Appendix 1: Materials used by Ms. Logan

Statement Regarding Repurchase Operation

Lorie Logan

September 17, 2019

OPERATING POLICY

Statement Regarding Repurchase Operation

September 17, 2019

In accordance with the FOMC Directive issued July 31, 2019, the Open Market Trading Desk (the Desk) at the Federal Reserve Bank of New York will conduct an overnight repurchase agreement (repo) operation from 9:30 AM ET to 9:45 AM ET today, September 17, 2019, in order to help maintain the federal funds rate within the target range of 2 to 2-1/4 percent.

This repo operation will be conducted with Primary Dealers for up to an aggregate amount of $75 billion. Securities eligible as collateral in the repo include Treasury, agency debt, and agency mortgage-backed securities. Primary Dealers will be permitted to submit up to two propositions per security type. There will be a limit of $10 billion per proposition submitted in this operation. Propositions will be awarded based on their attractiveness relative to a benchmark rate for each collateral type, and are subject to a minimum bid rate of 2.10 percent.

Appendix 2: Materials used by Messrs. Duarte, Raffo, and Herbst

Material for Briefing on

Review of Monetary Policy Framework

Fernando Duarte, Andrea Raffo, and Edward Herbst
Exhibits by Rahul Kasar, Carly Schippits, and Mark Wilkinson
September 17, 2019

Supporting memos and contributors listed on final page of packet.

ELB risk

- Historically, the FOMC has lowered the federal funds rate by more than 4 percentage points during recessions.
- All responses to the June SEP indicate that the longer-run normal level of the federal funds rate is less than 3½ percent.
- As a result, it is likely that the ELB will bind in most future recessions.
- A variety of statistical and economic models confirm this result.

Options to strengthen the current framework away from the ELB

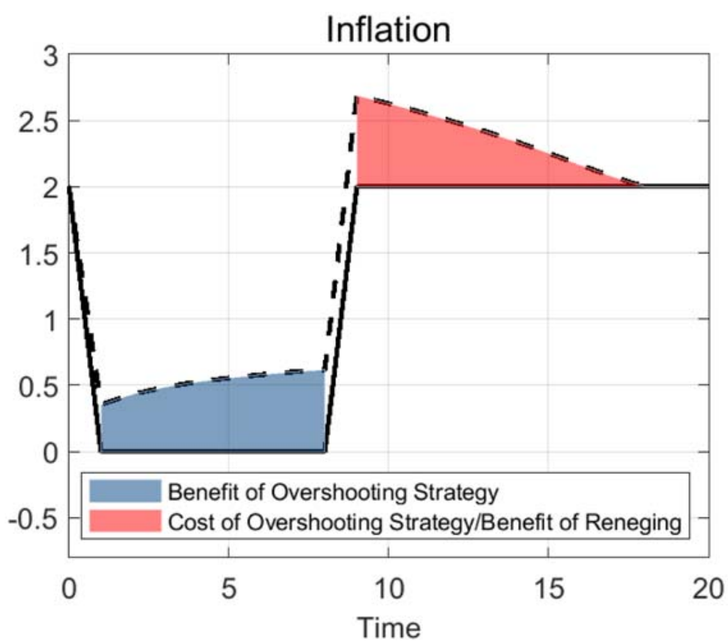
- The increased risk that the ELB will bind in the future may inhibit the Committee's ability to achieve inflation outcomes that are symmetric around 2 percent.
- To mitigate this "low inflation bias" within the current framework
  - Keep the federal funds rate during expansions at a level lower than justified in the absence of the ELB.
  - Adjust the federal funds rate less-aggressively when inflation is above the 2 percent objective than when inflation is below the 2 percent objective.

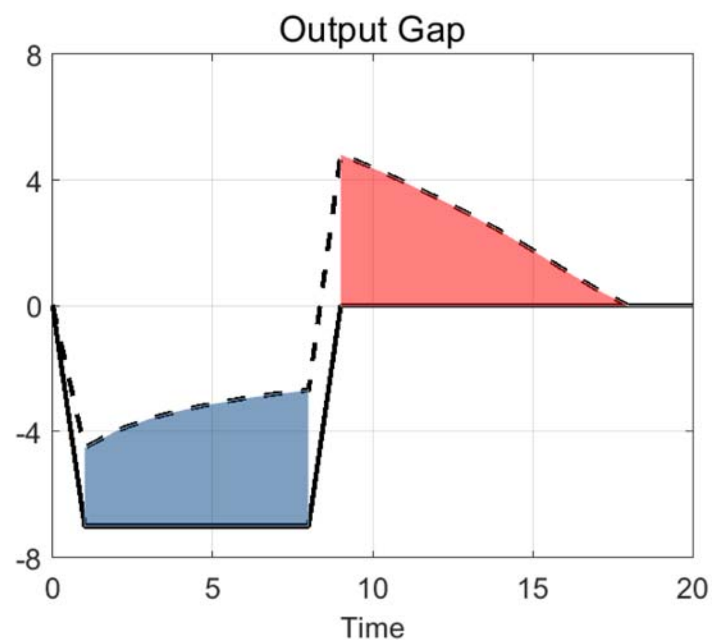
Ways to strengthen the current framework at the ELB

1. Forward guidance and balance sheet policies could be deployed faster and more aggressively.
2. Committee could announce in advance more details of how the FOMC plans to respond to future ELB episodes.
3. Forward guidance could be explicit about the situations in which the provided guidance will cease to apply.

Alternative frameworks

- The Committee may want to consider policy strategies that overshoot the FOMC's objectives, including make-up strategies.
- The costs and benefits of overshooting strategies in a simplified economic model are illustrated in the figure.





Ways to mitigate the time-inconsistency problem

- Easier to implement when there is broad public support.
- Tactics to mitigate time-inconsistency
  1. Make verifiable promises.
  2. Communicate policy strategy to the public through a variety of channels.
  3. Policy strategy that is in effect during both recessions and expansions.
  4. Rely on shorter-term promises.

Two recent examples of overshooting policies

- Czech Republic sustainably raised inflation to target.
  - Czech National Bank published forecasts with inflation overshooting its objective over a relatively short horizon and by a small amount.
- In Japan, inflation has remained below objective.
  - Announcement of overshooting was seen as a relatively minor deviation from past policies that had produced low inflation for a number of years.

Makeup Strategies

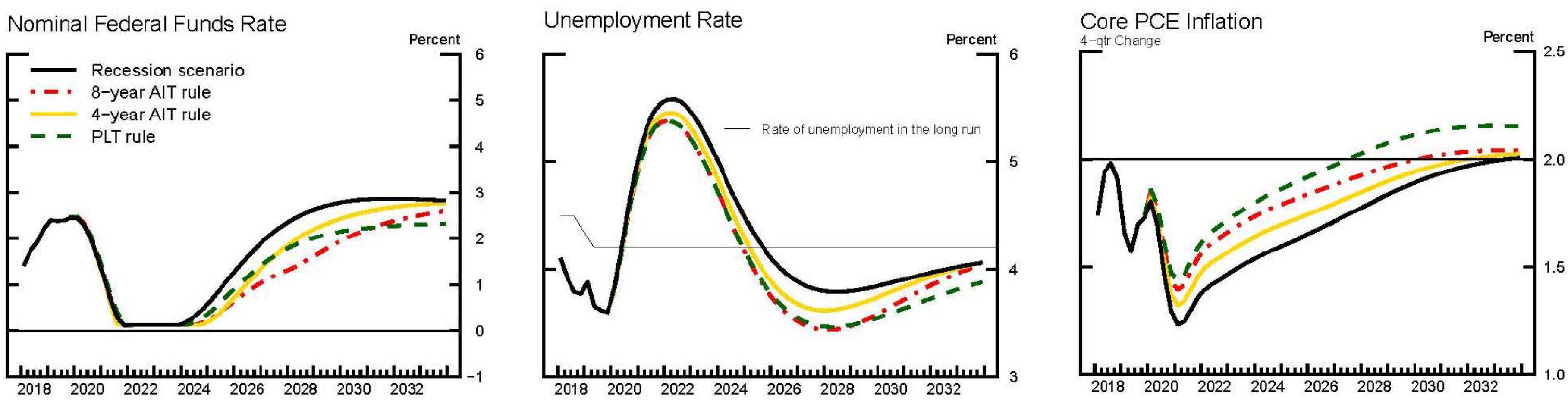
- Can makeup strategies better serve the Committee in addressing future downturns?

- Elements of (inflation) makeup strategies
  - Bygones are no longer bygones.
  - Past misses of inflation are, at least in part, made up.

- Potential benefits of makeup strategies
  - Lower-for-longer supports aggregate demand and inflation even while the ELB binds.
  - More stable inflation, on average, may lower inflation sensitivity to transient developments and help to anchor inflation expectations.

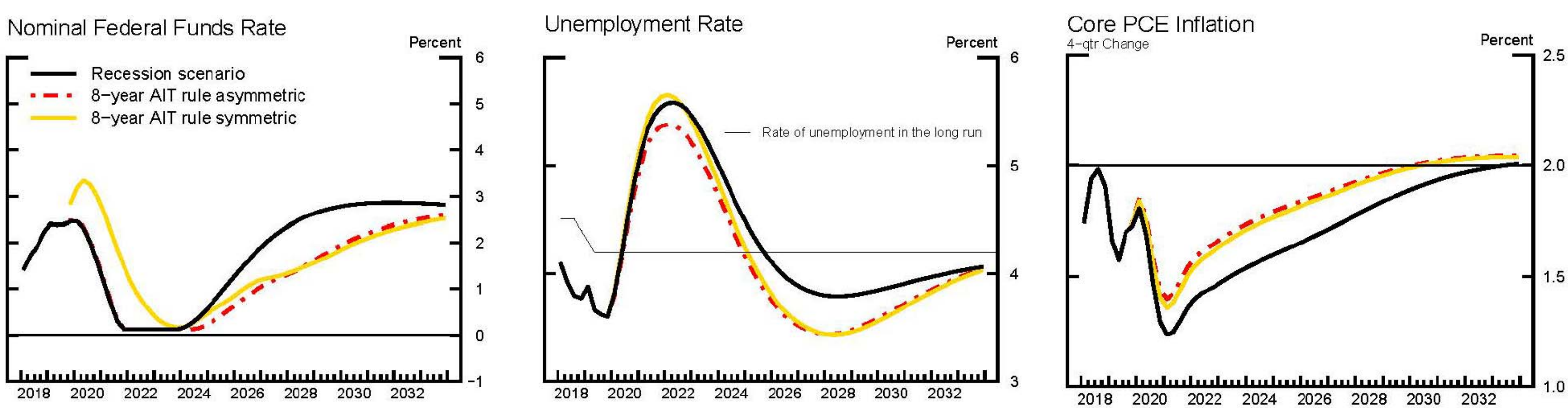
Design of Average Inflation Targeting (AIT). Part I.

- Length of the makeup window
  - As time advances, inflation misses that occurred farther in the past eventually become bygones.
  - Longer windows imply more extended lower-for-longer interest rate paths.
  - Sensitivity of the economy to interest rates and of inflation to slack critically affects the size of the stabilization gains.



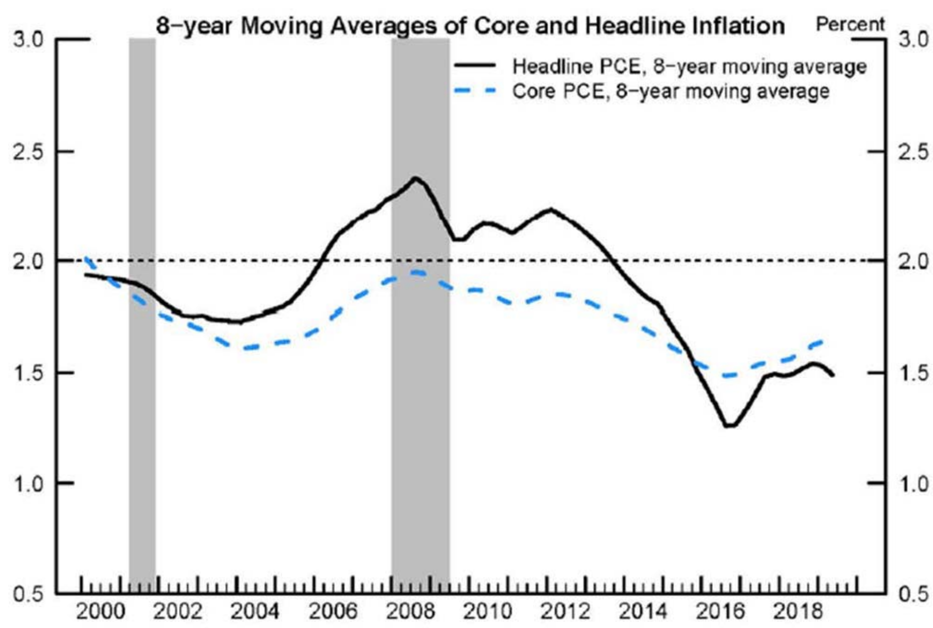
Design of Average Inflation Targeting (AIT). Part II.

- Symmetric vs asymmetric nature of makeup
  - What is policymakers' willingness to slow the economy because inflation averaged above 2 percent in the past?
  - Symmetric AIT may constrain desire to act promptly at the onset of a recession.

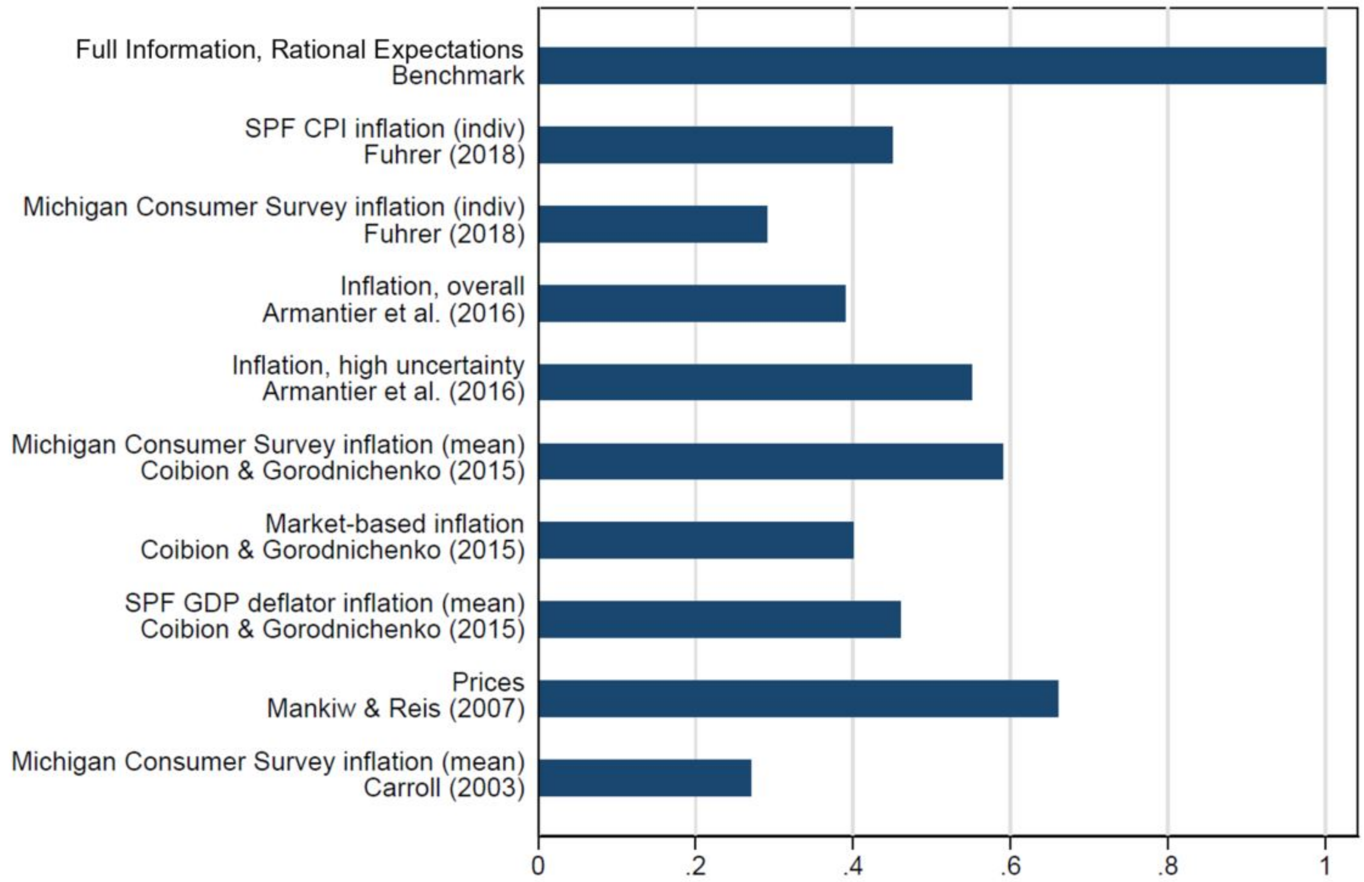


Adjustments to Communication

- Effectiveness of makeup strategy relies on public's understanding of its elements.
  - Details and evolution of makeup measure (and implications for policy).
  - Evolution of makeup measure vs headline inflation.

