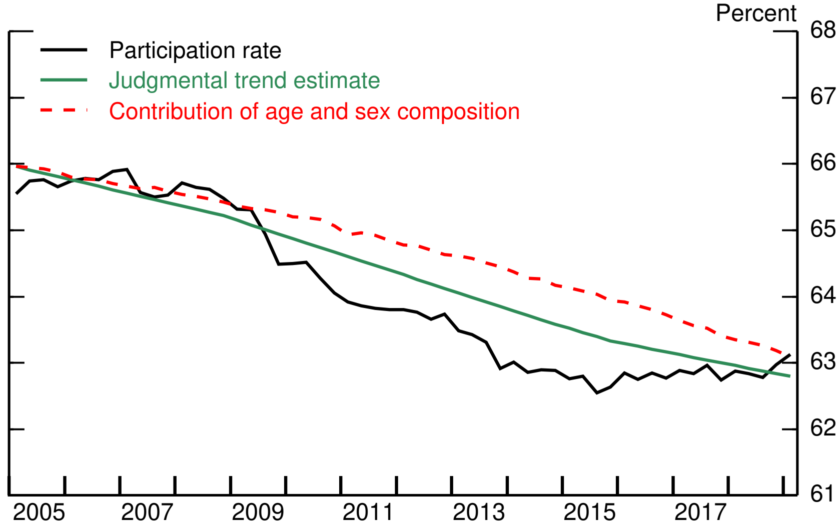


Note: Published data are adjusted by Board staff to account for changes in population weights. Shaded bar denotes a period of business recession as defined by the NBER.

15. Changes in the Natural Rate Since 2005



16. The Labor Force Participation Rate Since 2005



Note: Published data are adjusted by Board staff to account for changes in population weights.

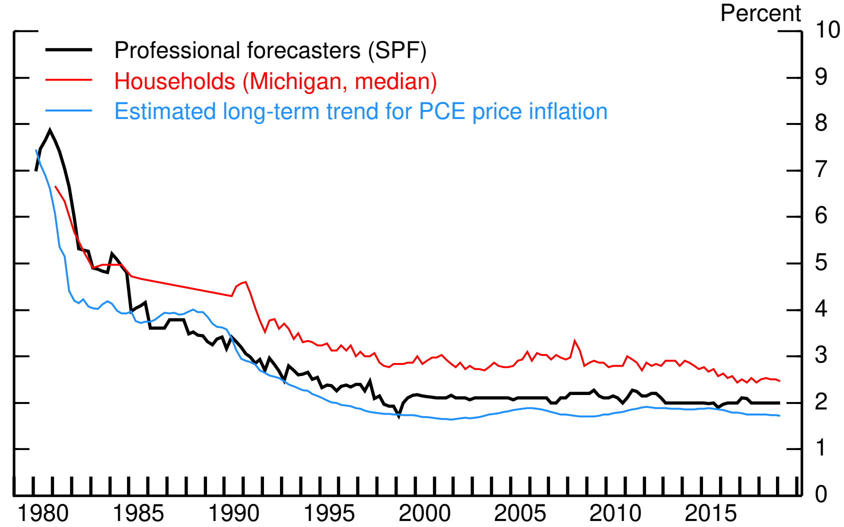
A Potentially Relevant Policy Consideration

17. Estimates of Underlying Core PCE Price Inflation

	Point estimates				70% c.i.**
	Average, 1998-2007*	2007 Q4	2013 Q4	2019 Q1	2019 Q1
1. VAR, wage-price	1.8	1.8	1.9	1.7	(1.3 to 2.3)
2. VAR, mkt.-based core	1.8	1.7	1.7	1.6	(1.2 to 2.1)
3. VAR, total core	1.9	1.8	1.8	1.7	(1.2 to 2.1)
4. Stock-Watson	1.8	1.9	1.6	1.6	(1.3 to 1.8)
5. Cogley-Sargent	1.7	1.8	1.6	1.6	(1.3 to 1.8)
6. Phillips curve, Michigan	2.0	2.0	1.9	1.6	(1.4 to 1.7)
7. Phillips curve, SPF	2.0	2.0	1.9	1.9	(1.8 to 2.0)
8. Phillips curve, TIPS	2.2	2.4	2.2	1.5	(1.2 to 1.7)
9. State-space model	1.8	1.7	1.9	1.8	(1.5 to 2.3)
10. State-space model (alt.)	1.8	1.9	1.9	1.7	(1.5 to 1.9)

* Average for TIPS-based Phillips curve starts in 1999:Q1.
** 70 percent confidence interval or credible set for period indicated.

18. Measures of Long-Term Inflation Expectations



19. A Problem for Policymakers

- Long-run expectations appear to be anchored at a level consistent with underlying inflation below 2 percent.
- Achieving the FOMC's inflation goal therefore requires pushing activity above potential indefinitely.
- If expectations weren't anchored, they could move toward 2 percent.
- However, unanchored expectations could have adverse consequences for economic stabilization.

20. A Simple Model-Based Exercise

Use a model to compare outcomes under anchored and unanchored expectations.

- Scenario 1: Long-run expectations are fixed at 1.8 percent.
- Scenario 2: Long-run expectations are derived from a forecasting rule. (In each period, agents use recent data to re-estimate their rule.)

Allow shocks to hit the economy, and evaluate outcomes using a loss function.

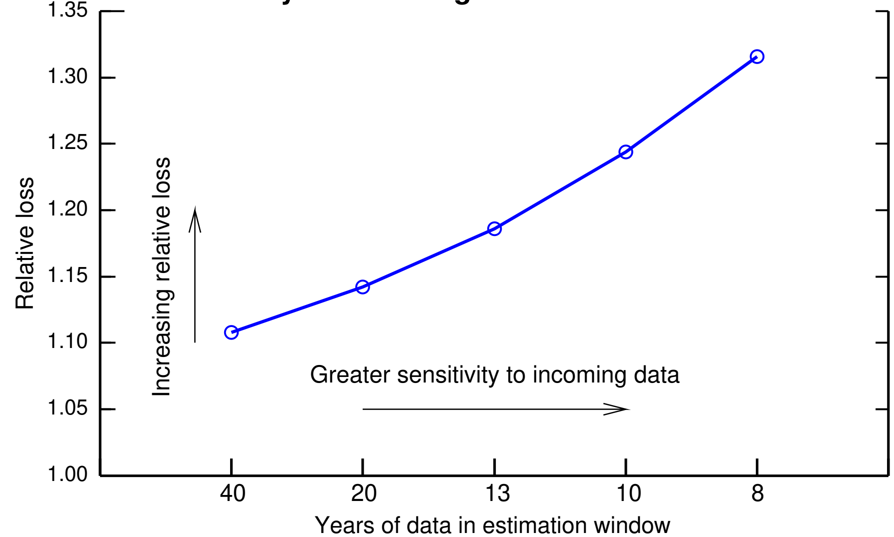
Outcomes under Unanchored Expectations

21. Model Description

Modified version of Orphanides-Williams (2005).
Model assumes:

