Appendix 1: Materials used by Messrs. Paustian and Wood

Class II FOMC – Restricted (FR)

Material for Briefing on

Forward Guidance, Asset Purchases, and Yield Caps or Targets

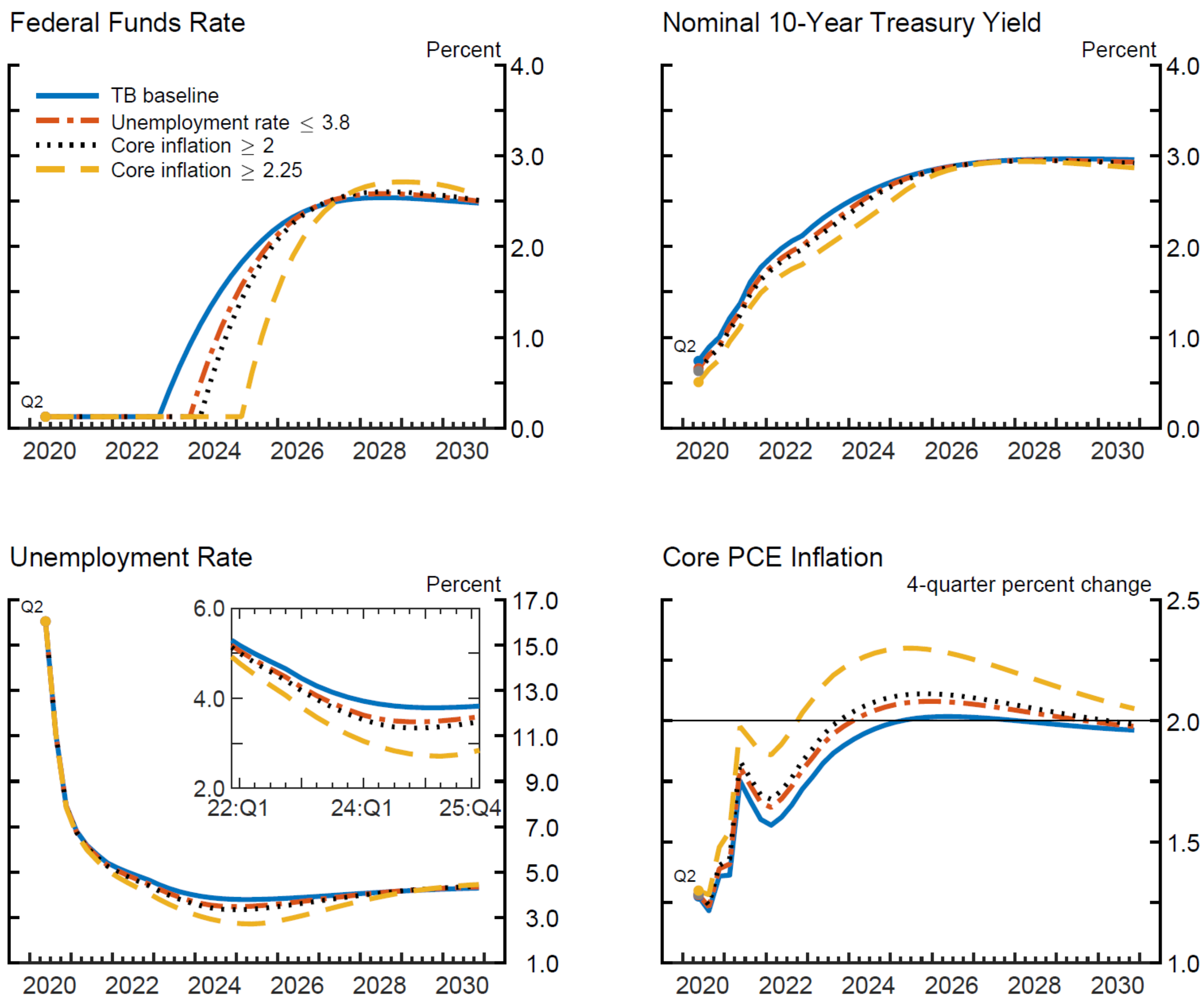
Matthias Paustian and Paul Wood
Exhibits by Canlin Li, David Miller, and Katie Sullivan
June 9, 2020

Supporting memos and contributors listed on final page of packet.