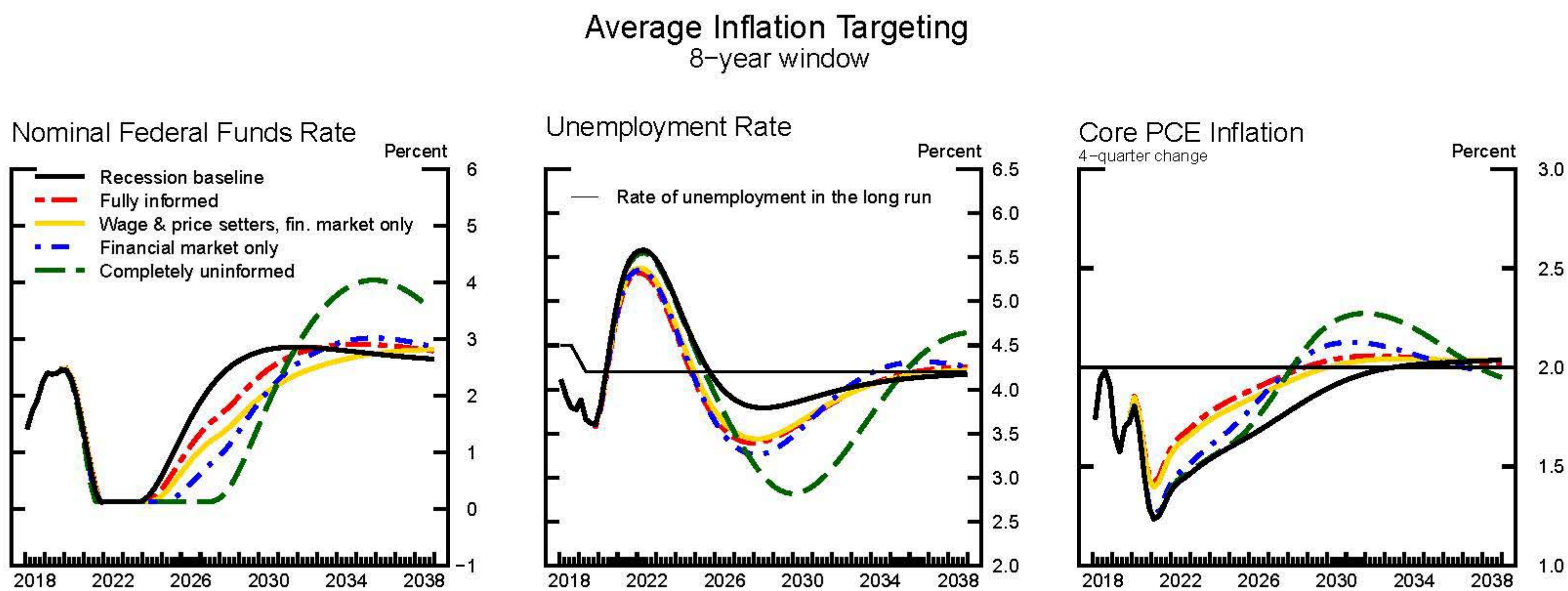


Inflation Expectations Adjust Less than Predicted by Conventional Theory



Key Results

1. Makeup strategies help increase inflation from low levels while also moderately offsetting the real effects of adverse economic shocks.
   - This is true even when much of the public is uninformed about the monetary strategy.
   - Caveat: if the public is uninformed, policymakers attempt to reach their average inflation target through overshooting the 2 percent objective and (potentially) overheating the economy.



Key Results, Continued

2. There is a possibility that makeup strategies, which aim to influence short-run inflation expectations, could inadvertently unanchor longer-run inflation expectations.
   - Overshooting of the 2 percent objective could lead to longer-run inflation expectations drifting upward and result in a longer period of inflation above 2 percent than intended.
   - This risk is particularly salient for asymmetric variants of average inflation targeting.

3. If it takes time for the public to learn about a new policy strategy, then early adoption is important.
   - When the federal funds rate is constrained by the ELB, it may be very difficult for the public to distinguish between many different policy strategies.

Some Caveats

1. There is still considerable uncertainty about expectations formation.
2. FRB/US is only one model of the economy.
3. Many dimensions of robustness are not analyzed in our memo.

Supporting Memos and Contributors

Arias, Jonas, Martin Bodenstein, Hess T. Chung, Thorsten Drautzburg, and Andrea Raffo (2019). "Alternative Strategies: How do they work? How might they help?" memorandum to the Federal Open Market Committee, Board of Governors of the Federal Reserve System, August 30.

Duarte, Fernando, Benjamin K. Johannsen, Leonardo Melosi and Taisuke Nakata (2019). "Strengthening the Current Framework in View of the ELB and Some Considerations Related to Time-Inconsistent Strategies," memorandum to the Federal Open Market Committee, Board of Governors of the Federal Reserve System, August 30.

Hebden, James, Edward Herbst, Jenny Tang, Giorgio Topa, and Fabian Winkler (2019). "How Robust Are the Alternative Strategies to Key Alternative Assumptions?" memorandum to the Federal Open Market Committee, Board of Governors of the Federal Reserve System, August 30.

Appendix 3: Materials used by Ms. Logan

Class II FOMC - Restricted (FR)

Material for Briefing on

Financial Developments and Open Market Operations

Lorie Logan
Exhibits by Ashley Rhodes
September 17, 2019

Class II FOMC – Restricted (FR) Exhibit 1

(1) Asset Price Changes

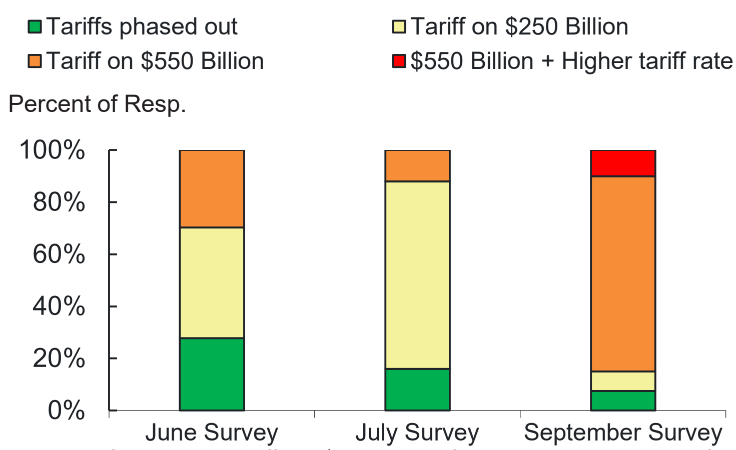
	July FOMC to 09/03/19	Since 09/03/19	Since July FOMC	Current Level
U.S. Yields				
2Y Treasury	-34 bps	+27 bps	-7 bps	1.77%
10Y Treasury	-56 bps	+37 bps	-19 bps	1.87%
30Y Treasury	-62 bps	+38 bps	-24 bps	2.34%
5Y5Y Forward Inflation	-14 bps	+8 bps	-6 bps	2.04%
U.S. Risk Assets				
S&P 500 Index	-2.9%	+2.5%	-0.4%	3001
HY Credit Spreads	+23 bps	-29 bps	-6 bps	365 bps
IG Credit Spreads	+13 bps	-5 bps	+8 bps	116 bps

Note: Blue indicates loosening of financial conditions and red indicates tightening of financial conditions.
Source: Barclays, FRBNY

(2) Key Points

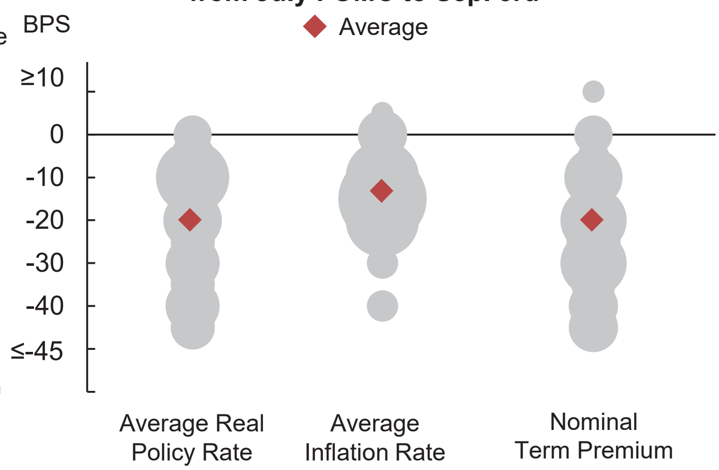
1. Explore drivers behind large moves in Treasury yields, contrasting them with the modest moves in risk assets.
2. Turn to expectations for Fed policy at this meeting and beyond.

(3) Evolution of Trade Expectations Through 2019



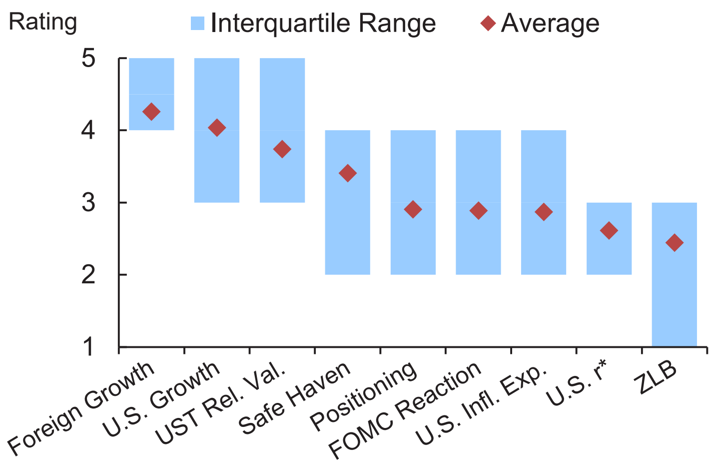
Note: As of Jul. survey, tariffs on $250 billion of goods implemented. As of Sep. survey, tariffs on $550 billion of goods announced, only ~$360 billion implemented to date. Based on all responses from the Surveys of Primary Dealers and Market Participants.
Source: FRBNY

(4) Decomposition of 30-Year Treasury Yield Decline from July FOMC to Sep. 3rd



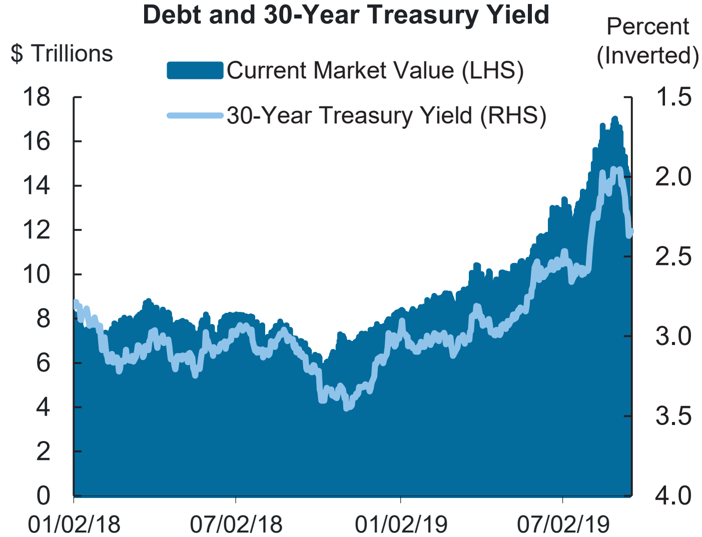
Note: Based on all responses from the Surveys of Primary Dealers and Market Participants. Dots scaled by percent of respondents.
Source: FRBNY

(5) Importance of Factors Explaining 30-Year Treasury Yield Decline from July FOMC to Sep. 3rd



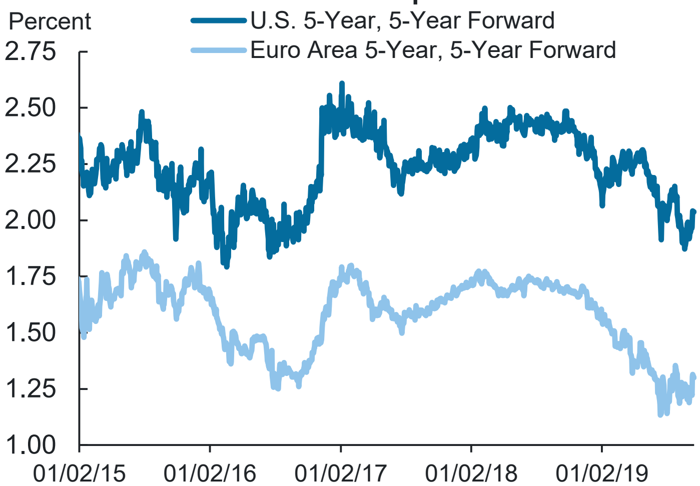
Note: Based on all responses from the Surveys of Primary Dealers and Market Participants.
Source: FRBNY

(6) Global Stock of Outstanding Negative-Yielding Debt and 30-Year Treasury Yield



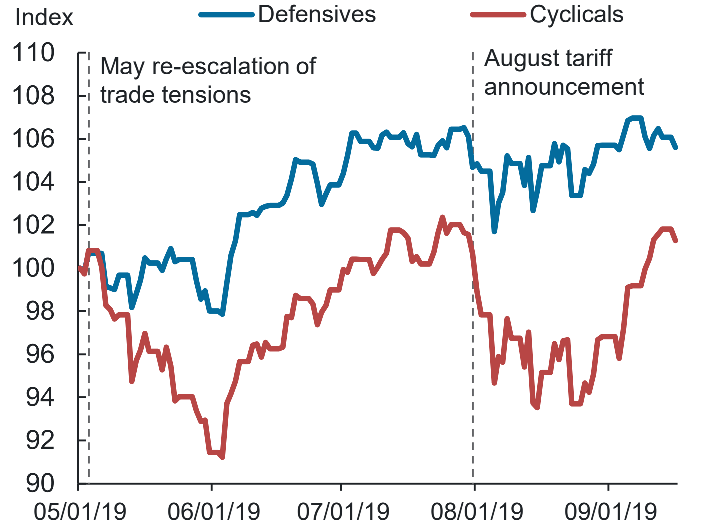
Source: Bloomberg, Barclays

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



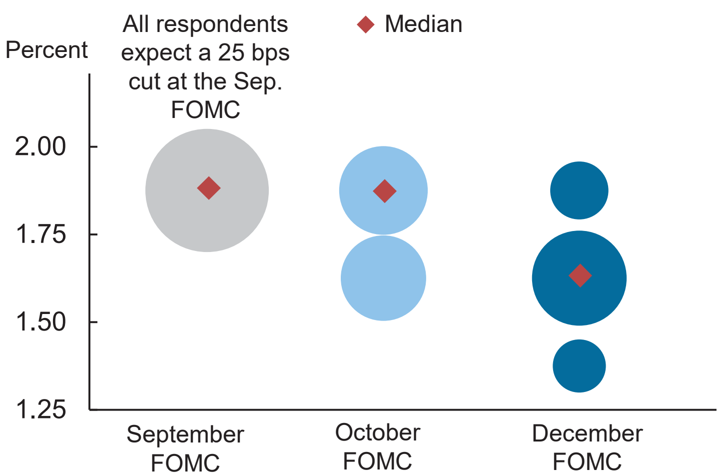
Note: U.S. and euro area measures derived from inflation swap rates.
Source: Bloomberg

(8) S&P 500 Cyclical and Defensive Sector Performance



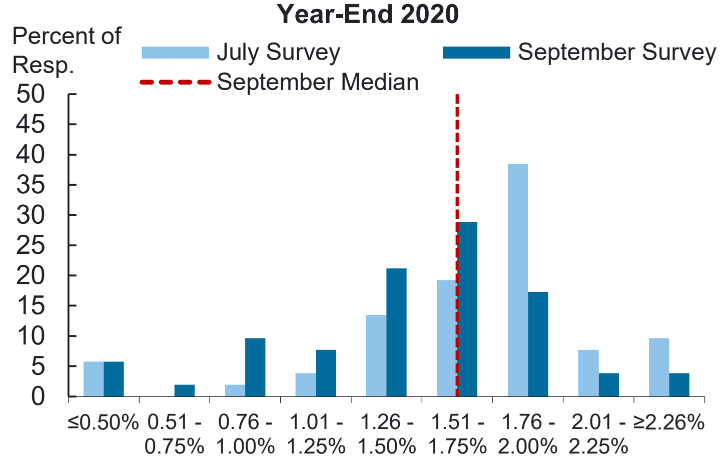
Source: Bloomberg, Goldman Sachs

(9) Modal Target Rate Forecasts at FOMC Meetings



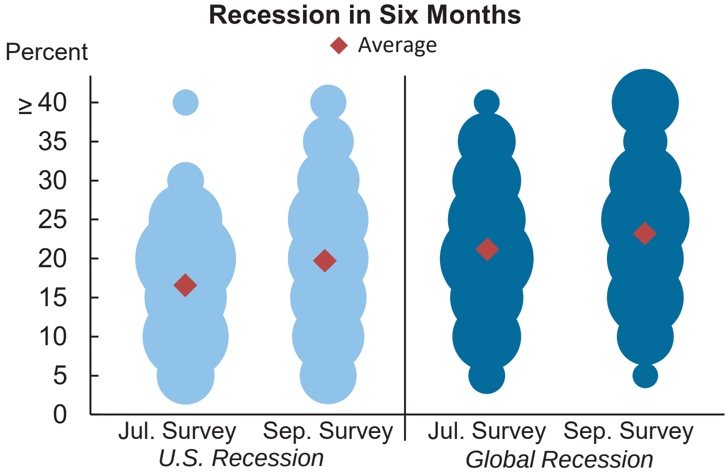
Note: Based on all responses from the Surveys of Primary Dealers and Market Participants. Dots scaled by percent of respondents.
Source: FRBNY