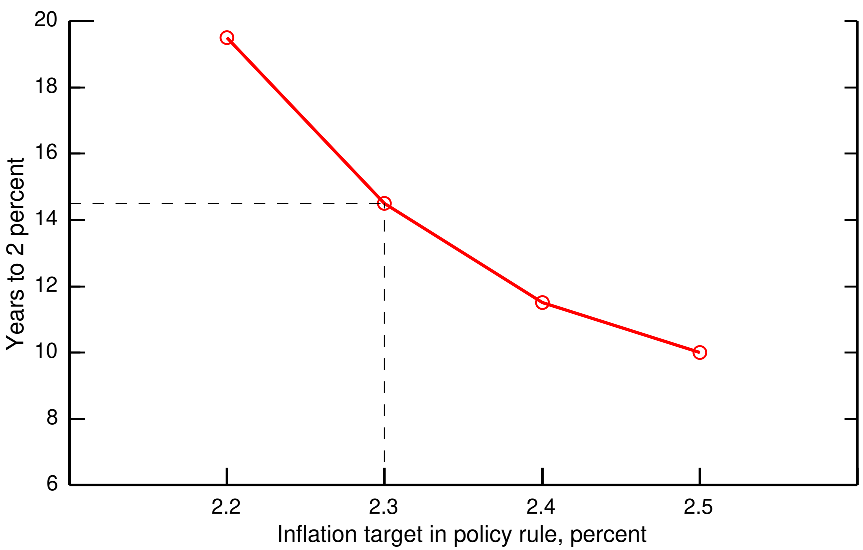
- An expectations-augmented Phillips curve;
- A simple forecasting rule for inflation expectations that is updated each period using a rolling window of recent data;
- A policy rule that reacts to deviations of inflation from a specified target; and,
- A discounted quadratic loss function for policymakers.

22. Relative Losses under Different Assumed Sensitivity to Incoming Data



Note: Relative loss is median loss for case shown scaled by median loss under fully anchored case.

23. Effect of Overshooting



Note: Y-axis measures the number of years until median long-run inflation expectations reach 2 percent.

24. Some Caveats

- Model is extremely stylized, and ignores many potentially relevant considerations (ELB, credibility).
- Results might not hold up in a richer model, or one that makes different assumptions about how expectations are formed.
- In practice, it is not clear how to induce agents to start revising their long-run expectations, or what else might result from doing so.

Appendix 5: Materials used by Mr. Kamin

Class II FOMC - Restricted (FR)

Material for Briefing on

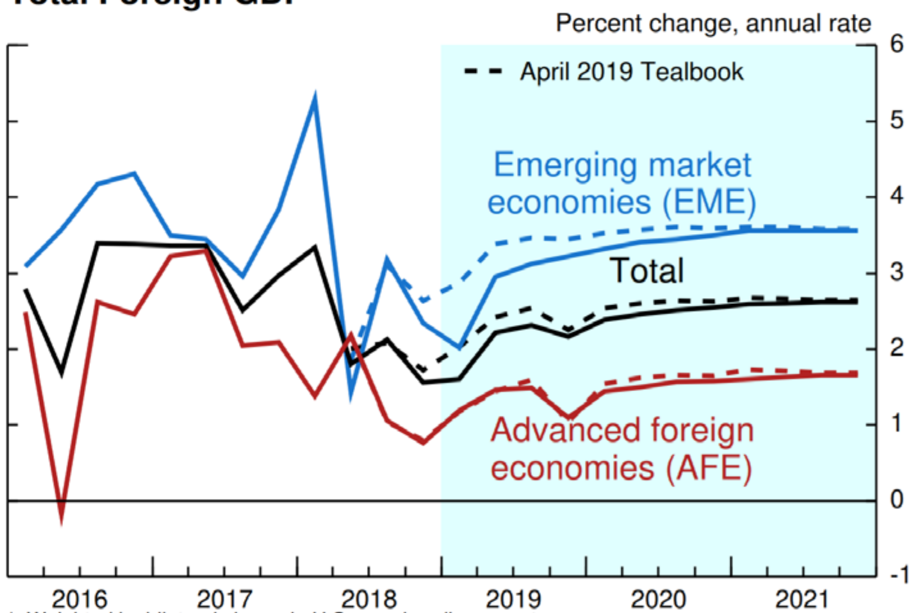
The International Outlook

Steve Kamin
Exhibits by Mandy Bowers
June 18, 2019

Foreign growth still subdued

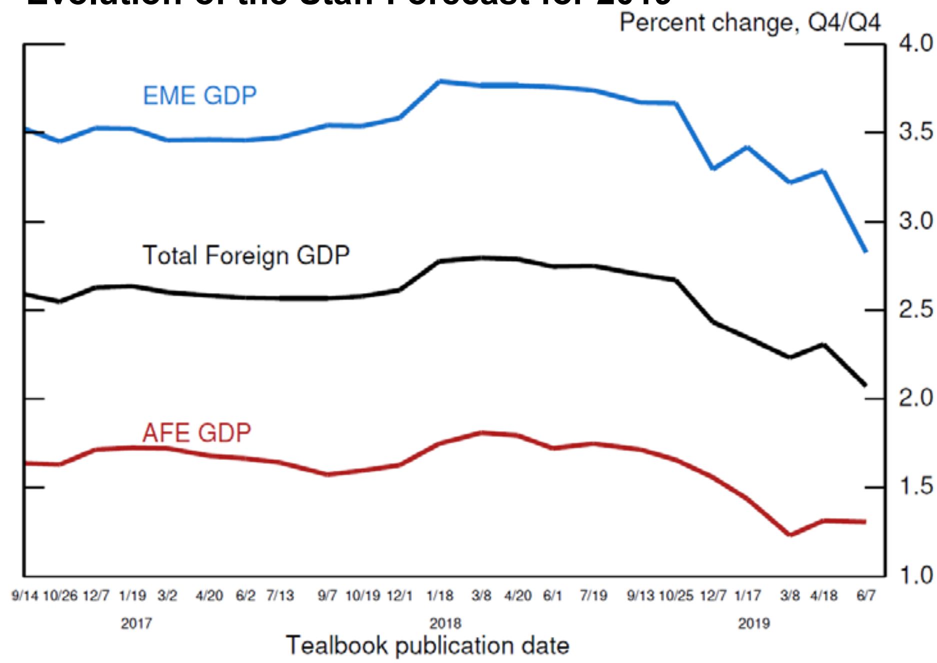
- On balance, data from abroad disappointed, especially in EMEs.
- After very brief respite, global risks ramped back up.

Total Foreign GDP*



* Weighted by bilateral shares in U.S. merchandise exports.