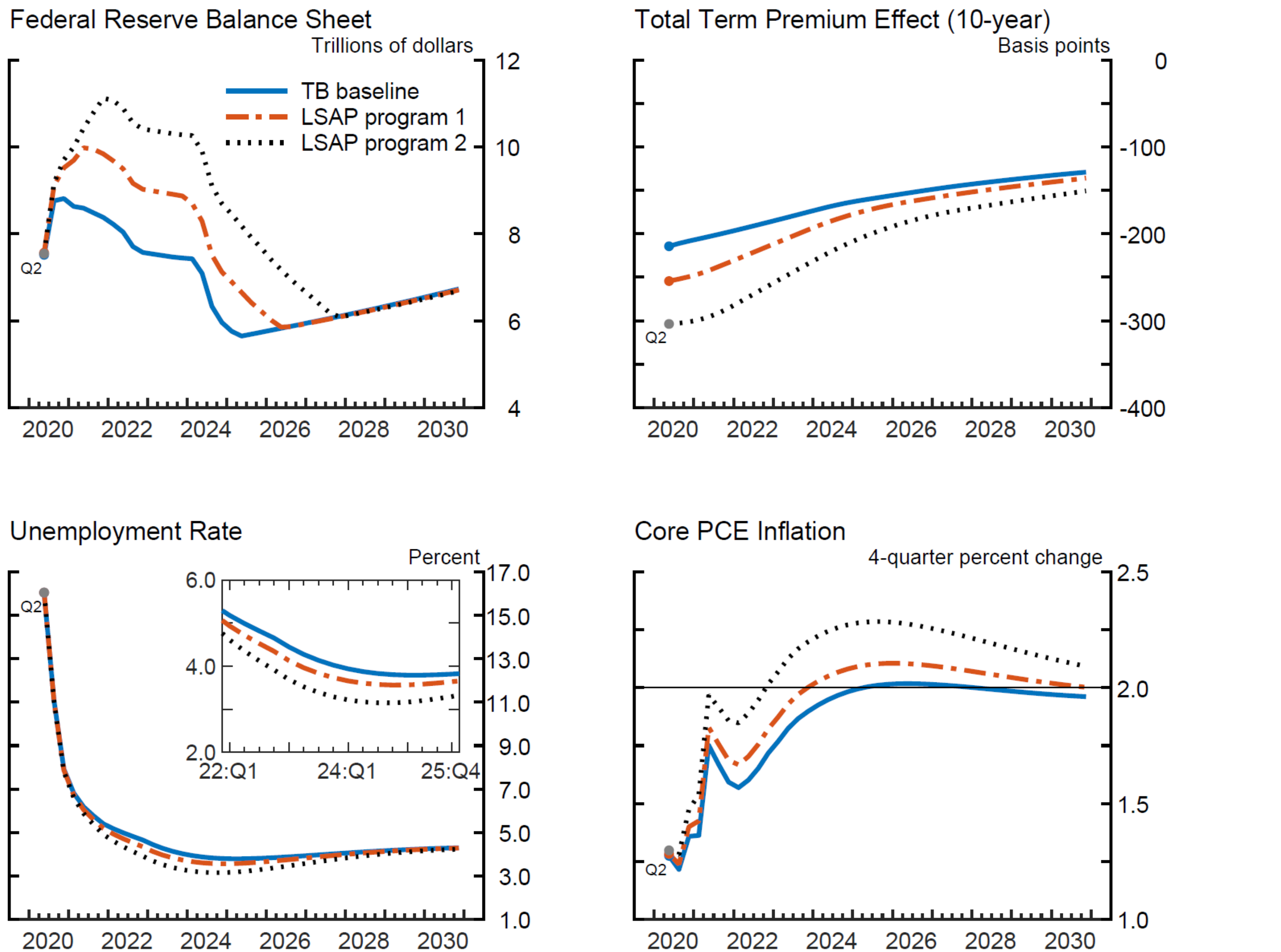
Discussion of Memo:

Macroeconomic Effects of Alternative Monetary Policies in Pandemic-Driven Recession Scenarios

Forward guidance



Large-scale asset purchases



Key message and caveats

- To speed up the recovery, accommodative financial conditions must be maintained for many years.

- Some modeling assumptions may not hold in current circumstances:

  - Forceful policies may bring more immediate benefits, say by cementing expectations around better outcomes or by reducing perceived tail risks.