(10) Distribution of Modal Rate Forecasts for Year-End 2020



Note: Based on responses from the Surveys of Primary Dealers and Market Participants. Excludes respondents who did not provide answers across July and September.
Source: FRBNY

(11) Probability of U.S. Recession and Global Recession in Six Months



Note: Based on all responses from the Surveys of Primary Dealers and Market Participants. NBER defined recession for U.S., IMF definition for global recession. Dots scaled by percent of respondents.
Source: FRBNY

(12) Risk Factors

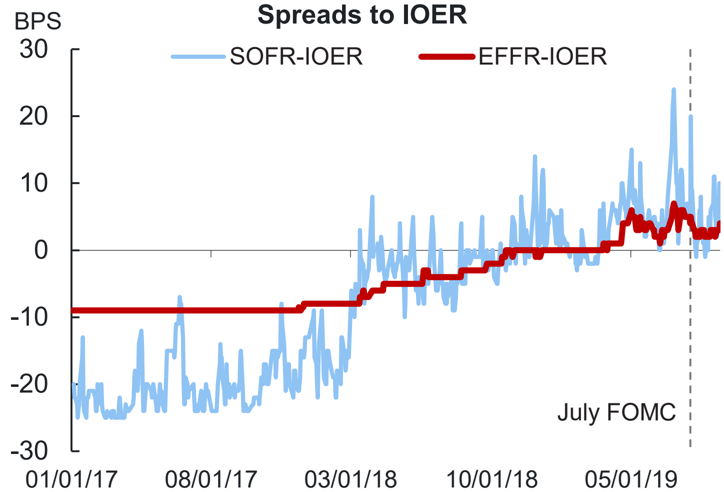
- Trade tensions and the global economic impacts.
- Economic growth and monetary policy effectiveness in Europe.
- Potential for deterioration in Brexit negotiations, Hong Kong demonstrations, and Middle East tensions.

Class II FOMC – Restricted (FR) Exhibit 3

(13) Money Market Overview

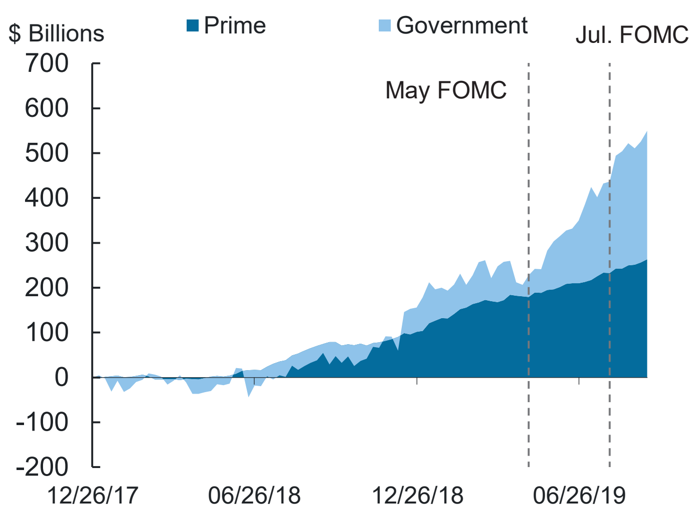
- Money market rates declined over the intermeeting period due to elevated demand for short term investments and lower-than-expected Treasury issuance.
- However, money market rates spiked on September 16th amid corporate tax payments and Treasury settlement.
- Projected declines in reserves and growth in Treasury issuance are likely to exert upwards pressure on the EFFR and other money market rates.

(14) Effective Fed Funds Rate and SOFR Rate Spreads to IOER



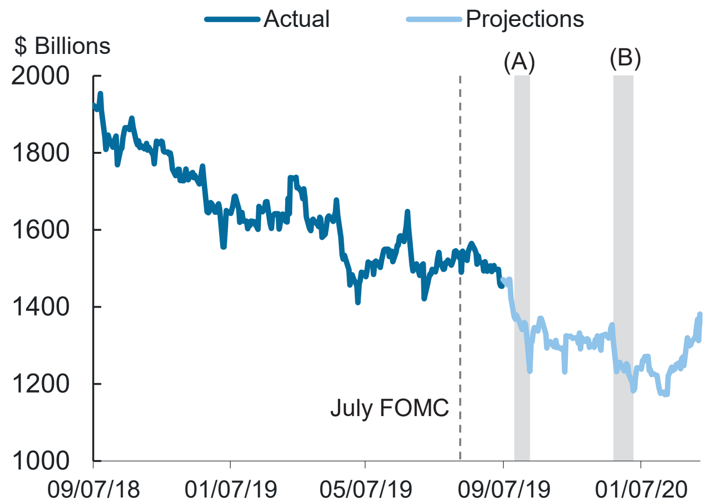
Note: Excludes day before month-end, month-end, and day following month-end.
Source: FRBNY

(15) 2a-7 Money Market Fund Flows Since Year-End 2017



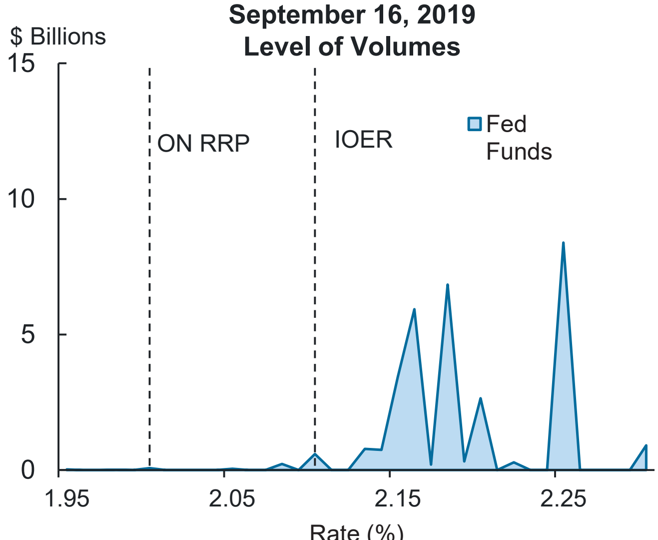
Source: iMoneyNet, Staff Calculations

(16) Actual and Projected Reserve Balances



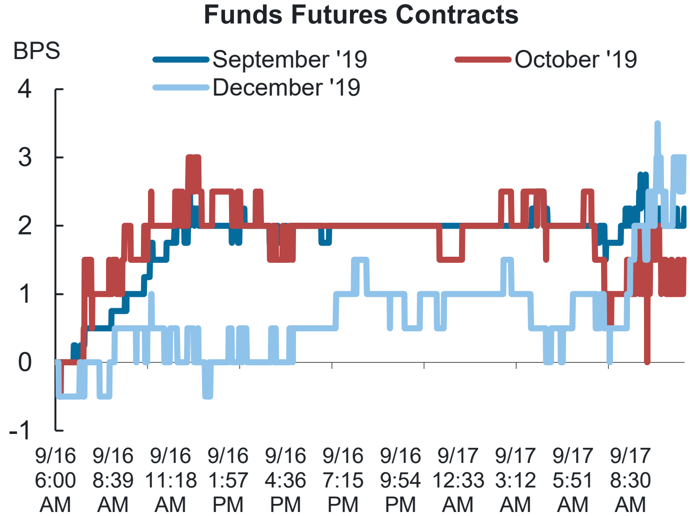
(A) Last two weeks of September '19 (B) Late December '19
Source: FRBNY

(17) Distribution of Fed Funds Volume by Rate on September 16, 2019
Level of Volumes



Source: FR2420

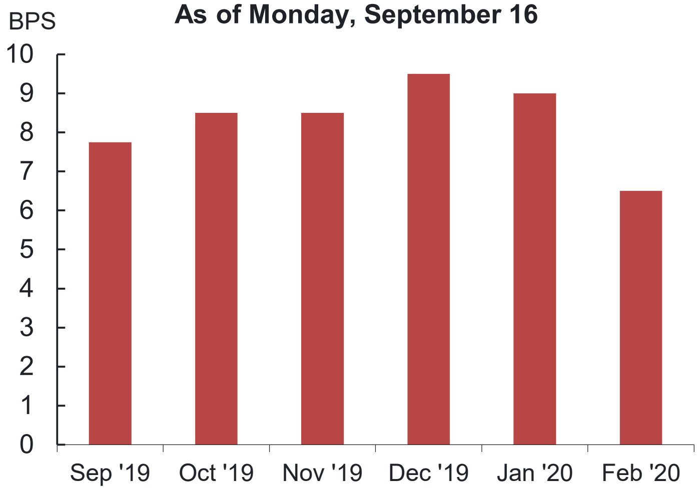
(18) Cumulative Changes in Implied Yields on Fed Funds Futures Contracts



Note: 6:00 AM EST, September 16 is set at 0.
Source: Bloomberg

Class II FOMC – Restricted (FR) Exhibit 4

(19) SOFR - Fed Funds Futures Spread
As of Monday, September 16



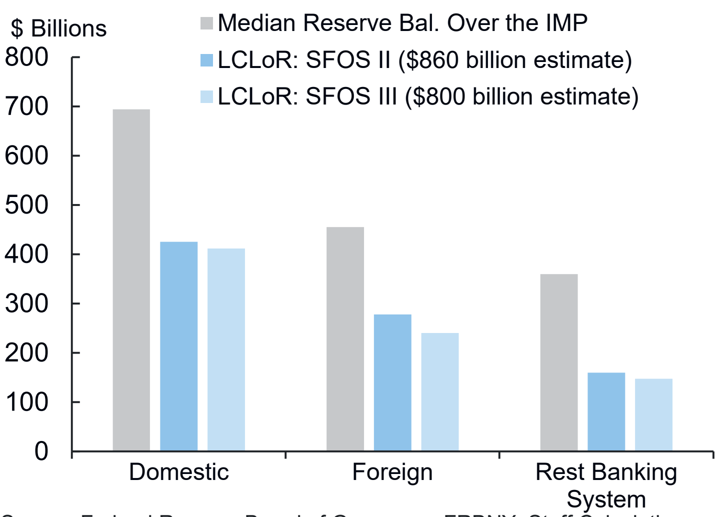
Note: Based on futures contracts that settle to the average spread over the calendar month.
Source: Bloomberg

(20) Overnight Money Market Rates
As of Tuesday, September 17

	Pre-9am announcement	~9:30am	~10:15am	~10:50am
Fed Funds	5.00%	2.50%	2.25%	-
Eurodollars	5.00%	3.50%	2.50%	-
GC Repo	7.00 - 8.00%	5.00 - 6.00%	2.20%	2.45%

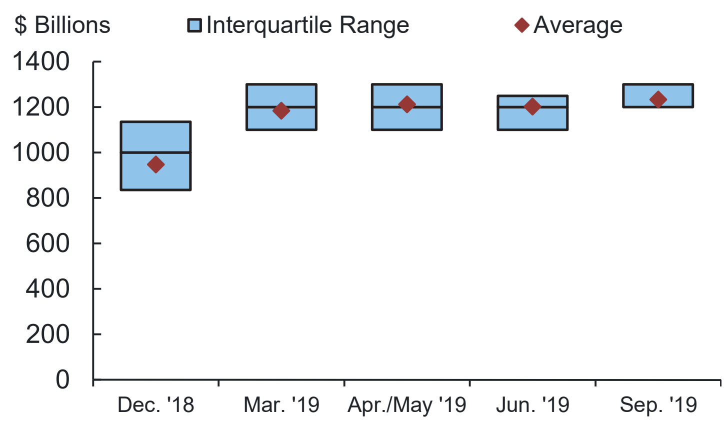
Note: Last or Offer quote, where available.
Source: FRBNY

(21) Lowest Comfortable Level of Reserves by Bank Type



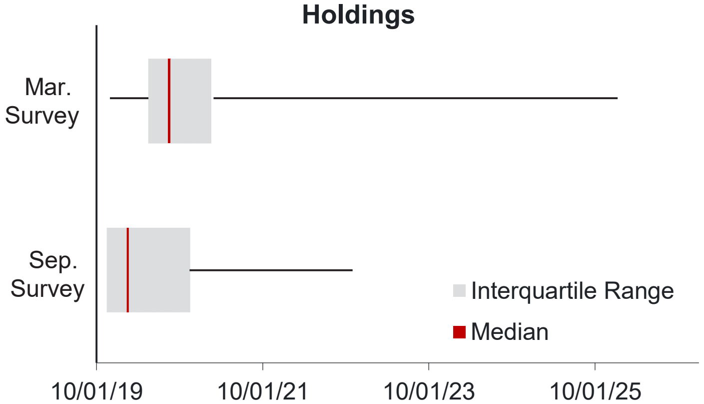
Source: Federal Reserve Board of Governors, FRBNY, Staff Calculations

(22) Expected Lowest Average Weekly Reserve Level Between Now and 2025



Note: Conditional on not moving to the ZLB. Based on all responses to the Surveys of Primary Dealers and Market Participants. For Sep. '19, the median equals the 75th percentile.
Source: FRBNY

(23) Most Likely Timing of an Increase in Securities Holdings



Note: Conditional on not moving to the ZLB. Projection results from the Addendum to the 2018 SOMA annual report suggested reserve management purchases could begin between late 2019 and 2025. Horizontal lines show high and low range. Based on all responses to the Surveys of Primary Dealers and Market Participants.
Source: FRBNY

(24) Operational Updates

- Desk continued to reinvest maturing proceeds from MBS above $20 billion into new agency MBS.
- Outright purchases of Treasury securities across sectors proceeded smoothly, contacts did not attribute changes in prices or liquidity to SOMA purchases.
- Annual investment review of foreign currency reserves portfolios recommended one change: to lower the minimum cash requirement for both the euro and yen portfolios.
- $20 million draw by BoE on USD swap lines on 8/22. First time since 2009, due to precautionary testing purposes by BoE counterparty.

Appendix 1

(1) Summary of Operational Testing

Summary of Operational Tests in prior period:

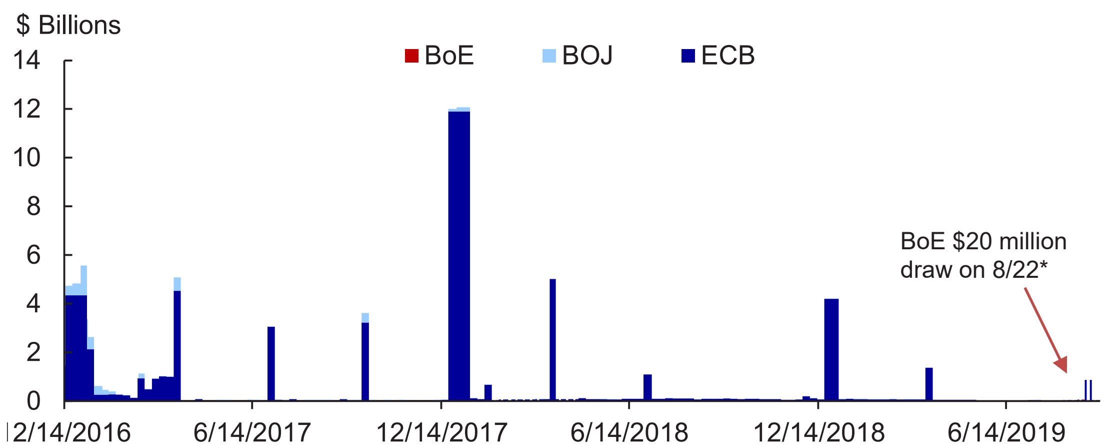
- Domestic Authorization
    - August 6: Treasury bill maturity of $2.3 million
- Foreign Authorization
    - August 7: Euro-denominated sovereign debt sale to private counterparties for €1 million
    - August 14: Euro-denominated repo with private counterparties for €1 million*

Upcoming Operational Tests:

- There are no tests scheduled under the Domestic Authorization
    - The Desk will not be conducting an H2 MBS dollar roll and Treasury bill rollover exercise, as previously indicated, given that both operation types have recently been conducted in accordance with the Directive**
- Three tests scheduled under the Foreign Authorization
    - September 26: Yen-denominated sovereign debt sale to private counterparties for ¥100 million
    - October 10: Swiss franc liquidity swap for CHF 51,000 with the SNB
    - October 10: US dollar liquidity swap for USD 51,000 with the BoC, BoE, ECB, and SNB

* This operation was originally scheduled for July 9th, but the operation was delayed due to counterparty issues resulting from prolonged inactivity in our account. The Desk successfully executed this small value operation shortly after the account was reestablished.
** The December 7th, 2018 memo, "Desk operational readiness: review of 2018 activities and advance notice of 2019 small value exercises" provided advance notice of the Desk's plan to conduct an H1 and H2 small value exercise for both MBS dollar rolls and Treasury bill rollovers.