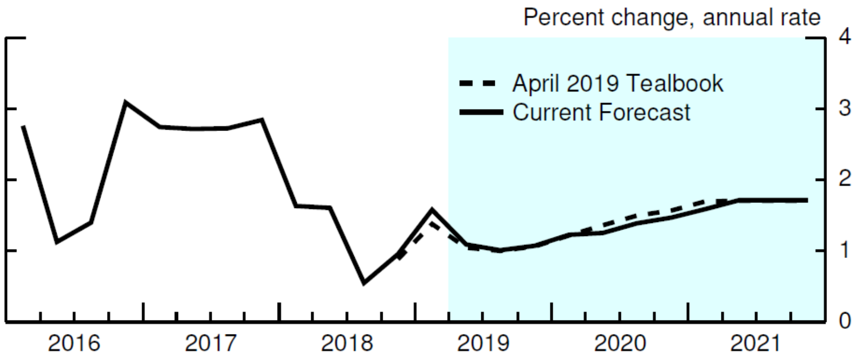
Evolution of the Staff Forecast for 2019



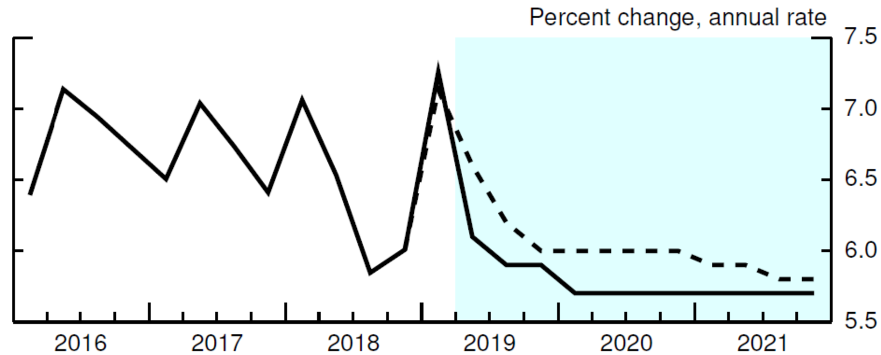
A deeper dive: no one looks great

- Euro area GDP growth picked up in Q1, but should slow in rest of year.
- Data for China demonstrably weaker.
- What the heck happened in Latin America?

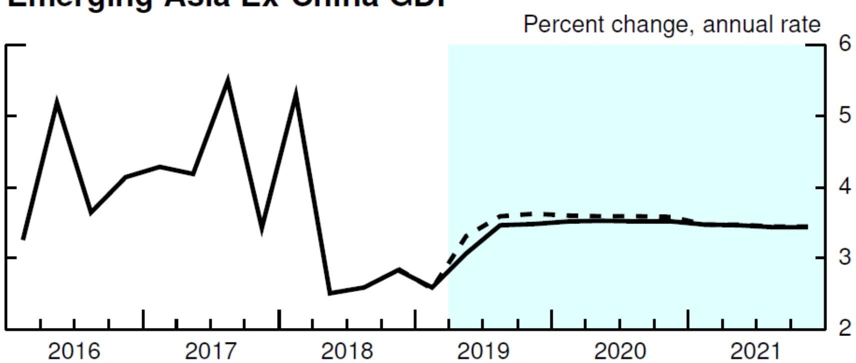
Euro Area GDP



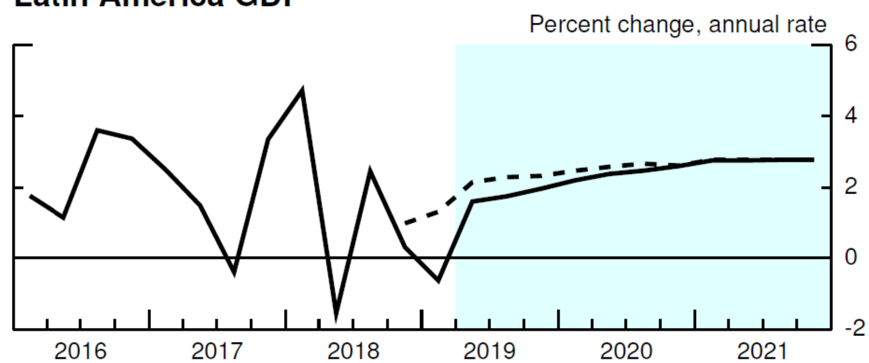
China GDP



Emerging Asia Ex-China GDP



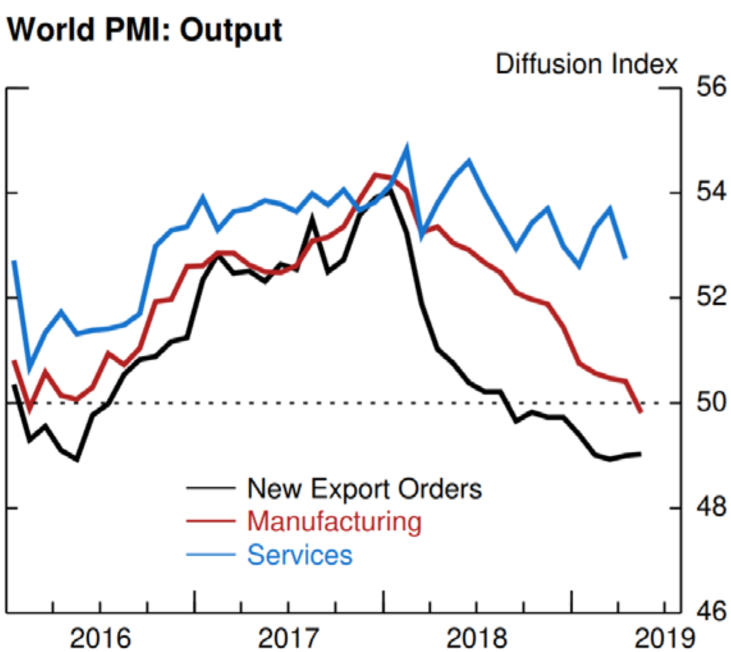
Latin America GDP



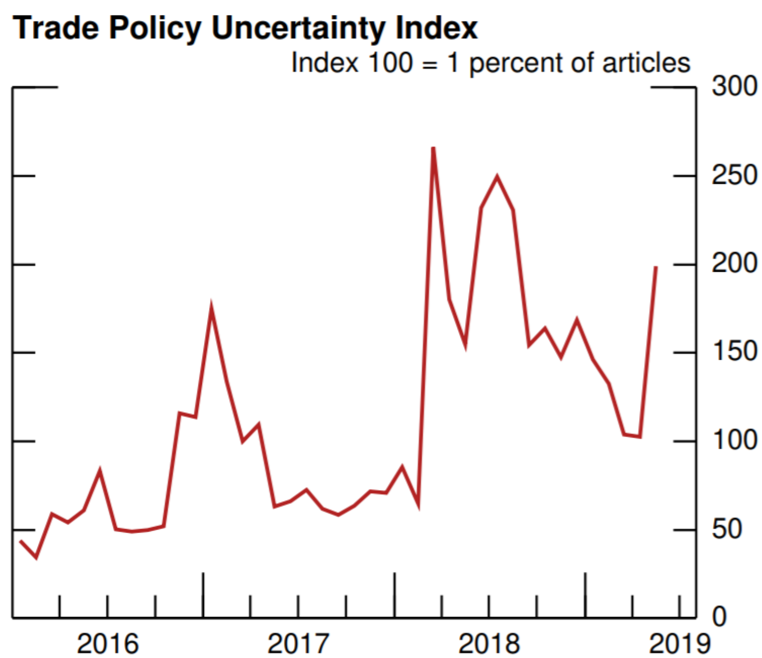
Source: Staff estimates.