  - Price and wage setters may be less forward-looking than assumed.

  - Longer-term nominal interest rates may be subject to a lower bound, limiting the potency of LSAPs.

Discussion of Memo:

Lessons on Yield Caps or Targets from International and U.S. Experience

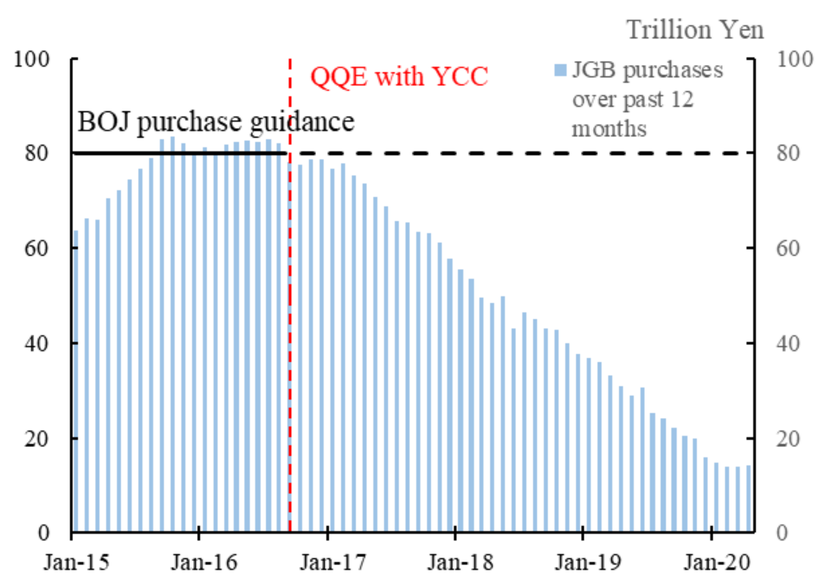
Objectives

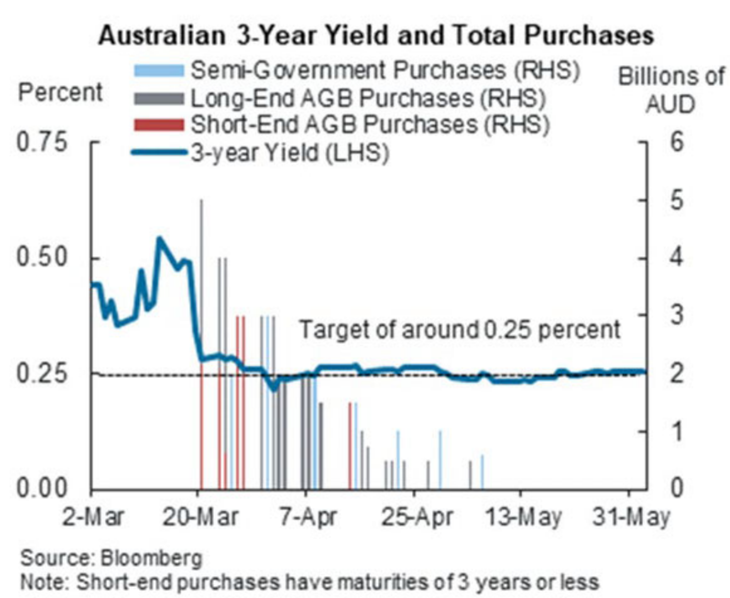
- Objectives of yield caps or targets have varied
- During WWII, Fed capped yields across the curve to keep Treasury borrowing costs low and stable
- BOJ in 2016 sought to make ongoing stimulus more sustainable
  - Concerned about "excessive decline and flattening of yield curve"
  - BOJ targeted 10-year yield at zero
- In March, RBA cut cash rate to 0.25% and gave forward guidance
  - To support economy, RBA announced 0.25% target for 3-year yield
  - "Influences funding rates across much of Australian economy"
  - "Consistent with the Board's expectation that the cash rate will remain at its current level for some years."