(2) FX Swaps Outstanding



*First draw on the USD swap lines by the Bank of England since 2009, due to precautionary demand for testing purposes by BOE counterparties.
Source: FRBNY

(3) FX Intervention

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

Appendix 2

(1) MBS Purchase Summary Since Cap Implementation Through 9/13/2019 ($ Millions)

Purchase Period	Actual Paydowns	Cap	Reinvestment Purchases	Net Deviation	Cumulative Deviation
17-Oct	24,353	4,000	20,355	2	2
17-Nov *	28,316	4,000	24,327	11	13
17-Dec	24,032	4,000	20,038	6	19
18-Jan	22,909	8,000	14,921	12	31
18-Feb	20,689	8,000	12,684	-5	26
18-Mar	19,294	8,000	11,308	14	40
18-Apr	21,233	12,000	9,234	1	41
18-May	20,793	12,000	8,807	14	55
18-Jun *	24,526	12,000	12,534	8	63
18-Jul	22,729	16,000	6,725	-4	59
18-Aug	21,602	16,000	5,607	5	64
18-Sep	21,759	16,000	5,755	-4	60
18-Oct	17,878	20,000	0	0	60
18-Nov	18,462	20,000	0	0	60
18-Dec	16,424	20,000	0	0	60
19-Jan	15,602	20,000	0	0	60
19-Feb	14,492	20,000	0	0	60
19-Mar *	15,234	20,000	0	0	60
19-Apr	17,636	20,000	0	0	60
19-May	20,221	20,000	221	0	60
19-Jun	22,962	20,000	2,964	2	62
19-Jul	22,260	20,000	2,258	-2	60
19-Aug	25,270	20,000	5,273	3	63
19-Sep	est. 26,413	20,000			

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

(2) Treasury Reinvestment Purchase Summary Through 9/13/2019 ($ Millions)

Purchase Period	Target Reinvestment Amount	Reinvestment Purchases	Net Deviation	Cumulative Deviation
19-Aug	$20,000	$20,009	$9	$9
19-Sep	$20,000			

Appendix 4: Materials used by Ms. Tevlin

Class II FOMC - Restricted (FR)

Material for Briefing on

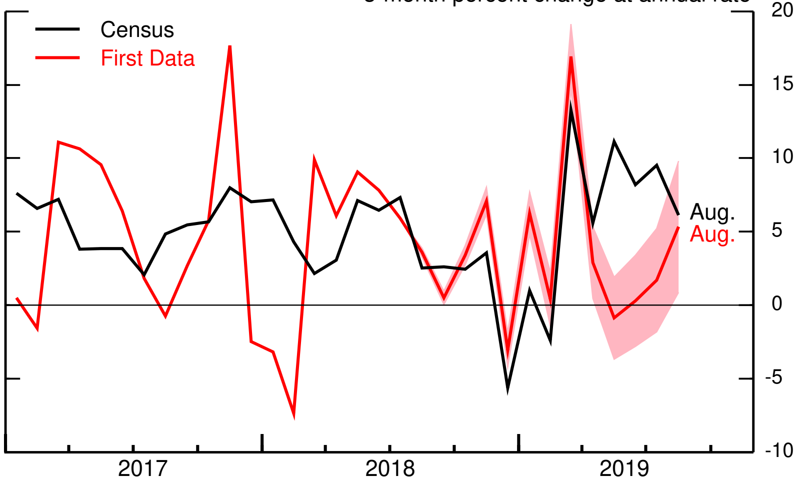
The U.S. Outlook

Stacey Tevlin
Exhibits by Rosemary Rhodes and Ashley Sexton
September 17, 2019

Class II FOMC - Restricted (FR)

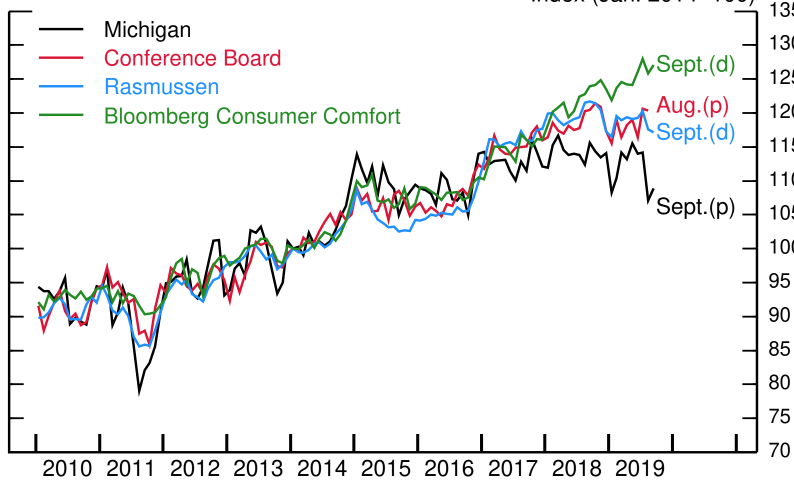
Consumer Spending Is Holding Up; Investment and Factory Output Are Slowing

1. Estimates of Nominal Retail Spending



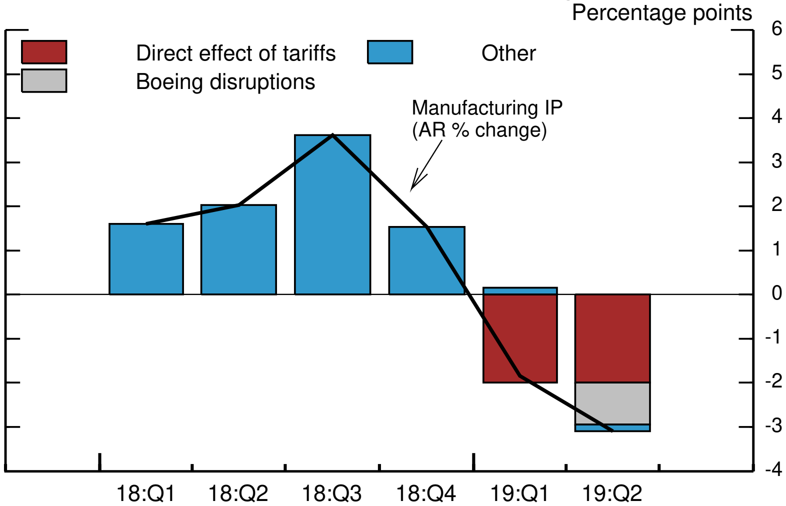
Note: Data cover the retail sales group. Shaded region denotes 95 percent confidence interval for the First Data estimates based on past revisions.

2. Measures of Consumer Sentiment

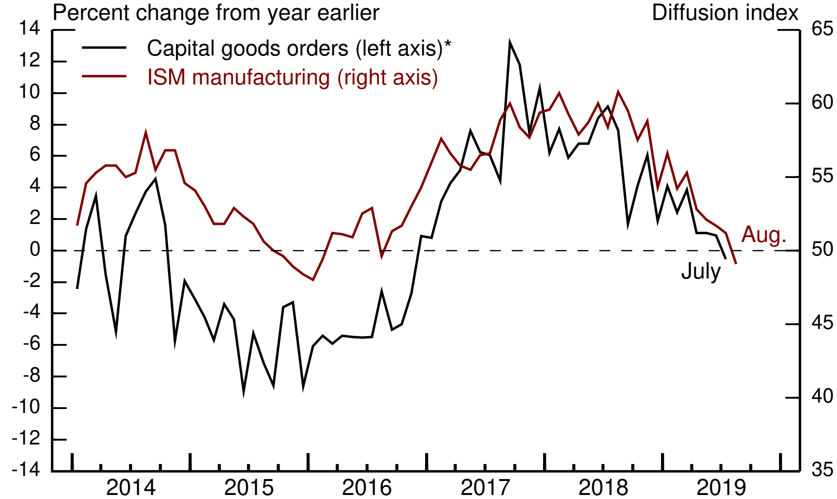


Note: Series are scaled to have the same standard deviation over their common sample period. p. Preliminary value. d. Data through 9/12.

3. Selected Contributions to Manufacturing IP Growth



4. Business Sector Indicators



* Nominal orders of nondefense capital goods excluding aircraft.

Class II FOMC - Restricted (FR)

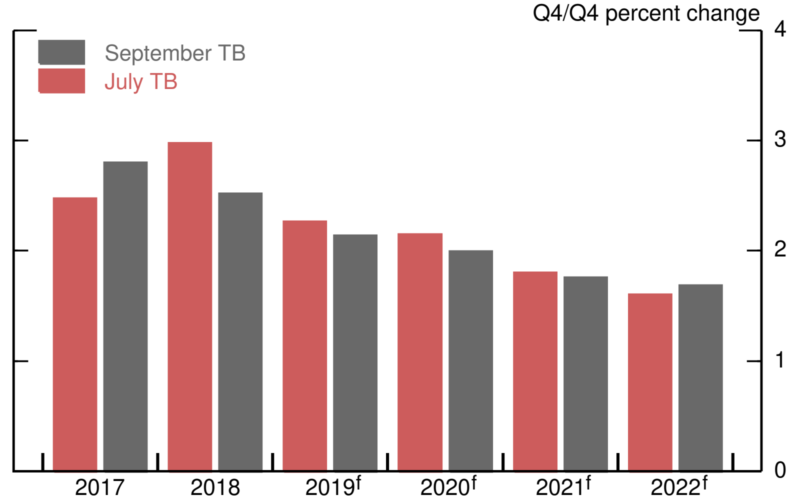
GDP Growth and the Output Gap Have Revised Down

5. Near-Term Real GDP Projection

	2018	2019		
	Q4/Q4	H1	H2	Q4/Q4
1. Current projection	2.5	2.6	1.7	2.1
2. July Tealbook	3.0	2.8	1.7	2.3
3. Blue Chip		2.6	1.9	2.2

Note: Percent change at annual rate for period shown.

6. Medium-Term Real GDP Projection

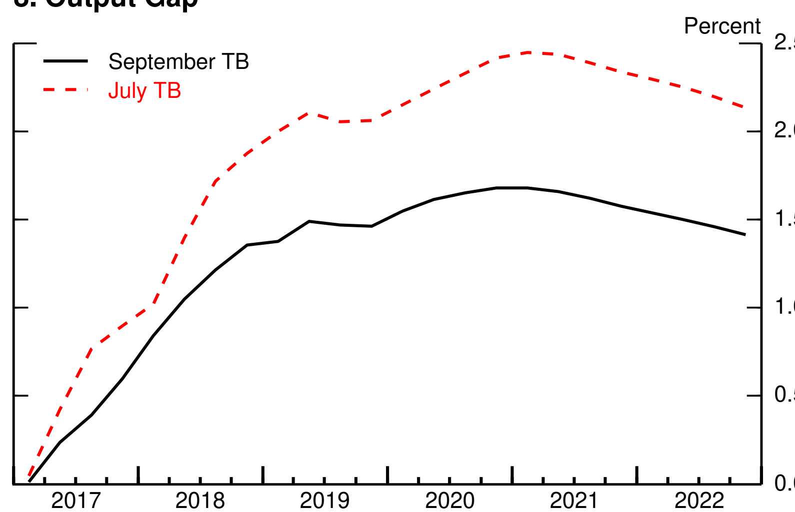


f. Staff forecast.

7. Some Factors Contributing to the Supply-Side Re-Evaluation

- Productivity has been running above our estimate of trend
- Absence of wage and price pressures

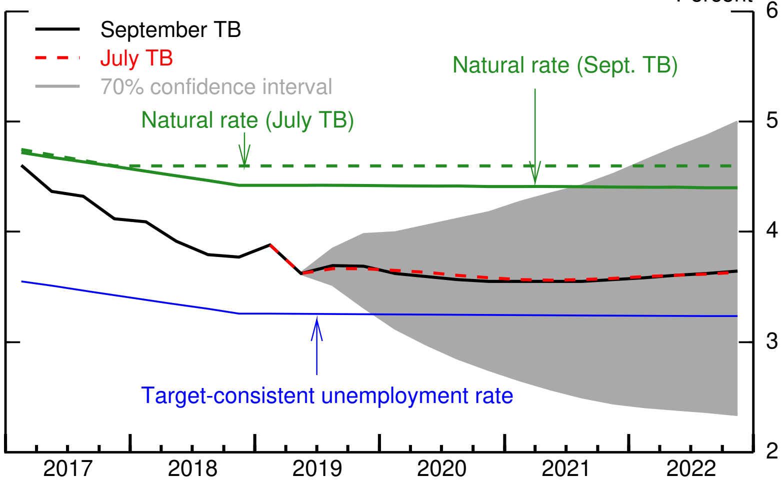
8. Output Gap



Class II FOMC - Restricted (FR)

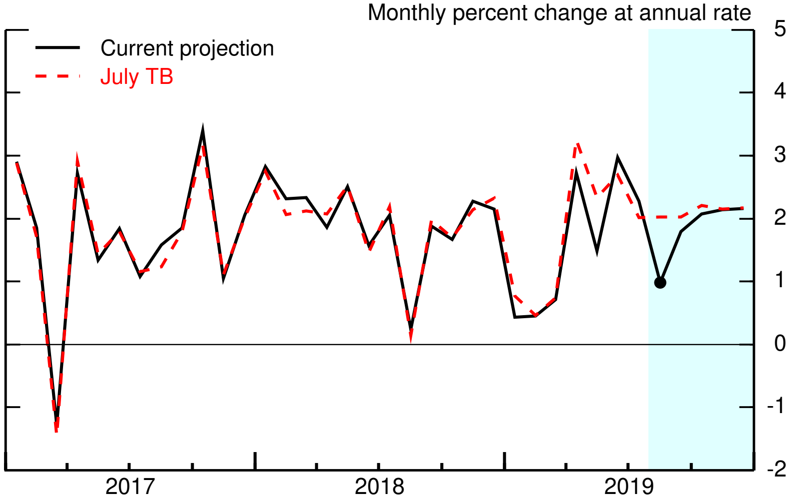
Inflation Is a Little Softer

9. Unemployment Rate

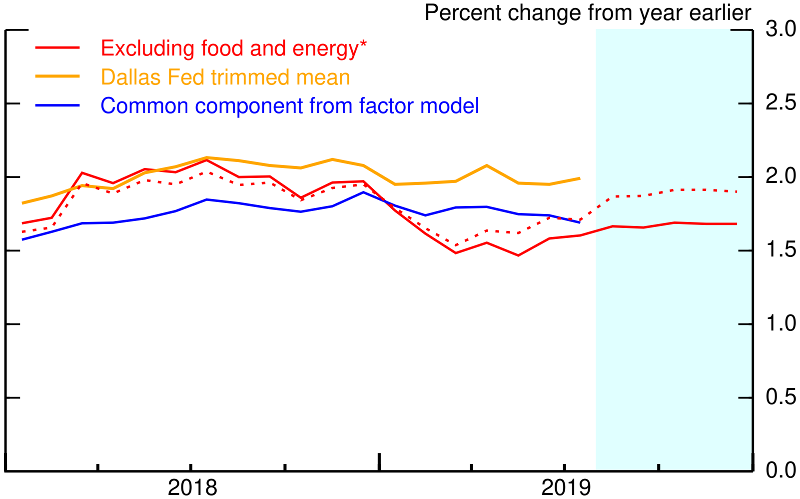


Note: Confidence interval based on FRB/US stochastic simulation.

10. Monthly Core PCE Price Inflation

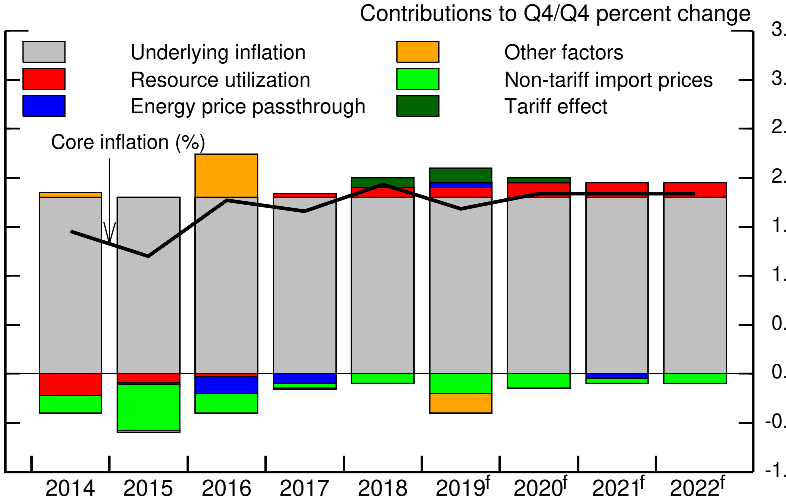


11. Alternative Measures of PCE Price Inflation



* Solid line is current projection; dotted line is July Tealbook.