Manufacturing and trade slowing contribute to sluggish growth

- Manufacturing and export indicators decline, in contrast to continued strength in the service sector.
- Not clear that these declines explained by increase in TPU since early 2018.



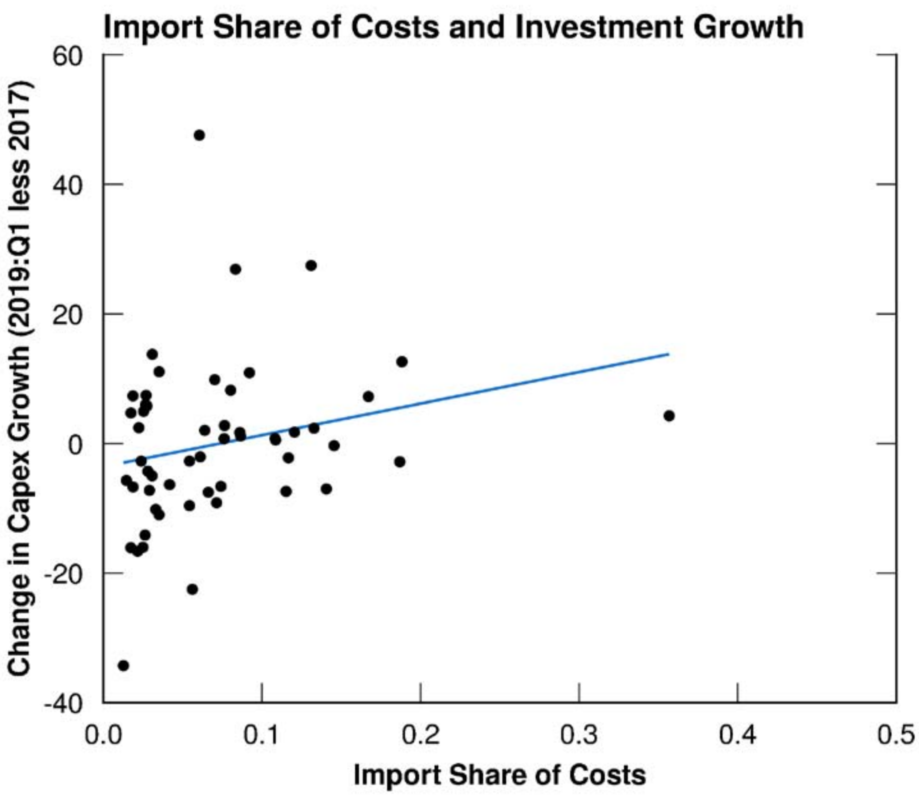
Source: Markit.

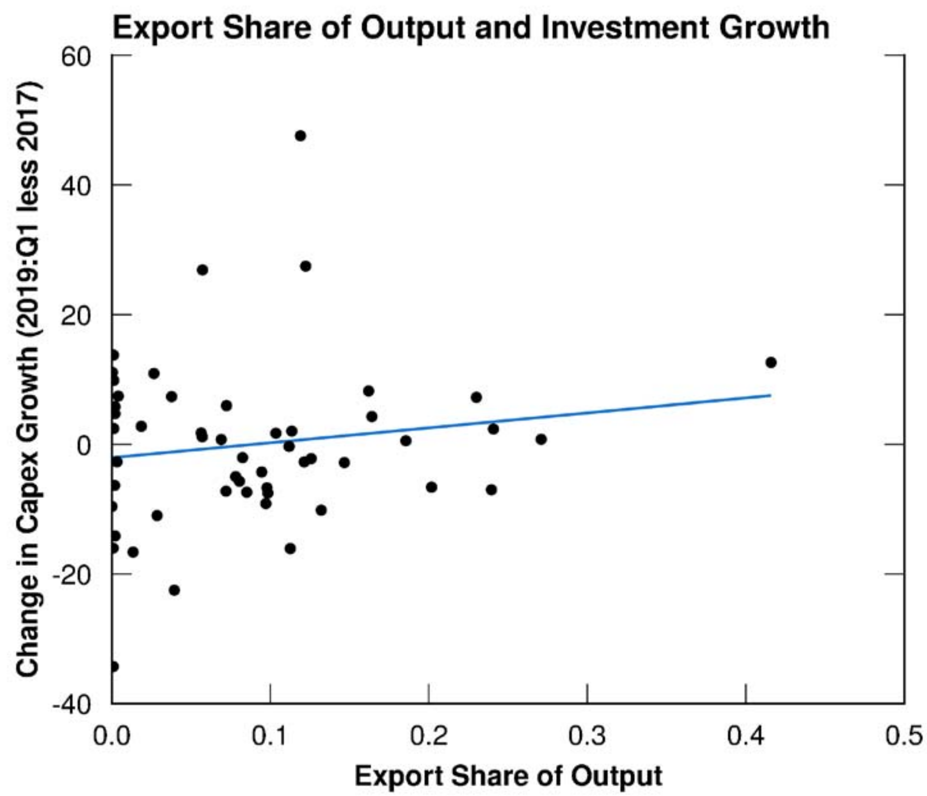


Note: Share of articles in major daily U.S., U.K., & Canadian newspapers that mention uncertainty and an additional trade-policy-related word. Source: Staff calculations.

U.S. sectoral investment growth not depressed by trade dependence

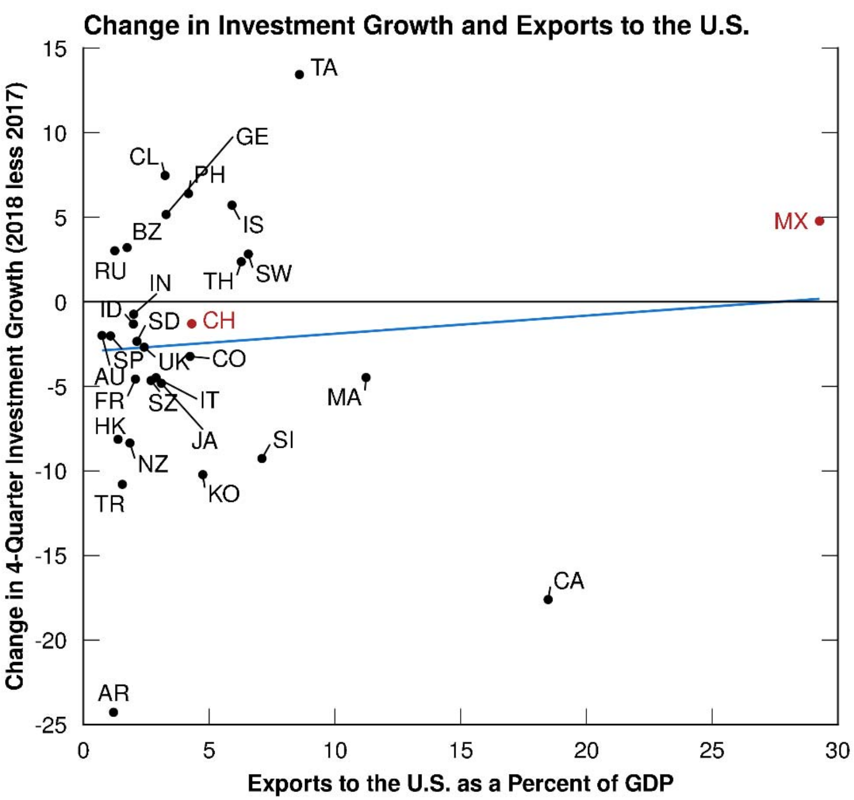
In the scatterplots below, each dot represents a different sector of the U.S. economy.