Implementation

- Credible cap or target can control government bond yields, pass through to private rates, and may not require large purchases

- YCT can operate alongside purchases to meet other objectives
  - RBA's target along with purchases to improve market functioning
  - BOJ's target with pre-existing LSAPs (including private assets)





Design Features and Exit Challenges

- BOJ and RBA allow some variation around yield targets
  - Encourages trading in secondary market for government bonds
- Targets tend to be asymmetric in practice
  - When rates near top of band, BOJ offered to buy unlimited amounts at a fixed rate
  - BOJ has not sold bonds when yield at bottom of band
- Conditioning YCT exit on economic outcomes may pose challenges
  - Progress toward objectives can pressure yields higher, forcing increased central bank purchases

Balance Sheet and Independence

- Managing yields implies balance sheet determined by market demand and bond issuance
- During WWII, Fed absorbed 75% of Treasury bills by 1945
  - Fed caps with significant upward slope
  - With volatility held down, investors moved to bonds for higher yield
  - Treasury issued across the curve
- After WWII, conflict between monetary policy and debt management
  - Fed (prevent rising inflation) vs. Treasury (keep debt costs low)
- 1947 exit from short-term cap shifted investor demand toward short end → Fed bought bonds to maintain long-term cap
- 1951 Accord restored independent monetary policy

Supporting Memos and Contributors

Chung, Hess, Etienne Gagnon, James Hebden, David Miller, Edward Nelson, Matthias Paustian, Bernd Schlusche, and James Trevino (2020). "Macroeconomic Effects of Alternative Monetary Policies in Pandemic-Driven Recession Scenarios," memorandum to the Federal Open Market Committee, Board of Governors of the Federal Reserve System, May 22.

Anbil, Sriya, Mark Carlson, Michele Cavallo, Kenneth Garbade, Frank Keane, Robert Lerman, Canlin Li, Suraj Prasanna, Seth Searls, Katie Sullivan, Ingrid Tang, and Paul Wood (2020). "Lessons on Yield Caps or Targets from International and U.S. Experience," memorandum to the Federal Open Market Committee, Board of Governors of the Federal Reserve System, May 29.

Appendix 2: Materials used by Ms. Logan

Class II FOMC - Restricted (FR)

Material for Briefing on

Financial Developments and Open Market Operations

Lorie Logan
Exhibits by Nathan Dodge, Marcus Petersen and Ashley Rhodes
June 9, 2020

Overview

- Easing in Financial Conditions
- Federal Reserve Operations and Facilities
- Monetary Policy Expectations
- Treasury and Agency MBS Market Functioning
- Appendix

Easing in Financial Conditions

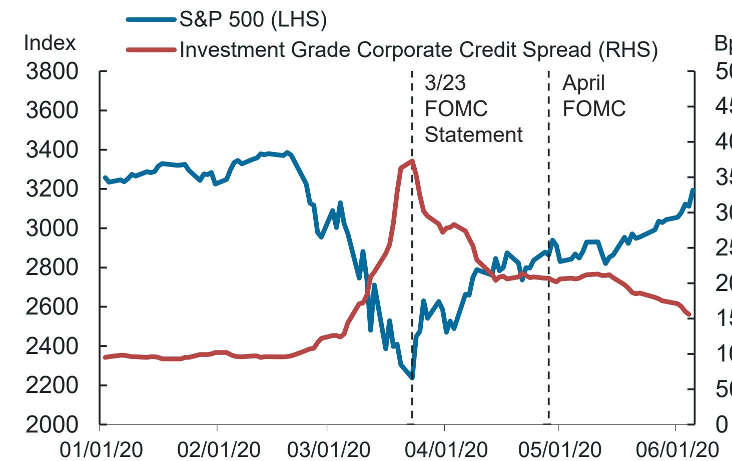
Financial conditions eased further

(1) Asset Price Table

	Since Apr. FOMC	Since S&P 500 Peak	YTD	Current Level
S&P 500 Index	+11.5%	-5.7%	-1.1%	3194
IG Credit	-61 bps	+50 bps	+53 bps	146 bps
Bloomberg Dollar Index	-3.4%	-0.2%	+2.1%	1210
10Y Treasury Yield	+28 bps	-67 bps	-102 bps	0.90%
Fed 5Y5Y Breakeven	+2 bps	-17 bps	-31 bps	1.50%
VIX Index	-9 ppts	+10 ppts	+11 ppts	25