12. Decomposition of Core PCE Price Inflation



f. Staff forecast.

Appendix 5: Materials used by Mr. Gruber

Class II FOMC - Restricted (FR)

Material for Briefing on

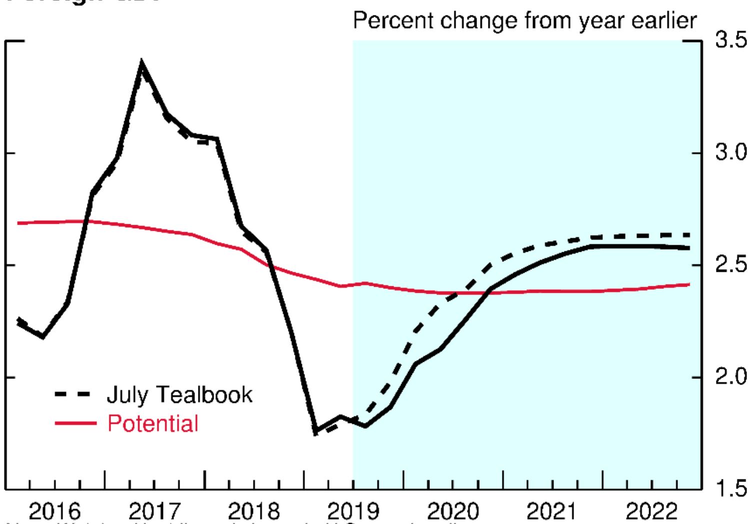
The International Outlook

Joseph Gruber
Exhibits by William Barcelona
September 17, 2019

Foreign growth remains subdued

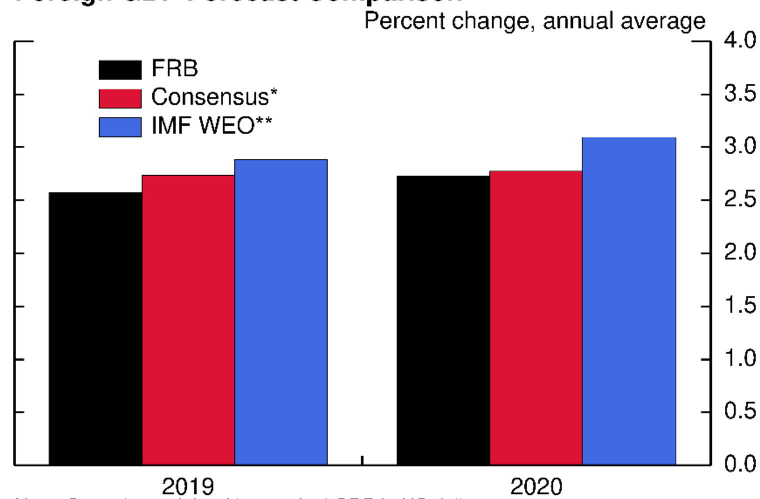
- Foreign economic growth at subdued below-potential pace.
- Disappointing data and increased uncertainty point to weaker recovery.
- Growth pick up supported by accommodative policy and easing of trade tensions.

Foreign GDP



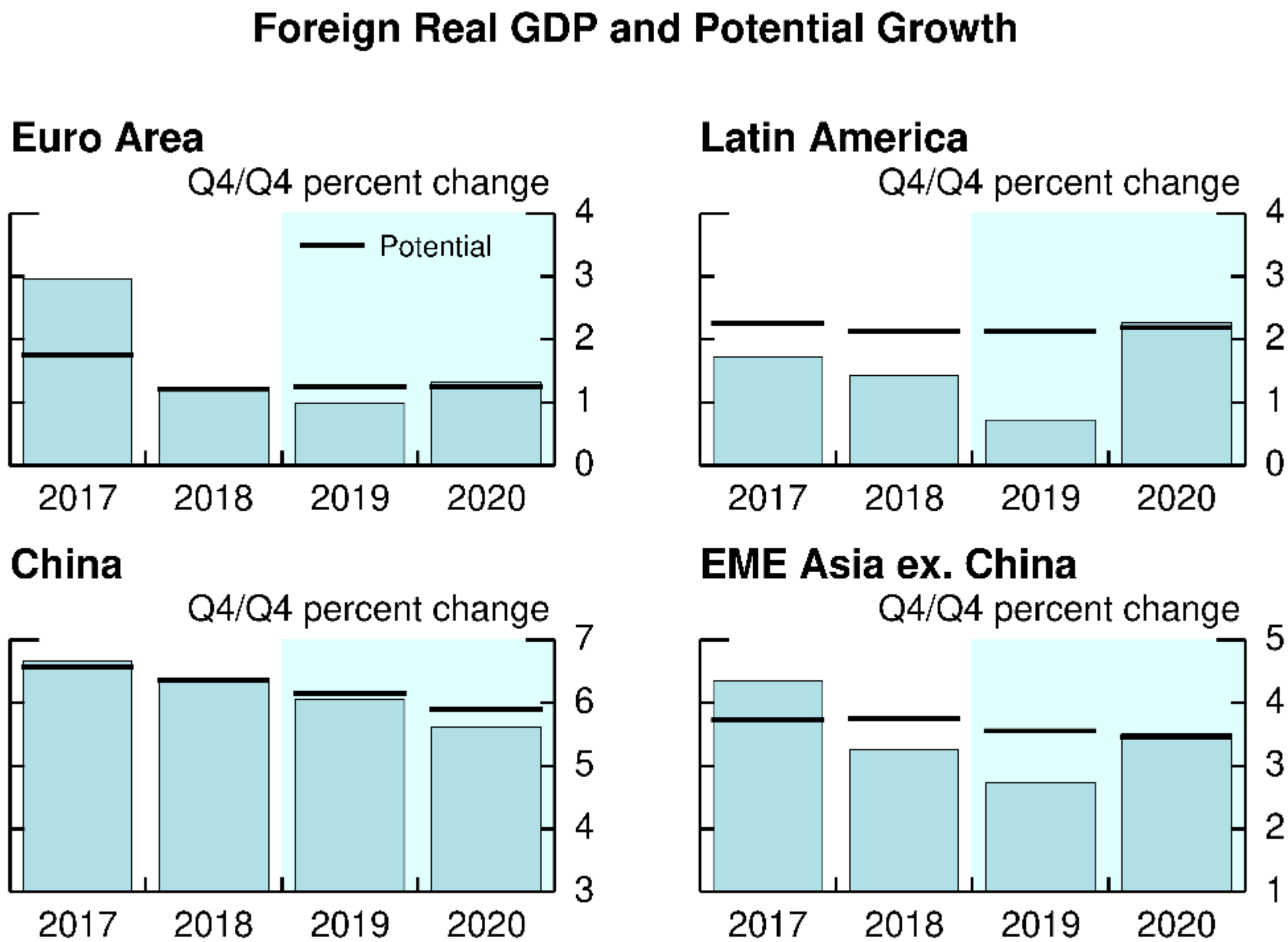
Note: Weighted by bilateral shares in U.S. merchandise exports.
Source: Staff forecast.

Foreign GDP Forecast Comparison



Note: Countries weighted by nominal GDP in US dollars.
Source: FRB staff forecast, Consensus Economics, IMF.
* Consensus forecasts are from the August/September 2019 surveys.
** IMF WEO forecasts are from the April 2019 WEO and July 2019 WEO update.

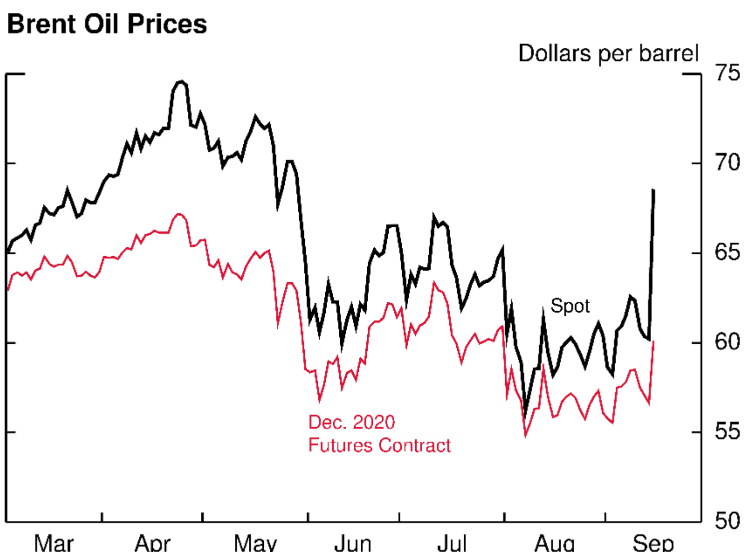
Sluggish growth widespread across regions



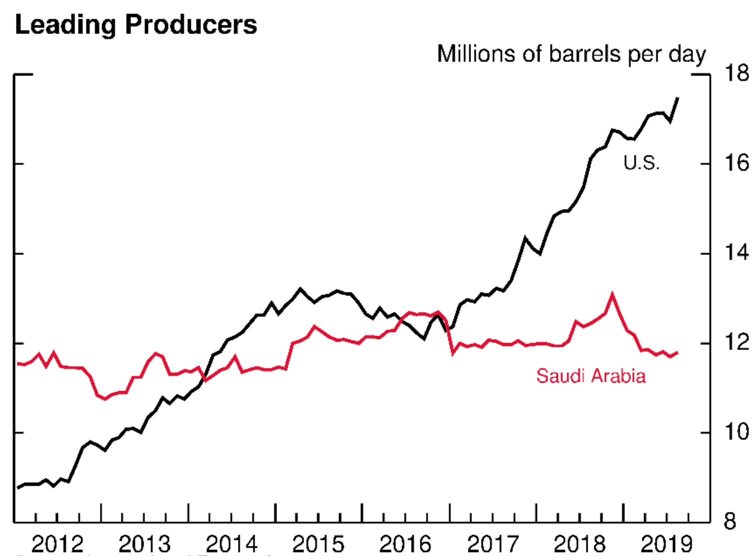
Source: Staff forecast.

Considerable downside risks to the outlook

- Continued unrest in Hong Kong
- End-of-October Brexit deadline fast approaching
- Uncertain disruption to global oil supply



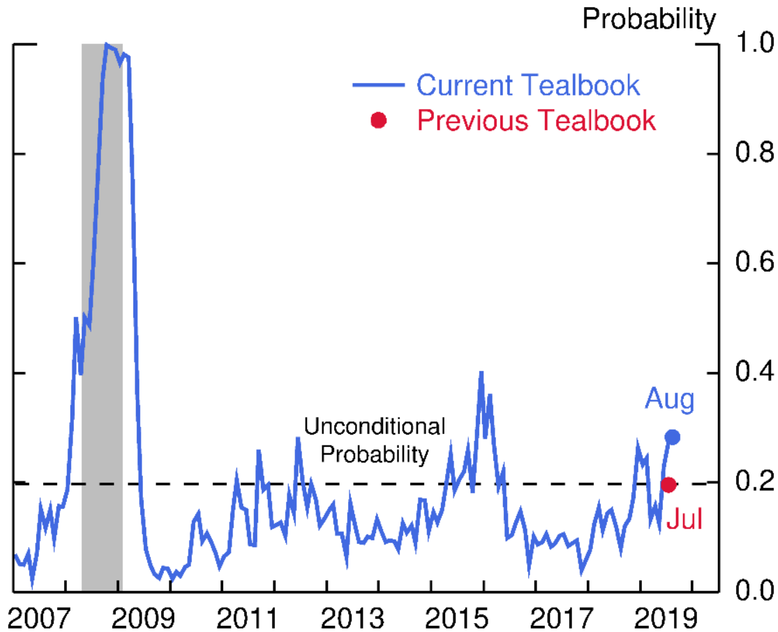
Source: Bloomberg.



Source: International Energy Agency.

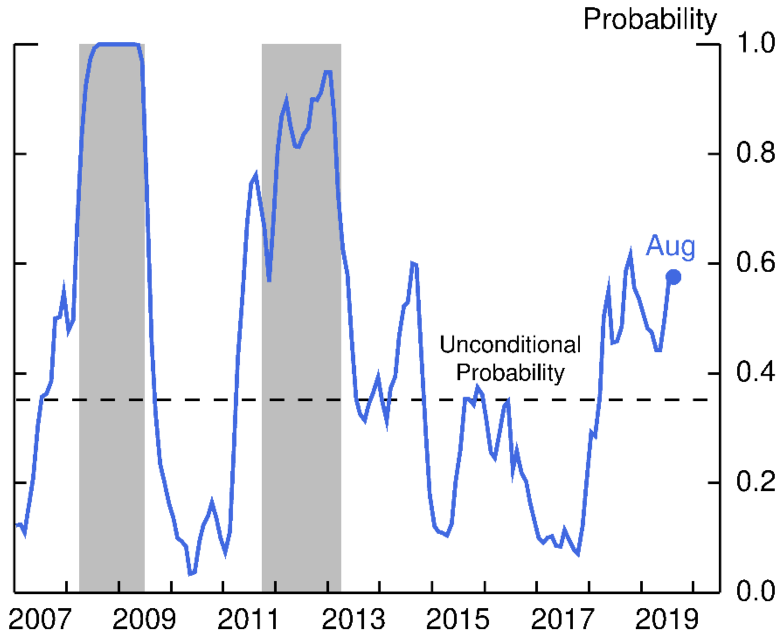
Recession probabilities have increased

Estimated Probability of Recession in the Foreign Economy within 12 Months



Note: Shading indicates that countries representing 55% of world GDP are classified as in recession.
Source: Staff estimates.

Estimated Probability of Recession in the Euro Area within 12 Months

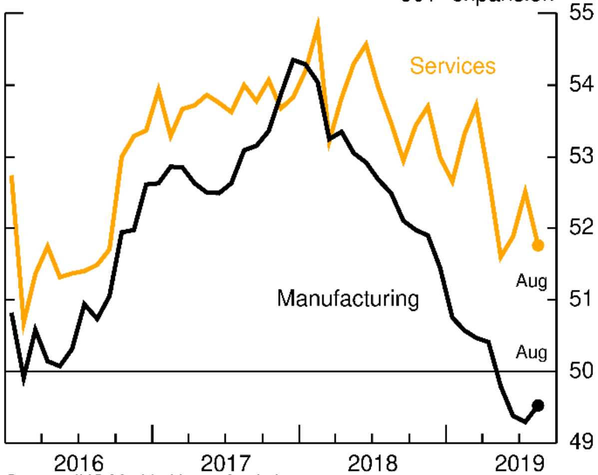


Note: Shading indicates CEPR-classified recessions.
Source: Staff estimates.

Manufacturing has fallen even as services hold up

World PMI: Output

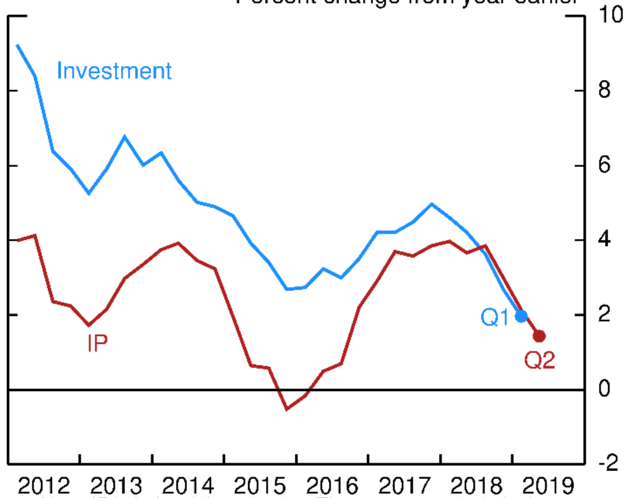
50+=expansion



Source: IHS Markit, Haver Analytics.

Global Investment and Industrial Production

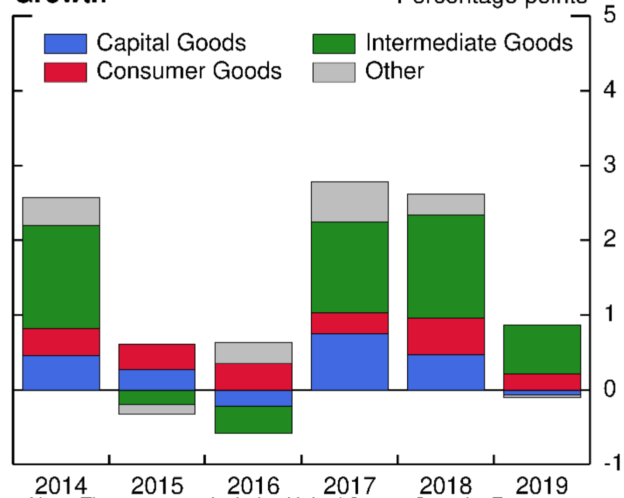
Percent change from year earlier



Note: IP is industrial production. The aggregates include the United States, United Kingdom, Canada, Australia, Austria, the Netherlands, Switzerland, Germany, Spain, Italy, France, Sweden, Japan, Argentina, Brazil, Chile, Colombia, Mexico, China, India, Korea, Malaysia, Philippines, Indonesia, Taiwan, Thailand, Israel, and Russia.
Source: Haver Analytics.