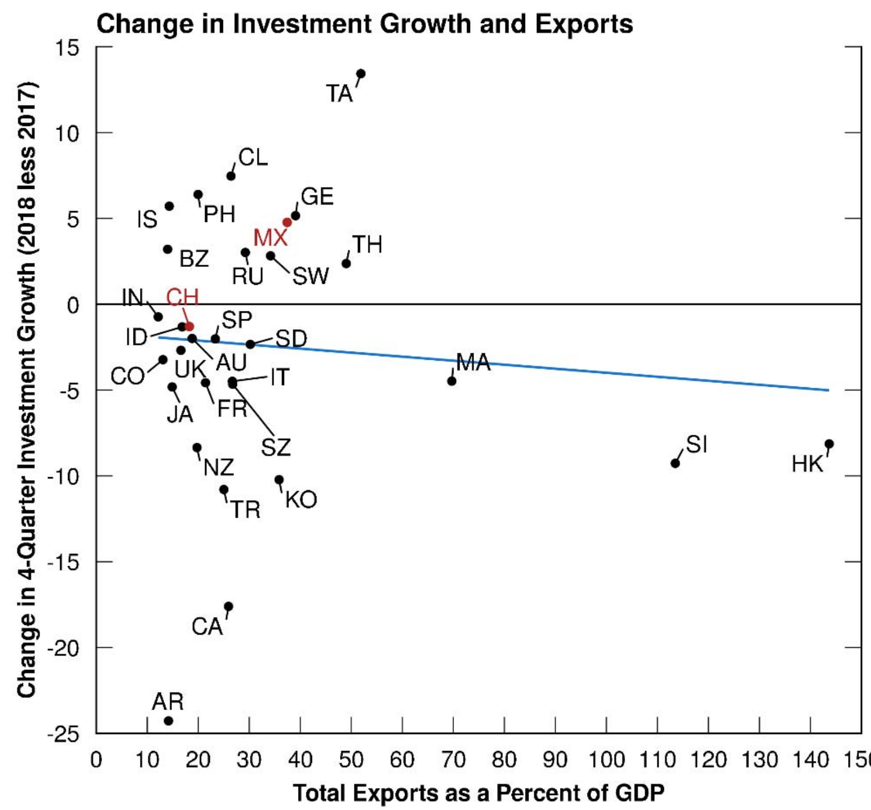




Source: Staff calculation from Compustat, Bureau of Economic Analysis, and the U.S. Census Bureau.

Economies' investment growth not depressed by trade dependence

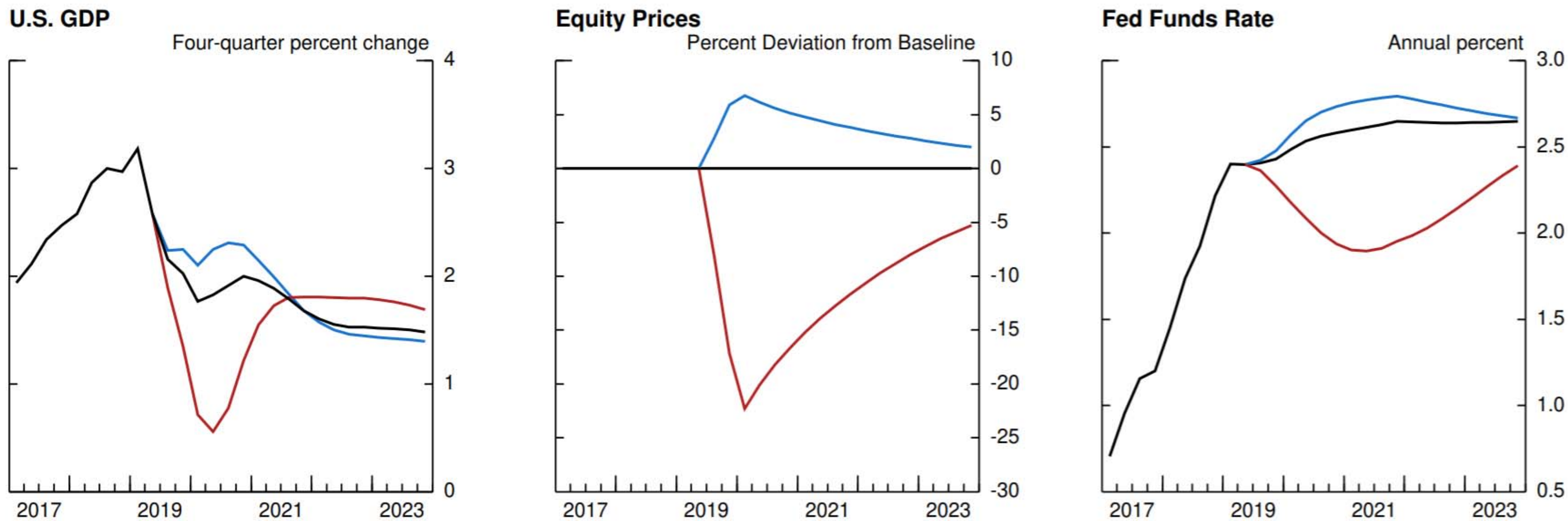




Source: Haver, staff calculations.

Three scenarios for future trade policy

- "Good deal" scenario: U.S. and China roll back most tariffs, and no additional tariffs.
- Baseline scenario: a "ceasefire" where tariffs remain at current levels with no further hikes.
- "Escalation" scenario: 25 percent tariff on remaining imports from China, all imports from Mexico.