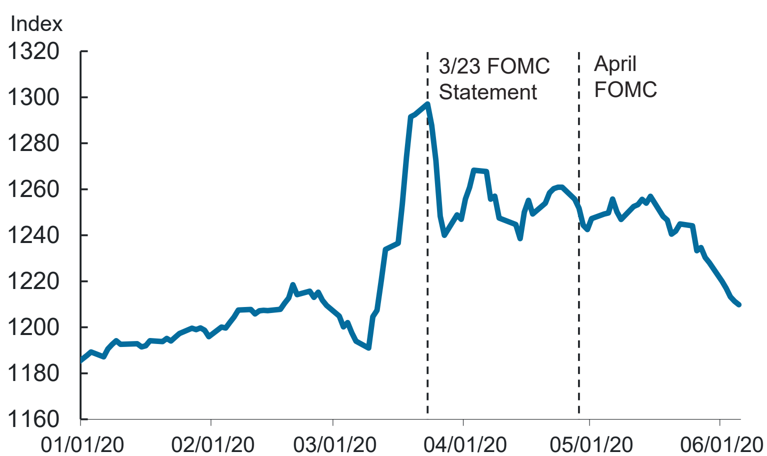
Note: S&P 500 peak was 02/19/20; current level pricing as of 06/05/20.
Source: Bloomberg