Contributions to Global Industrial Production Growth

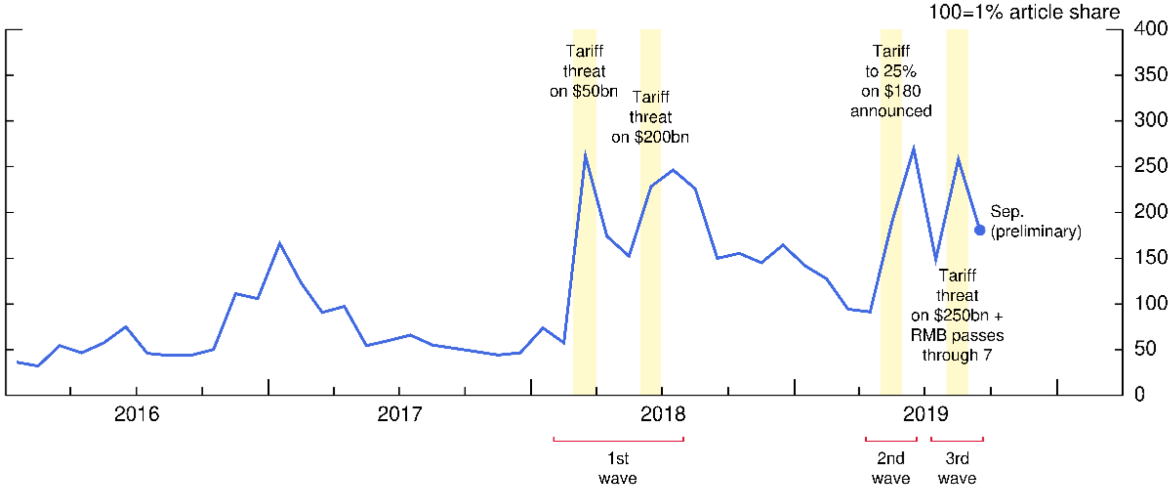
Percentage points



Note: The aggregate includes United States, Canada, Euro area, Japan, United Kingdom, India, Korea, and Taiwan.
Source: Haver Analytics.

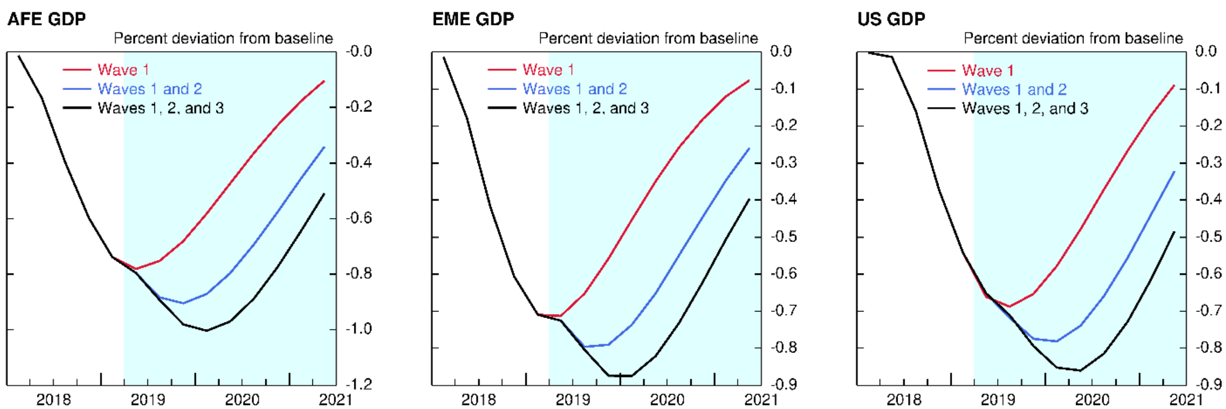
Trade Policy Uncertainty likely holding back growth

Trade Policy Uncertainty



Source: Staff estimates, ProQuest.

VAR-Based Effects of the Recent Waves of Trade Policy Uncertainty



Note: Wave 1 is the effect until May 2019. Wave 2 is the effect until July 2019. Wave 3 is the total effect since 2018.
Source: Caldara, Dario, Matteo Iacoviello, Patrick Molligo, Andrea Prestipino, and Andrea Raffo (2019).

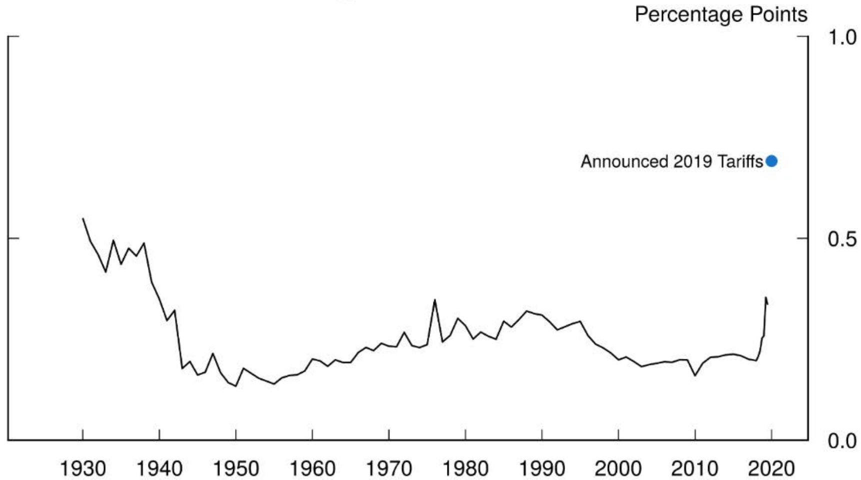
Direct effect of tariffs becoming meaningful

Table 1: Model-Implied Trade Policy Effects

		Effective Date	Tariff increase (ppt.)	Imports affected ($bn.)	General Equilibrium Effects on Level: Core PCE prices (pct.)	General Equilibrium Effects on Level: Real GDP (pct.)
Implemented						
1	Solar/Washing Machines/ Metals		24	34	0.02	-0.03
2	China*	6/2018-5/2019	25	230	0.23	-0.21
3	China‡	9/1/2019	15	100	0.07	-0.05
4	***Subtotal (Lines 1-3)***		**22**	**364**	**0.32**	**-0.29**
Pending						
5	China‡**	10/15/2019	5	230	0.05	-0.04
6	China‡	12/15/2019	15	150	0.10	-0.07
7	***Subtotal (Lines 5-6)***		**9**	**380**	**0.15**	**-0.11**
8	***Total (Lines 4+7)***		**22**	**514**	**0.47**	**-0.40**

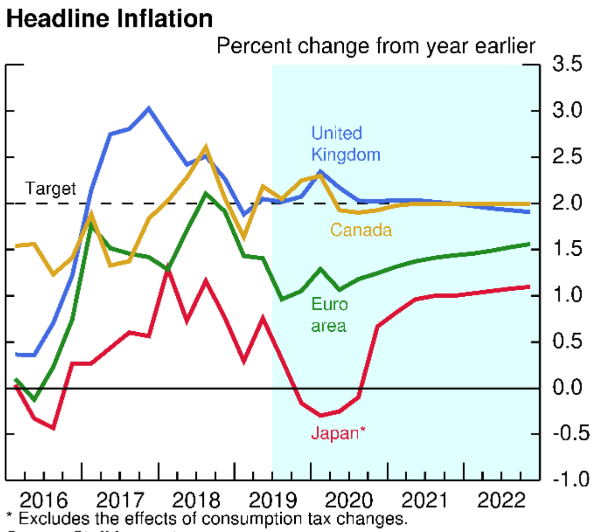
* We assume full retaliation on part of these U.S. exports and 2/3 retaliation on part
‡ We assume retaliation on one-third of these U.S. exports.
** These tariffs are on the same $230 billion of U.S. imports that already received tariffs in 2018 and early 2019 (Line 2).
All other simulations assume full retaliation.

Tariff Revenue as a Percentage of GDP

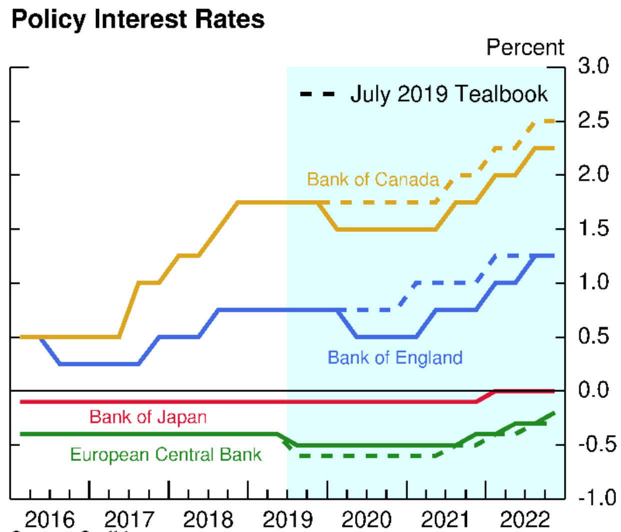


Tariff revenue is the BEA-reported customs duties.

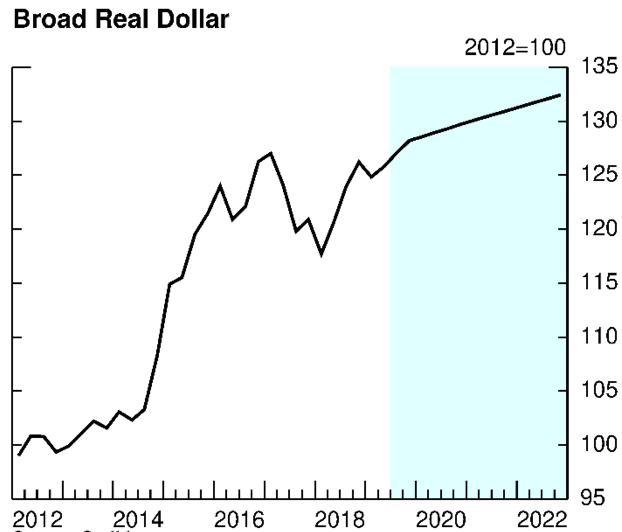
Inflation, monetary policy, and the dollar



* Excludes the effects of consumption tax changes.
Source: Staff forecast.

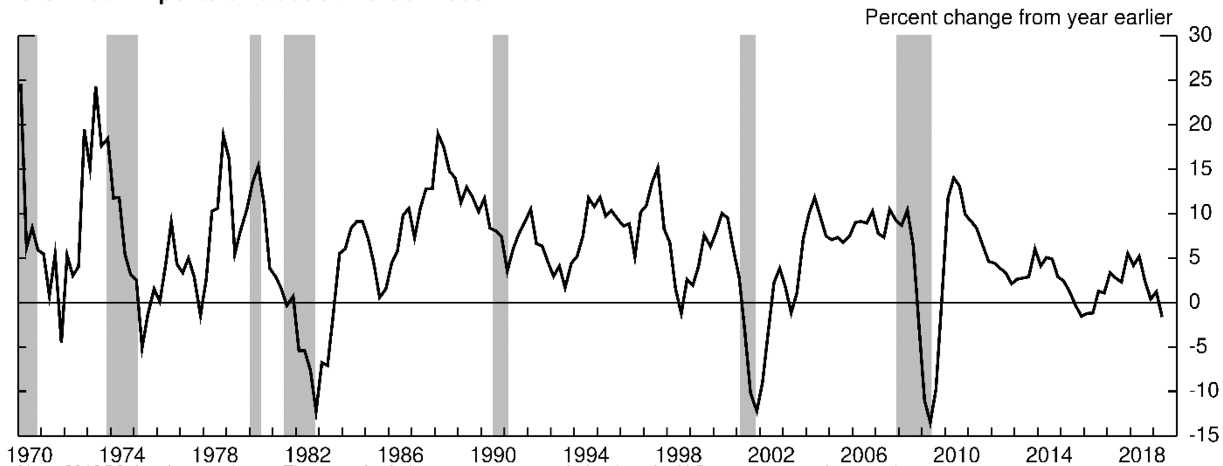


Source: Staff forecast.

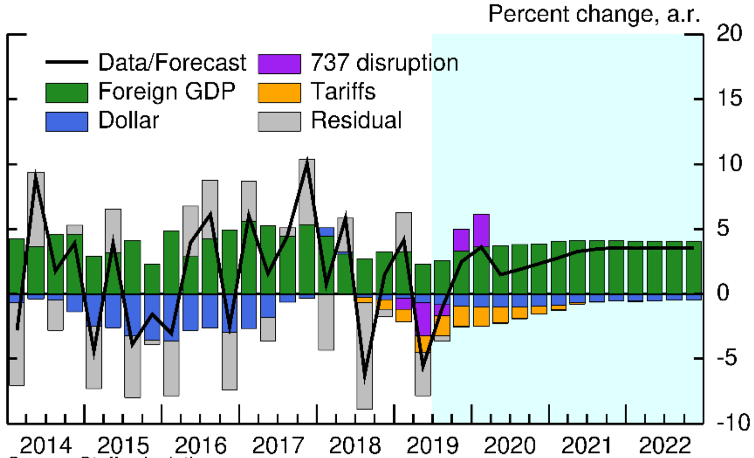


Source: Staff forecast.

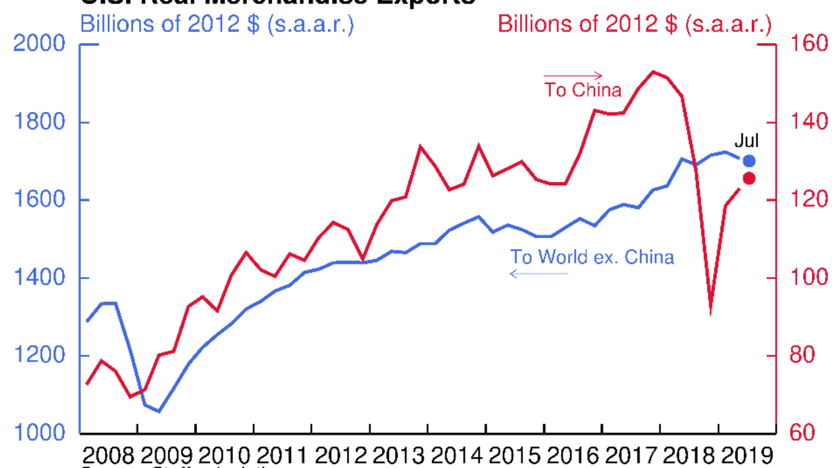
U.S. exports declining



Note: 2019Q2 data is an estimate. The gray shaded areas represent periods when the U.S. economy was in recession.
Source: Staff calculations.



Source: Staff calculations.



Source: Staff calculations.