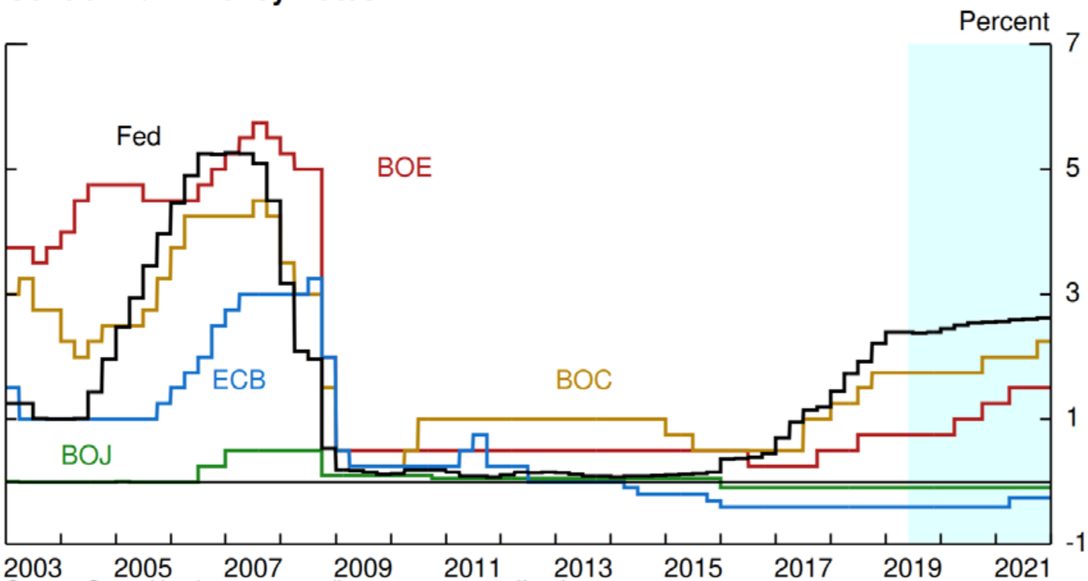


Source: Staff calculations.

Interest Rates: Low for long

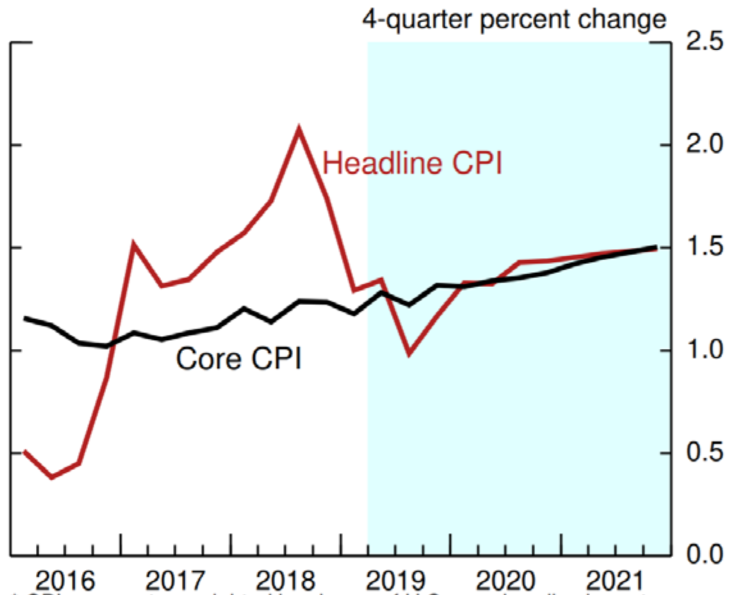
- Foreign central banks likely to keep interest rates low for years to come.
- Reinforced by continued quiescence of inflation.
- Raises the question of whether low-for-long interest rates pose financial stability risks, particularly in the corporate sector.

Central Bank Policy Rates



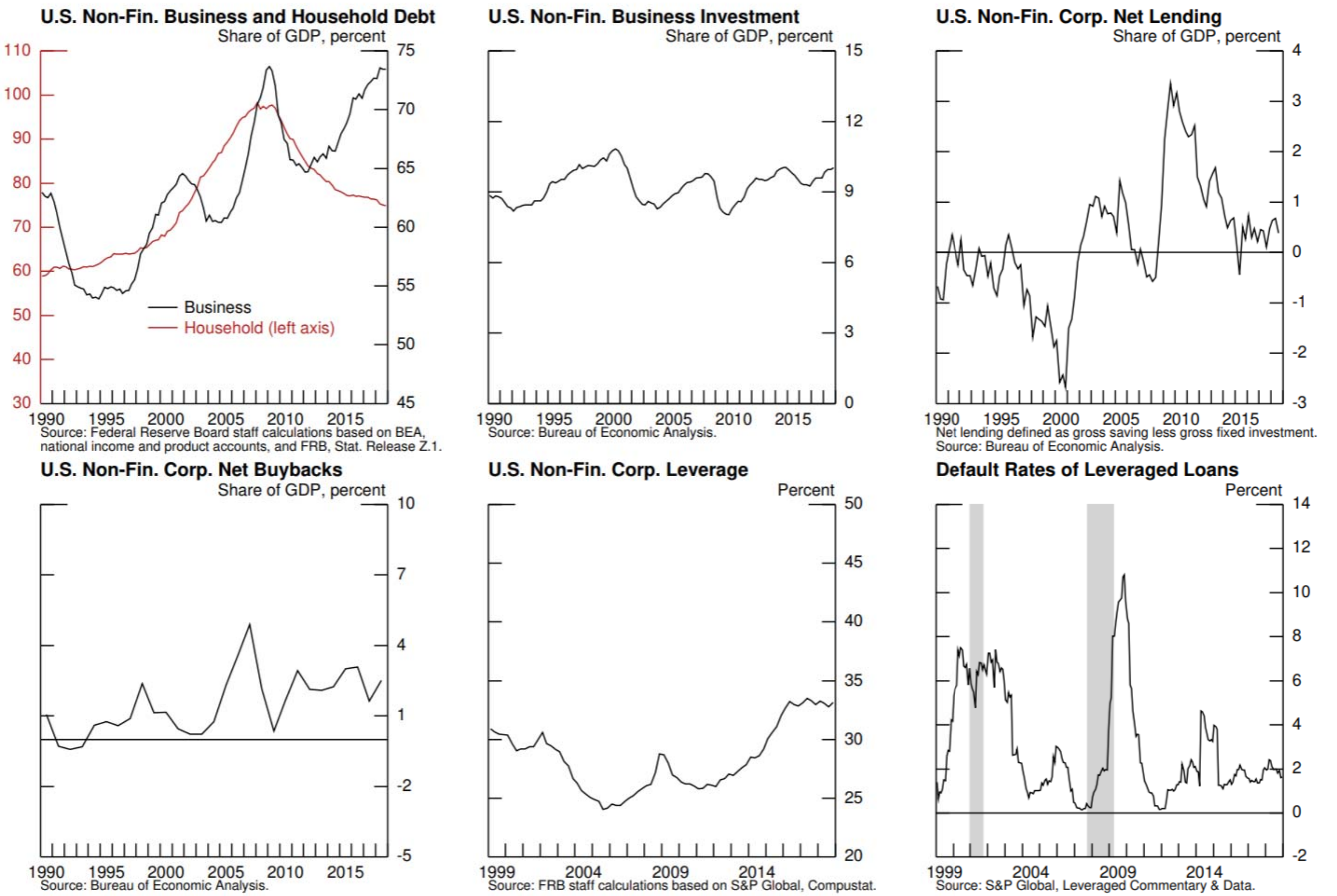
Source: Central bank monetary policy statements, staff estimates.