(2) S&P 500 and IG Credit Spread



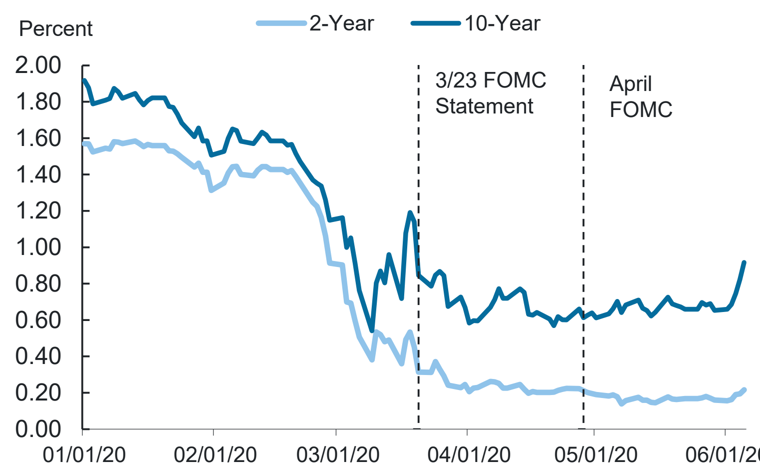
Source: Bloomberg

(3) Bloomberg Dollar Index



Source: Bloomberg

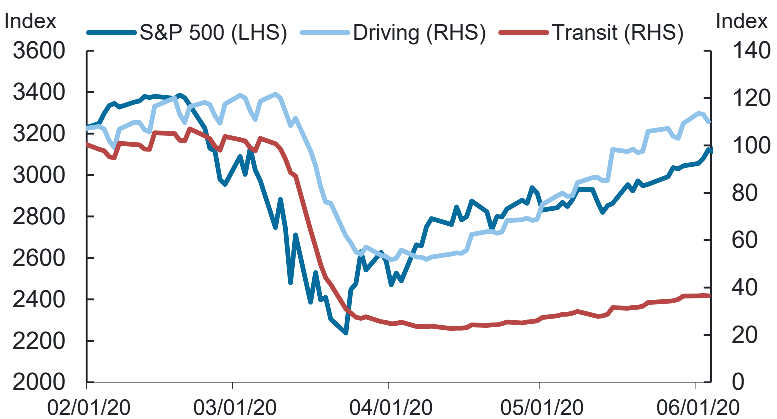
(4) Treasury Yields



Source: Bloomberg

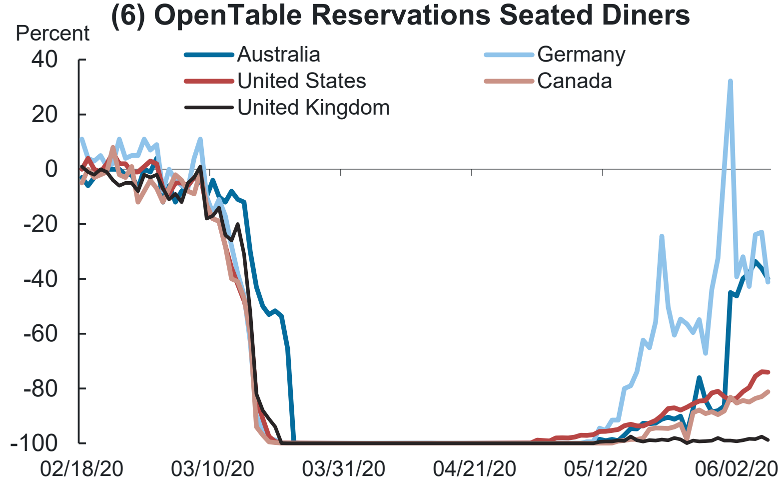
Driven by optimism around re-openings

(5) S&P 500 and Apple Mobility 5-Day Moving Average



Note: Based on volume of direction requests compared to a baseline volume on January 13th, 2020, from data on user devices. Activity includes seasonal effects. Available through June 3, 2020.
Source: Bloomberg, Apple

(6) OpenTable Reservations Seated Diners



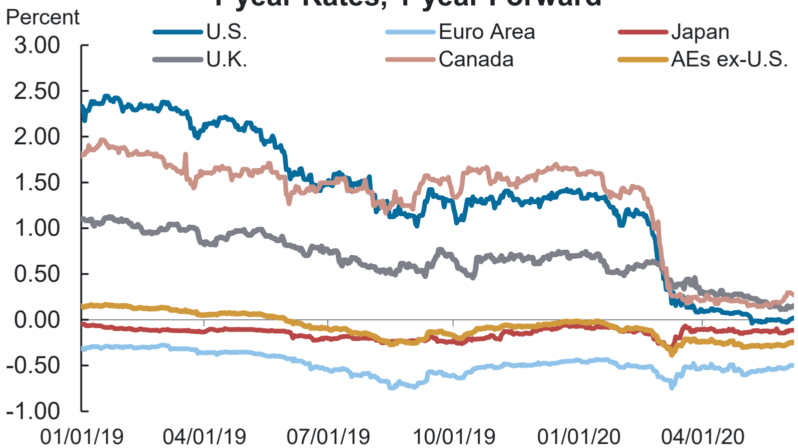
Note: Seated diners from online, phone, and walk-in reservations on OpenTable relative to level of activity at the same point in time last year.
Source: OpenTable

Policy support has been important

(7) U.S. and Global Policy Measures

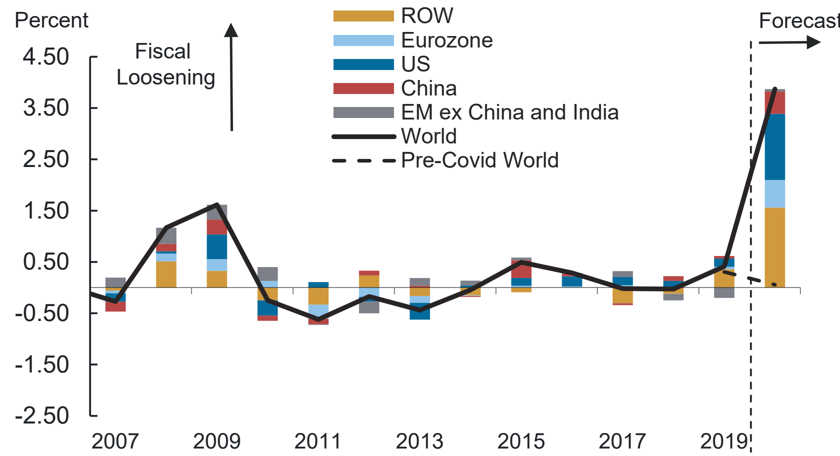
- Monetary policy accommodation
- Asset purchases
- Credit and liquidity facilities
- Fiscal packages

(8) Market-Implied Expectations for 1-year Rates, 1-year Forward



Note: AEs ex-U.S. are GDP-weighted.
Source: Bloomberg, Haver, Desk Calculations.