Appendix 6: Materials used by Mr. Goldberg

Material for Briefing on

Summary of Economic Projections

Jonathan Goldberg

Exhibits and support by Erik Larsson and Tyler Pike

September 17, 2019

Exhibit 1. Economic projections for 2019-22 and over the longer run (percent)

Change in real GDP

	2019	2020	2021	2022	Longer run
Median	2.2	2.0	1.9	1.8	1.9
June projection	2.1	2.0	1.8	n.a.	1.9
Range	2.1–2.4	1.7–2.3	1.7–2.1	1.6–2.1	1.7–2.1
June projection	2.0–2.4	1.5–2.3	1.5–2.1	n.a.	1.7–2.1
Memo: Tealbook	2.1	2.0	1.8	1.7	1.7
June projection	2.0	2.1	1.7	n.a.	1.7

Unemployment rate

	2019	2020	2021	2022	Longer run
Median	3.7	3.7	3.8	3.9	4.2
June projection	3.6	3.7	3.8	n.a.	4.2
Range	3.5–3.8	3.3–4.0	3.3–4.1	3.3–4.2	3.6–4.5
June projection	3.5–3.8	3.3–4.0	3.3–4.2	n.a.	3.6–4.5
Memo: Tealbook	3.7	3.6	3.6	3.6	4.4
June projection	3.7	3.7	3.7	n.a.	4.6

PCE inflation

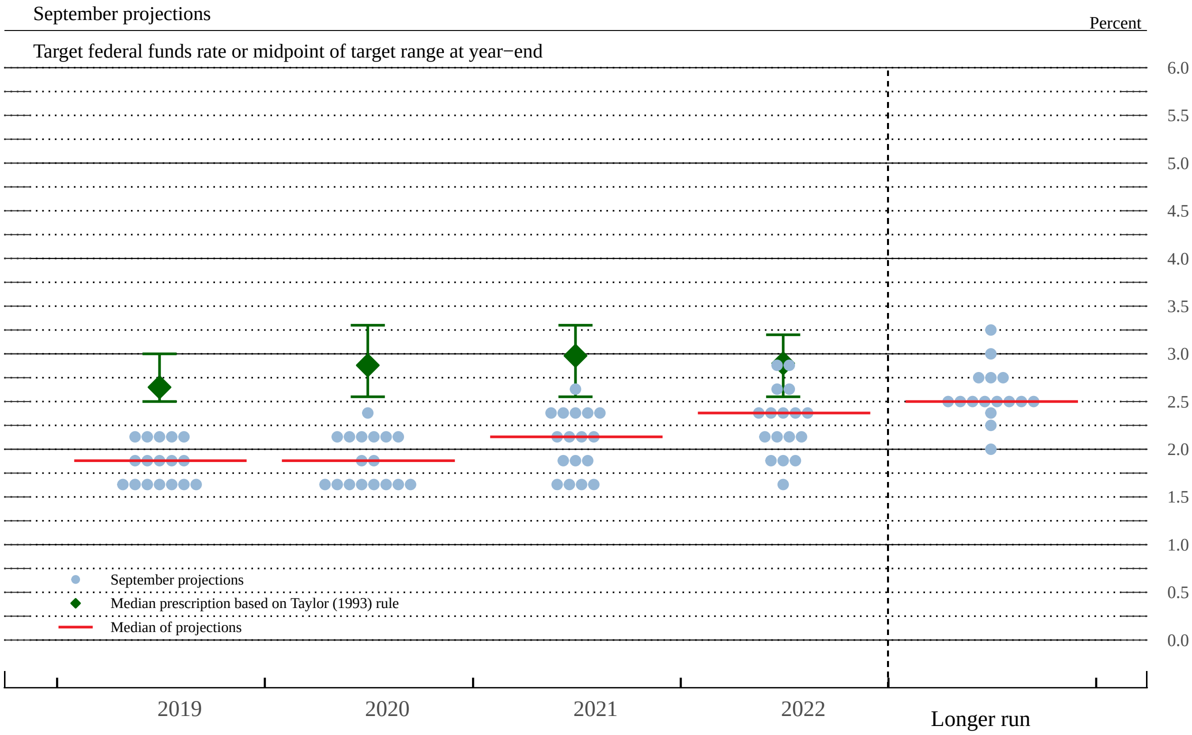
	2019	2020	2021	2022	Longer run
Median	1.5	1.9	2.0	2.0	2.0
June projection	1.5	1.9	2.0	n.a.	2.0
Range	1.4–1.7	1.7–2.1	1.8–2.3	1.8–2.2	2.0
June projection	1.4–1.7	1.8–2.1	1.9–2.2	n.a.	2.0
Memo: Tealbook	1.4	1.8	1.8	1.8	2.0
June projection	1.5	1.9	1.9	n.a.	2.0

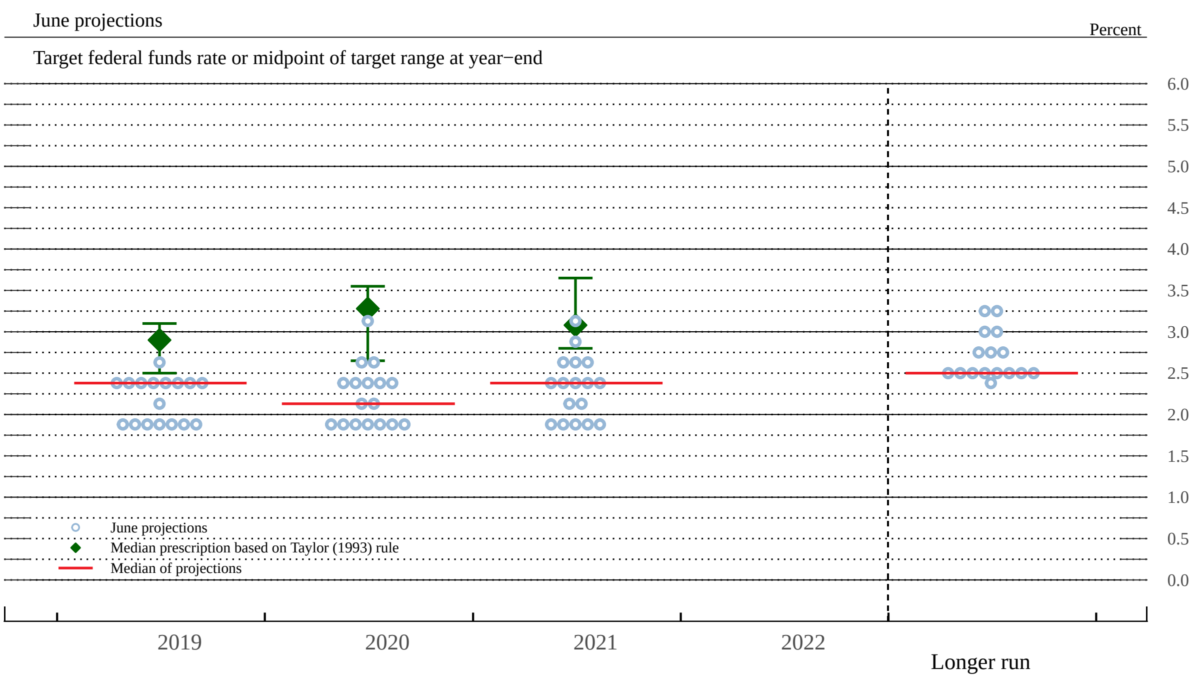
Core PCE inflation

	2019	2020	2021	2022
Median	1.8	1.9	2.0	2.0
June projection	1.8	1.9	2.0	n.a.
Range	1.6–1.8	1.7–2.1	1.8–2.3	1.8–2.2
June projection	1.4–1.8	1.8–2.1	1.8–2.2	n.a.
Memo: Tealbook	1.7	1.8	1.8	1.8
June projection	1.8	1.9	1.9	n.a.

Note: Updated September 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 June 18-19, 2019, meeting, and one participant did not submit such projections in conjunction with the September 17-18, 2019, meeting.

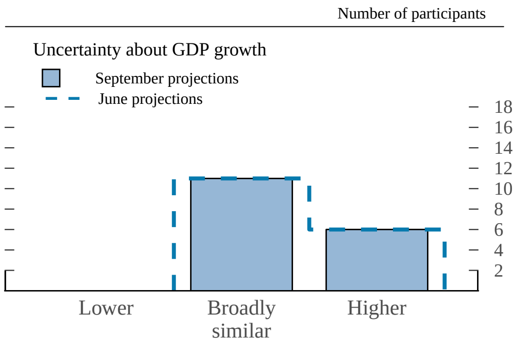
Exhibit 2. Overview of FOMC participants' assessments of appropriate monetary policy

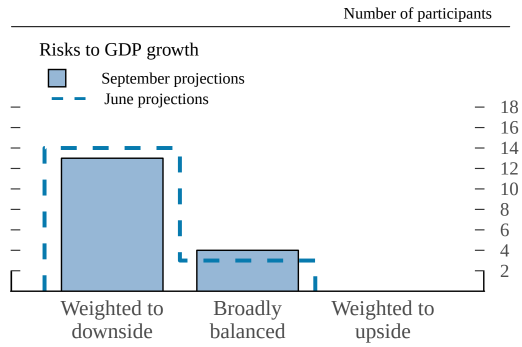


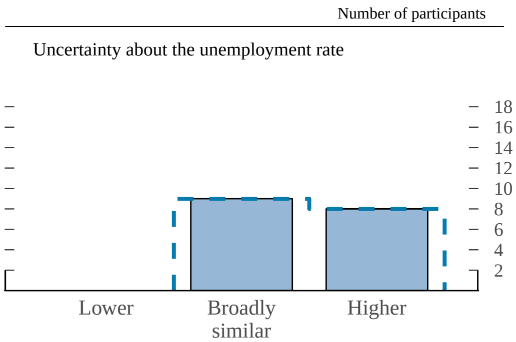


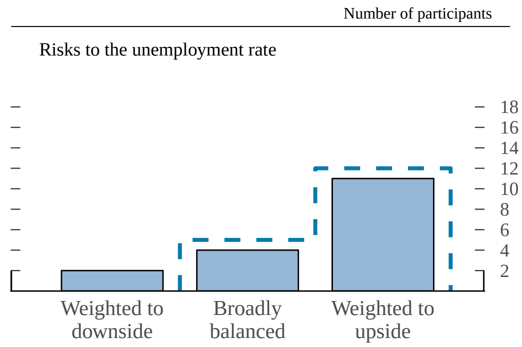
Note: In these two panels, each blue dot indicates the value (rounded to 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate, or the appropriate target level for that rate, at the end of the specified year or over the 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.

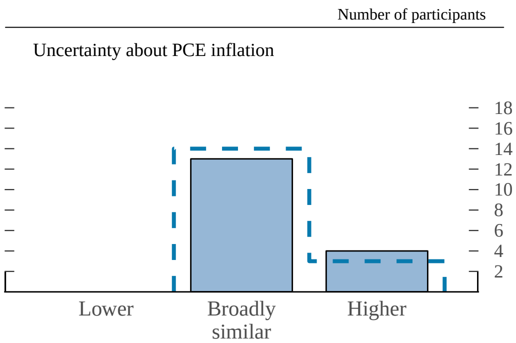
Exhibit 3. Uncertainty and risks in economic projections

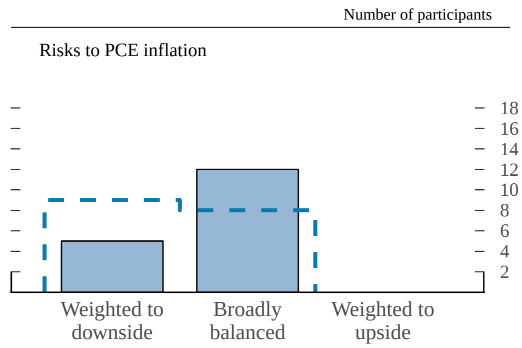


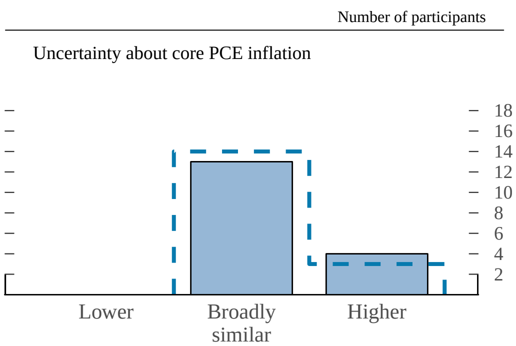


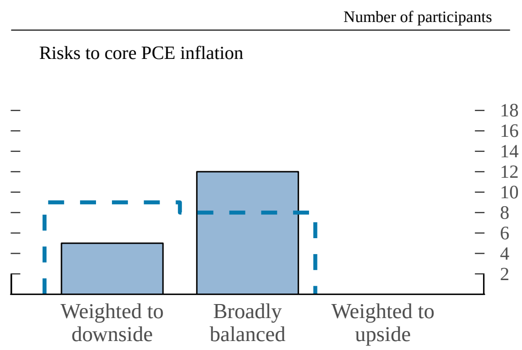












Appendix 7: Materials used by Mr. Laubach

Class I FOMC – Restricted Controlled (FR)

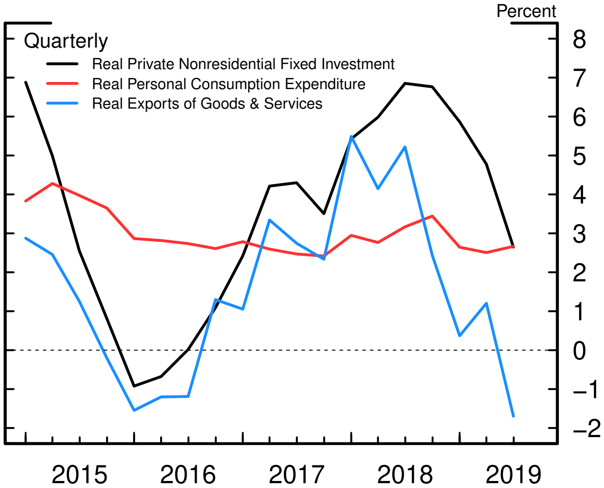
Material for the Briefing on

Monetary Policy Alternatives

Thomas Laubach
Exhibits by Gurubala Kotta
September 17-18, 2019

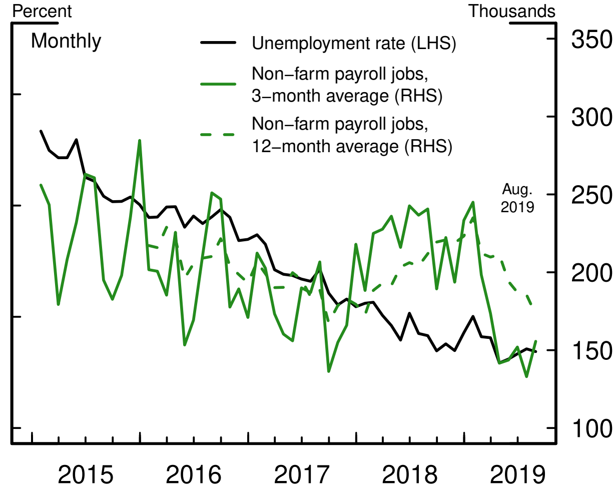
Monetary Policy Considerations

Four–Quarter Changes in GDP Components



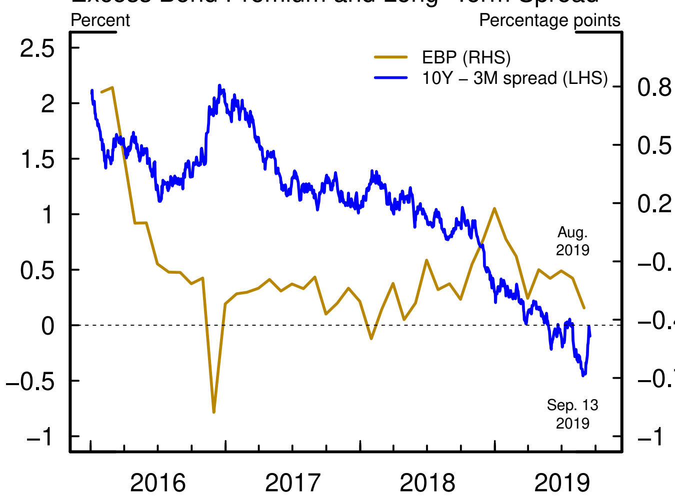
Source: BEA; Haver Analytics.

Labor Market Conditions



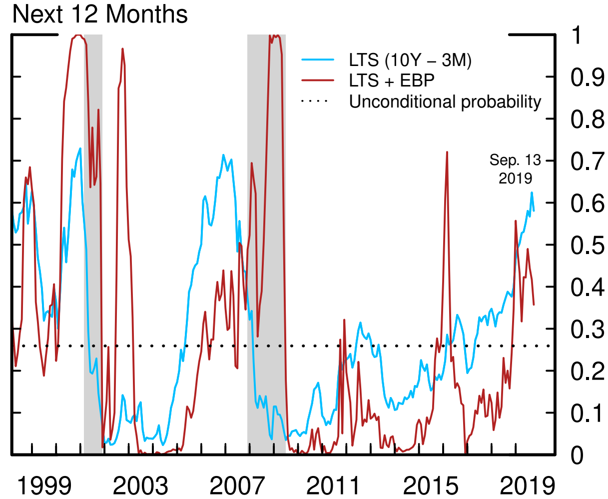
Source: BLS; Board staff calculations.

Excess Bond Premium and Long–Term Spread



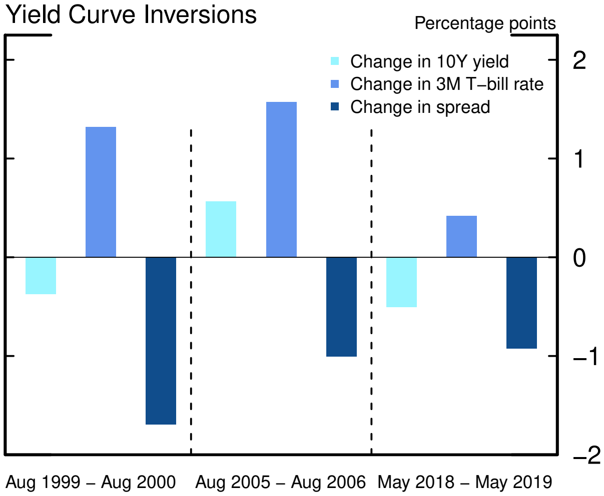
Source: Board staff estimates.

Conditional Probability of Recession Over the Next 12 Months



Note: Dotted line shows the unconditional probability of NBER recession since 1973. September 2019 EBP assumed to be unchanged from August. Gray shading shows NBER–dated recessions.
Source: Board staff estimates.

Yield Curve Inversions



Source: FRBNY; Board staff calculations.