AFE Inflation Forecast*



* CPI aggregates weighted by shares of U.S. merchandise imports, excluding the effects of the consumption tax hike planned in Japan for October 2019.

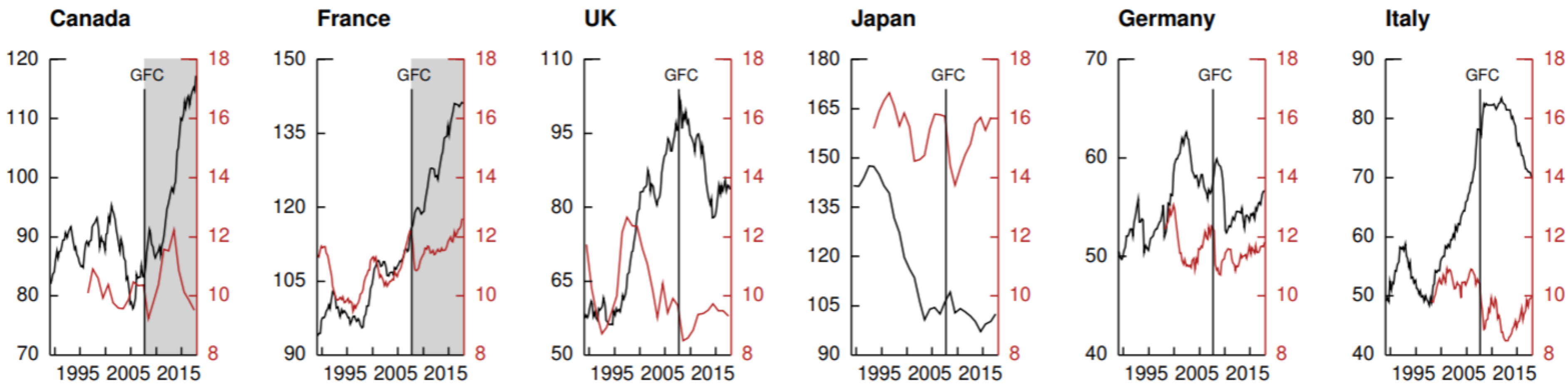
U.S. Non-Financial Corporate Leverage



Foreign Corporate Leverage

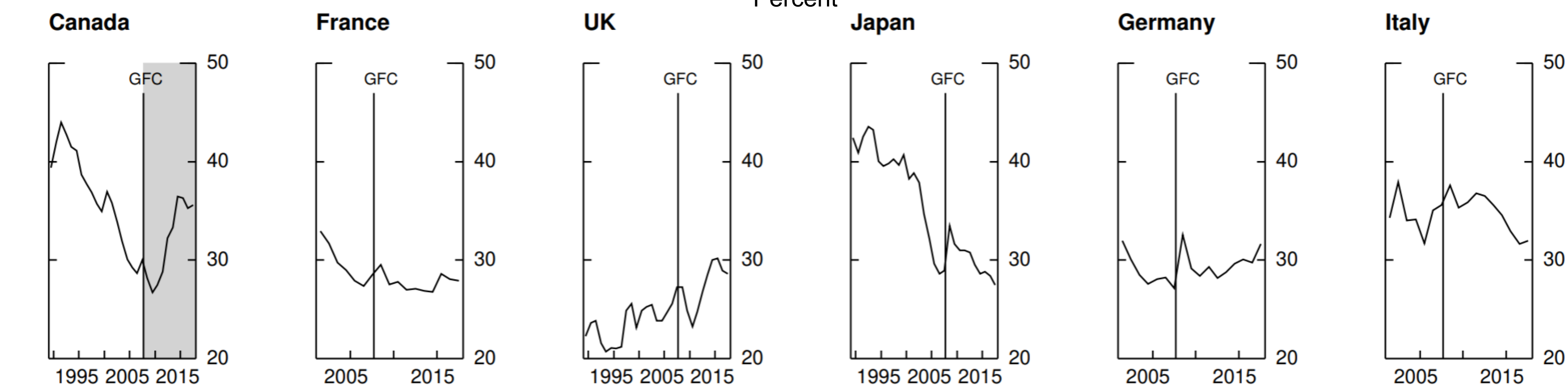
Non-Financial Corporate Credit and Investment

Credit-to-GDP (left axis, percent) Investment-to-GDP (right axis, percent)



Non-Financial Corporate Leverage

Percent



Appendix

Panels from Page 9

- *U.S. non-financial business debt:* outstanding debt securities and loan liabilities of nonfinancial corporate business (Source: Bureau of Economic Analysis).
- *U.S. household debt:* outstanding debt securities and loan liabilities of households and nonprofit organizations (Source: Bureau of Economic Analysis).
- *U.S. non-financial business investment:* nonfinancial corporate business gross fixed capital formation (Source: Bureau of Economic Analysis, Haver Analytics).
- *U.S. non-financial corporate net lending:* gross saving less gross fixed investment; gross saving is equal to the after-tax operating surplus of firms plus investment income less interest and dividends paid (Source: Bureau of Economic Analysis, Haver Analytics).
- *U.S. non-financial corporate net buybacks:* negative of the change in the stock of outstanding corporate equity liabilities (Source: Bureau of Economic Analysis, Haver Analytics).
- *U.S. non-financial corporate leverage:* mean leverage ratios across firms, weighted by assets of each firm; the firm's leverage ratio is a sum of the book value of total debt divided by book value of total assets. (Source: Staff calculations based on S&P Capital IQ, Compustat).
- *Default rates of leveraged loans:* original issuance amount of loans that defaulted over the previous twelve months divided by the total outstanding amount. The sample is comprised of the S&P/LSTA leveraged loan index, made up primarily of nonfinancial corporates but also including a small amount (~5%) of financial borrowers (Source: S&P LCD).

Panels from Page 10

- *Credit-to-GDP:* credit to non-financial corporations from all sectors at market value (Source: BIS).
- *Investment-to-GDP:* nonfinancial corporate gross fixed capital formation (except for the UK, where it is defined as total business gross fixed capital formation) (Source: national accounts, Haver Analytics).
- *Foreign non-financial corporate leverage:* aggregate leverage ratio across a country; sum of total debt across all firms divided by sum of total assets across all firms (Source: Worldscope).