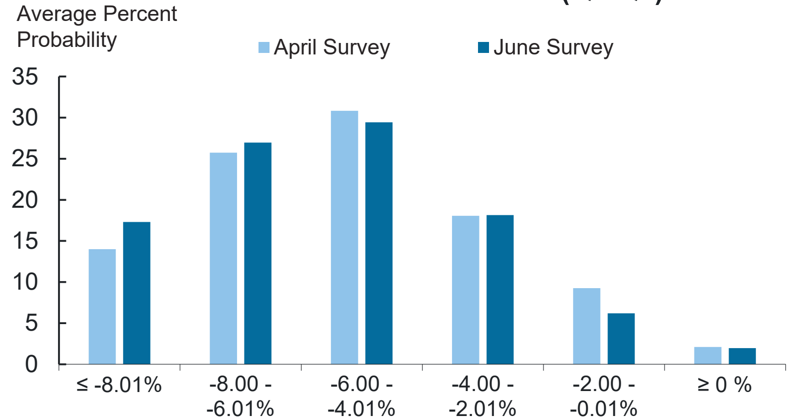
(9) Change in Primary Fiscal Balance (% of GDP)



Note: Cyclically Adjusted. As of June 1, 2020.
Source: UBS

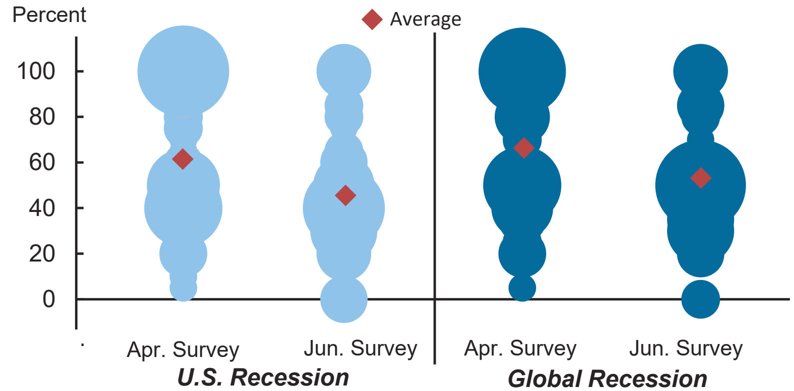
But the outlook remains grim and uncertain

(10) Probability Distribution for 2020 U.S. Real GDP Growth (Q4/Q4)



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

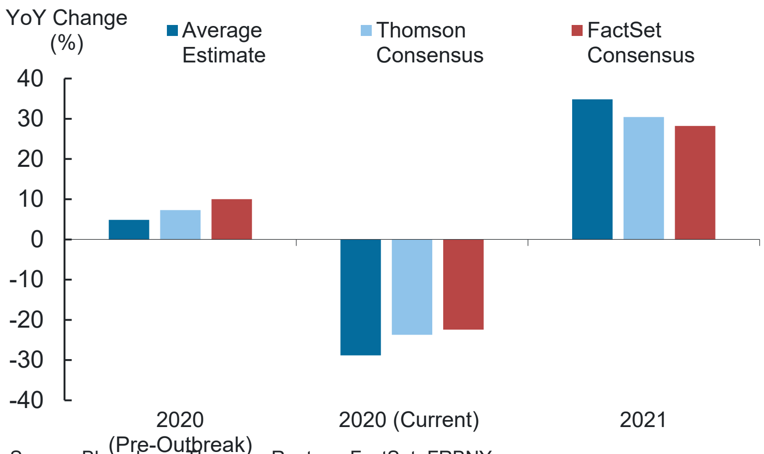
(11) Probability of U.S. Recession and Global Recession in Six Months



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

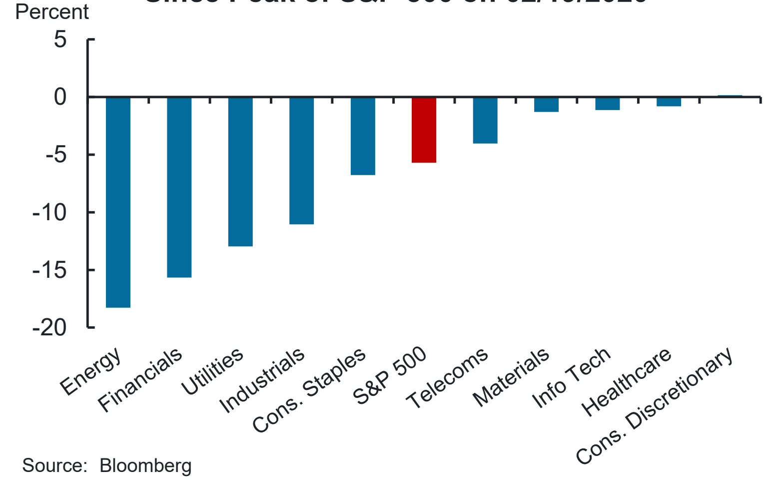
Is the rally in equities overdone?