Policy Considerations

- Alternative B sees modest adjustment as appropriate to balance risks.
  - Notes remaining uncertainties.
  - Does not convey heightened recession concern.
- Alternative C expresses fewer concerns about low inflation and downside risks.
- Alternative A aims to reduce risk that inflation stays low, signals greater readiness to act.

JULY 2019 FOMC STATEMENT

1. Information received since the Federal Open Market Committee met in June indicates that the labor market remains strong and that economic activity has been rising at a moderate rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Although growth of household spending has picked up from earlier in the year, growth of business fixed investment has been soft. On a 12-month basis, overall inflation and inflation for items other than food and energy are running below 2 percent. Market-based measures of inflation compensation remain low; 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 light of the implications of global developments for the economic outlook as well as muted inflation pressures, the Committee decided to lower the target range for the federal funds rate to 2 to 2-1/4 percent. This action supports the Committee's view that sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective are the most likely outcomes, but uncertainties about this outlook remain. As the Committee contemplates the future path of the target range for the federal funds rate, it will continue to monitor the implications of incoming information for the economic outlook and will act as appropriate to 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.

4. The Committee will conclude the reduction of its aggregate securities holdings in the System Open Market Account in August, two months earlier than previously indicated.

ALTERNATIVE A FOR SEPTEMBER 2019

1. Information received since the Federal Open Market Committee met in ~~June~~ **July** indicates that the labor market remains strong and that economic activity has been rising at a moderate rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Although ~~growth of~~ household spending has ~~picked up from earlier in the year, growth of~~ **been rising at a strong pace,** business fixed investment ~~has been soft~~ **and exports have weakened**. On a 12-month basis, overall inflation and inflation for items other than food and energy are running below 2 percent. Market-based measures of inflation compensation ~~remain low~~ **have 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 light of the implications of global developments for the economic outlook as well as ~~muted~~ inflation ~~pressures~~ **running persistently below 2 percent**, the Committee decided to lower the target range for the federal funds rate to ~~2 to 2-1/4~~ **1-1/2 to 1-3/4** percent. This action supports the Committee's view that sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective are the most likely outcomes, but uncertainties about this outlook remain. ~~As~~ The Committee ~~contemplates the future path of the target range for the federal funds rate, it~~ will ~~continue to~~ **closely** monitor the implications of incoming information for the economic outlook and will act as appropriate to 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.

~~4. The Committee will conclude the reduction of its aggregate securities holdings in the System Open Market Account in August, two months earlier than previously indicated.~~

ALTERNATIVE B FOR SEPTEMBER 2019

1. Information received since the Federal Open Market Committee met in ~~June~~ **July** indicates that the labor market remains strong and that economic activity has been rising at a moderate rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Although ~~growth of~~ household spending has ~~picked up from earlier in the year, growth of~~ **been rising at a strong pace,** business fixed investment ~~has been soft~~ **and exports have weakened**. On a 12-month basis, overall inflation and inflation for items other than food and energy are running below 2 percent. Market-based measures of inflation compensation remain low; 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 light of the implications of global developments for the economic outlook as well as muted inflation pressures, the Committee decided to lower the target range for the federal funds rate to **1-3/4 to** 2 ~~to 2-1/4~~ percent. This action supports the Committee's view that sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective are the most likely outcomes, but uncertainties about this outlook remain. As the Committee contemplates the future path of the target range for the federal funds rate, it will continue to monitor the implications of incoming information for the economic outlook and will act as appropriate to 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.

4. ~~The Committee will conclude the reduction of its aggregate securities holdings in the System Open Market Account in August, two months earlier than previously indicated.~~

ALTERNATIVE C FOR SEPTEMBER 2019

1. Information received since the Federal Open Market Committee met in ~~June~~ **July** indicates that the labor market remains strong and that economic activity has been rising at a moderate rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Although ~~growth of~~ household spending has ~~picked up from earlier in the year, growth of~~ **been rising at a strong pace,** business fixed investment ~~has been soft~~ **and exports have weakened**. On a 12-month basis, overall inflation and inflation for items other than food and energy are running below 2 percent. Market-based measures of inflation compensation remain low; 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 ~~light of the implications of global developments for the economic outlook as well as muted inflation pressures~~ **support of these goals**, the Committee decided to ~~lower~~ **maintain** the target range for the federal funds rate ~~to~~ **at** 2 to 2-1/4 percent. ~~This action supports~~ The Committee~~'s~~ **continues to** view ~~that~~ sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective ~~are~~ **as** the most likely outcomes, but uncertainties about this outlook remain. As the Committee contemplates the future path of the target range for the federal funds rate, it will continue to monitor the implications of incoming information for the economic outlook and will act as appropriate to 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.

4. ~~The Committee will conclude the reduction of its aggregate securities holdings in the System Open Market Account in August, two months earlier than previously indicated.~~

Implementation Note for September 2019 Alternative A

Release Date: September 18, 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 ~~July 31, 2019~~ **September 18, 2019**:

- The Board of Governors of the Federal Reserve System voted **[** unanimously **]** to lower the interest rate paid on required and excess reserve balances to ~~2.10~~ **1.60** percent, effective ~~August 1, 2019~~ **September 19, 2019**.
- 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 ~~August 1, 2019~~ **September 19, 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~~ **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 ~~2.00~~ **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.
>
> ~~Effective August 1, 2019,~~ The Committee directs the Desk to **continue** roll**ing** over at auction all principal payments from the Federal Reserve's holdings of Treasury securities and to **continue** reinvest**ing** all principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month. Principal payments from agency debt and agency mortgage-backed securities up to $20 billion per month will **continue to** be reinvested in Treasury securities to roughly match the maturity composition of Treasury securities outstanding; principal payments in excess of $20 billion per month will continue to be reinvested in agency mortgage-backed securities. 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 a ~~1/4~~ **1/2** percentage point decrease in the primary credit rate to ~~2.75~~ **2.25** percent, effective ~~August 1, 2019~~ **September 19, 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 September 2019 Alternative B

Release Date: September 18, 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 ~~July 31, 2019~~ **September 18, 2019**:

- The Board of Governors of the Federal Reserve System voted **[** unanimously **]** to lower the interest rate paid on required and excess reserve balances to ~~2.10~~ **1.85** percent, effective ~~August 1, 2019~~ **September 19, 2019**.
- 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 ~~August 1, 2019~~ **September 19, 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 **1-3/4 to** 2 ~~to 2-1/4~~ 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 ~~2.00~~ **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.
>
> ~~Effective August 1, 2019,~~ The Committee directs the Desk to **continue** roll**ing** over at auction all principal payments from the Federal Reserve's holdings of Treasury securities and to **continue** reinvest**ing** all principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month. Principal payments from agency debt and agency mortgage-backed securities up to $20 billion per month will **continue to** be reinvested in Treasury securities to roughly match the maturity composition of Treasury securities outstanding; principal payments in excess of $20 billion per month will continue to be reinvested in agency mortgage-backed securities. 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 a 1/4 percentage point decrease in the primary credit rate to ~~2.75~~ **2.50** percent, effective ~~August 1, 2019~~ **September 19, 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 September 2019 Alternative C

Release Date: September 18, 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 ~~July 31, 2019~~ **September 18, 2019**:

- The Board of Governors of the Federal Reserve System voted **[** unanimously **]** to ~~lower~~ **maintain** the interest rate paid on required and excess reserve balances ~~to~~ **at** 2.10 percent, effective ~~August 1, 2019~~ **September 19, 2019**.
- 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 ~~August 1, 2019~~ **September 19, 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 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 2.00 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 August 1, 2019,~~ The Committee directs the Desk to **continue** roll**ing** over at auction all principal payments from the Federal Reserve's holdings of Treasury securities and to **continue** reinvest**ing** all principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month. Principal payments from agency debt and agency mortgage-backed securities up to $20 billion per month will **continue to** be reinvested in Treasury securities to roughly match the maturity composition of Treasury securities outstanding; principal payments in excess of $20 billion per month will continue to be reinvested in agency mortgage-backed securities. 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 ~~a 1/4 percentage point decrease in~~ **the establishment of** the primary credit rate ~~to~~ **at the existing level of** 2.75 percent~~, effective August 1, 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 Philadelphia, Chicago, St. Louis, Dallas, and San Francisco.~~

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 1.60 percent, effective September 19, 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 2.25 percent effective September 19, 2019. This action will encompass approval of the establishment of a 2.25 percent primary credit rate by each of the remaining Federal Reserve Banks, effective on the later of September 19, 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 September 13, 2019, memorandum to the Board.

Potential Board actions associated with FOMC Alternative B

Interest on required and excess reserve balances

Reduce the interest rate paid on required and excess reserve balances to 1.85 percent, effective September 19, 2019.

Establishment of the primary, secondary, and seasonal credit rates

Approve establishment of the primary credit rate by the Federal Reserve Banks of Chicago, Minneapolis, Dallas, and San Francisco at 2.50 percent effective September 19, 2019. This action will encompass approval of the establishment of a 2.50 percent primary credit rate by each of the remaining Federal Reserve Banks, effective on the later of September 19, 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 September 13, 2019, memorandum to the Board.

Potential Board actions associated with FOMC Alternative C

Interest on required and excess reserve balances

Leave the interest rates paid on required and excess reserve balances unchanged at 2.10 percent.

Establishment of the primary, secondary, and seasonal credit rates

Approve establishment of the primary credit rate at the existing rate of 2.75 percent and establishment of the rates for secondary and seasonal credit under the existing formulas specified in the staff's September 13, 2019, memo to the Board.

Appendix 8: Materials used by Ms. Logan

Class II FOMC - Restricted (FR)

Material for Briefing on

Morning Briefing, September 18, 2019

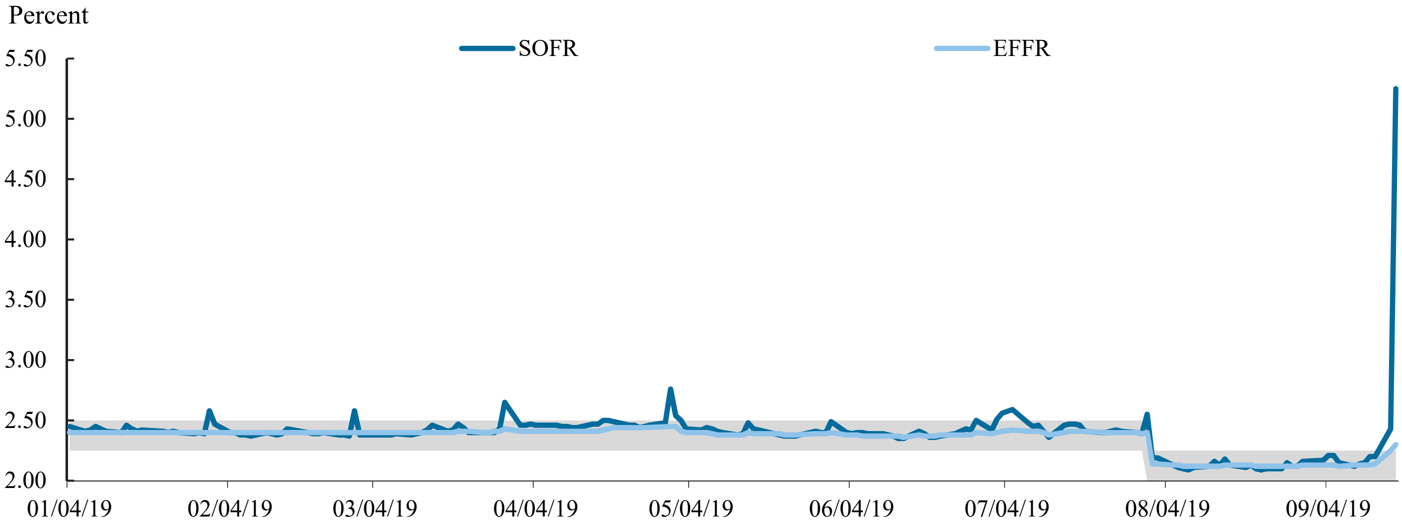
Lorie Logan

September 18, 2019

Class II FOMC – Restricted (FR)

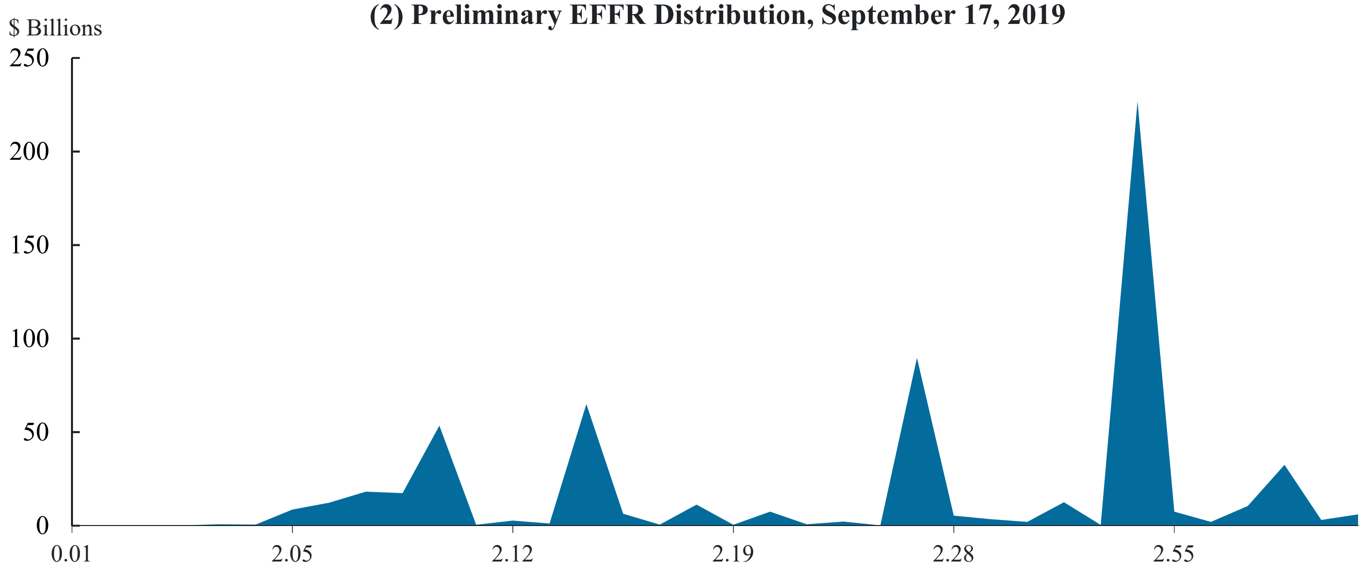
Exhibit 1

(1) Preliminary SOFR and EFFR Rates



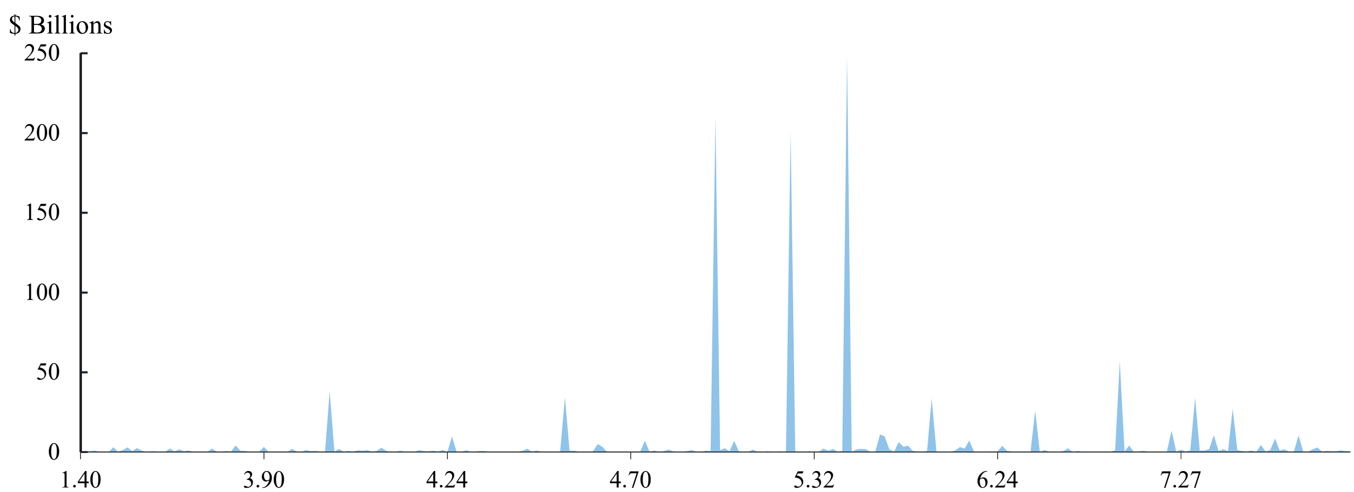
Source: FRBNY

(2) Preliminary EFFR Distribution, September 17, 2019



Source: FR 2420

(3) Preliminary SOFR Distribution, September 17, 2019



Source: FRBNY