Appendix 6: Materials used by Mr. Savage

Material for Briefing on

Summary of Economic Projections

Sean Savage
Exhibits and support by Erik Larsson and Jacob Bochner
June 18, 2019

Exhibit 1. Economic projections for 2019-21 and over the longer run (percent)

Change in real GDP

	2019	2020	2021	Longer run
Median	2.1	2.0	1.8	1.9
March projection	2.1	1.9	1.8	1.9
Range	2.0–2.4	1.5–2.3	1.5–2.1	1.7–2.1
March projection	1.6–2.4	1.7–2.2	1.5–2.2	1.7–2.2
Memo: Tealbook	2.1	2.1	1.7	1.7
March projection	1.8	2.0	1.5	1.7

Unemployment rate

	2019	2020	2021	Longer run
Median	3.6	3.7	3.8	4.2
March projection	3.7	3.8	3.9	4.3
Range	3.5–3.8	3.3–4.0	3.3–4.2	3.6–4.5
March projection	3.5–4.0	3.4–4.1	3.4–4.2	4.0–4.6
Memo: Tealbook	3.7	3.7	3.7	4.6
March projection	3.6	3.6	3.7	4.6

PCE inflation

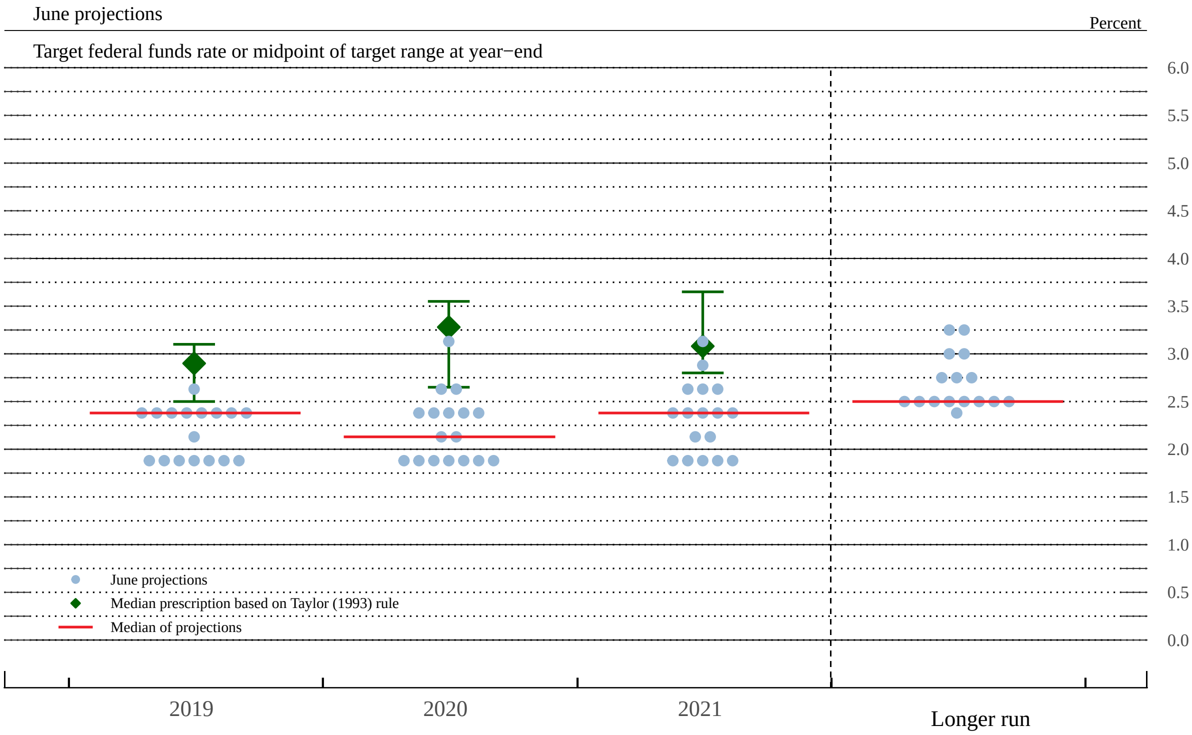
	2019	2020	2021	Longer run
Median	1.5	1.9	2.0	2.0
March projection	1.8	2.0	2.0	2.0
Range	1.4–1.7	1.8–2.1	1.9–2.2	2.0
March projection	1.6–2.1	1.9–2.2	2.0–2.2	2.0
Memo: Tealbook	1.5	1.9	1.9	2.0
March projection	1.8	1.9	1.9	2.0

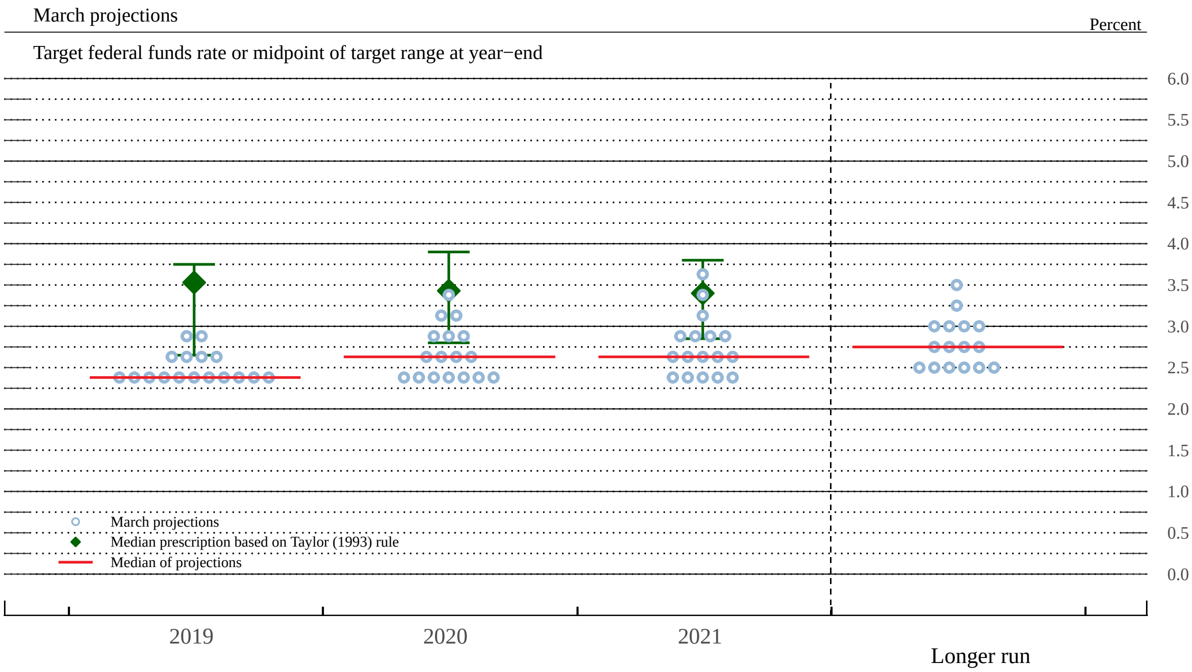
Core PCE inflation

	2019	2020	2021
Median	1.8	1.9	2.0
March projection	2.0	2.0	2.0
Range	1.4–1.8	1.8–2.1	1.8–2.2
March projection	1.8–2.2	1.8–2.2	1.9–2.2
Memo: Tealbook	1.8	1.9	1.9
March projection	2.0	2.0	2.0

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 19-20, 2019, meeting, and one participant did not submit such projections in conjunction with the June 18-19, 2019, meeting.

Exhibit 2. 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 green 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 Taylor (1993) 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 whiskers show the central tendency, for each year, of the prescriptions that result from using the Taylor (1993) rule. One participant did not submit longer-run projections for the federal funds rate or unemployment rate.

Exhibit 3. Uncertainty and risks in economic projections