(12) EPS Forecasts



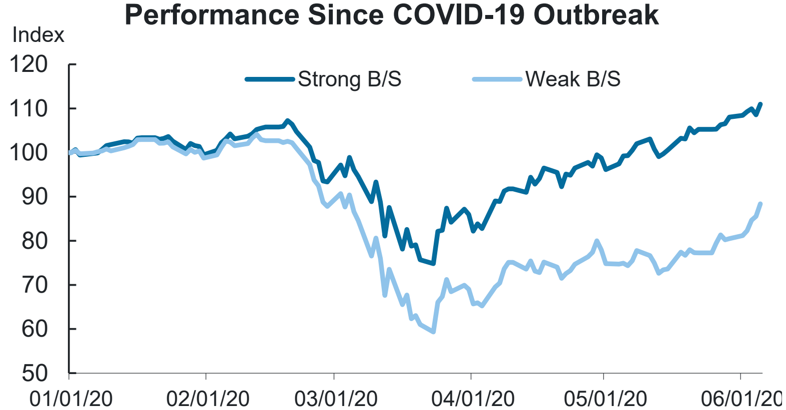
Source: Bloomberg, Thomson Reuters, FactSet, FRBNY.
Note: Average estimate of dealer research base on desk outreach.

(13) S&P 500 Sector Performance Since Peak of S&P 500 on 02/19/2020



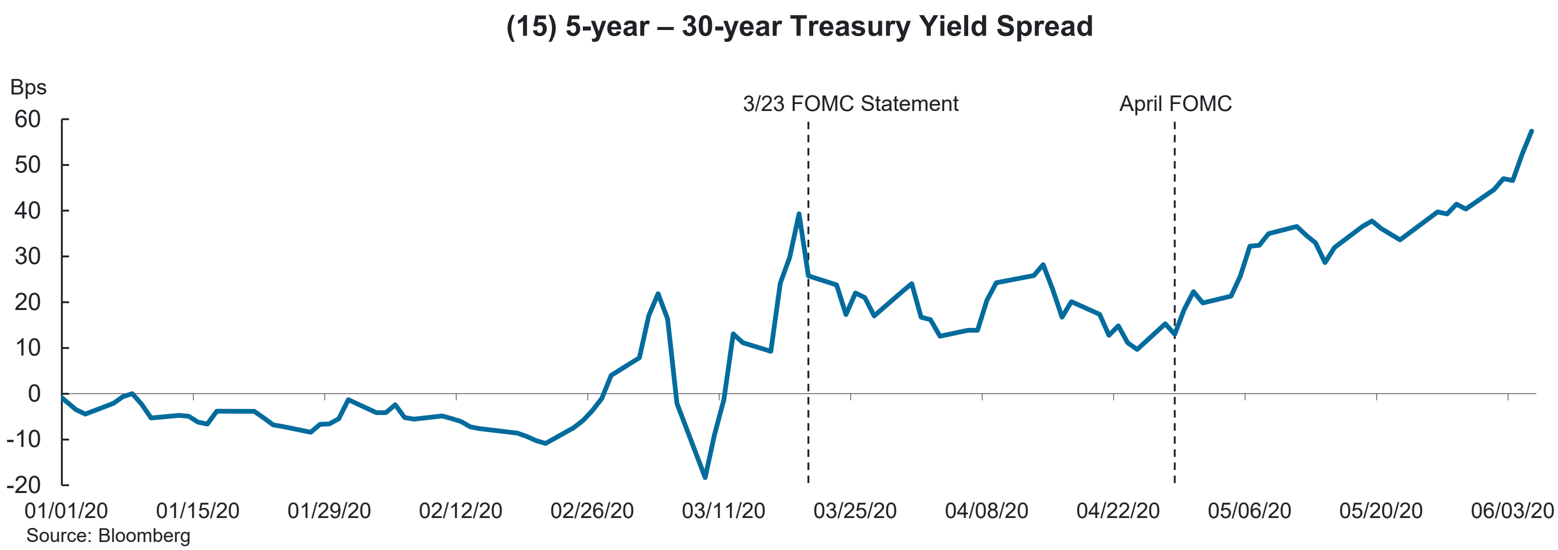
Source: Bloomberg

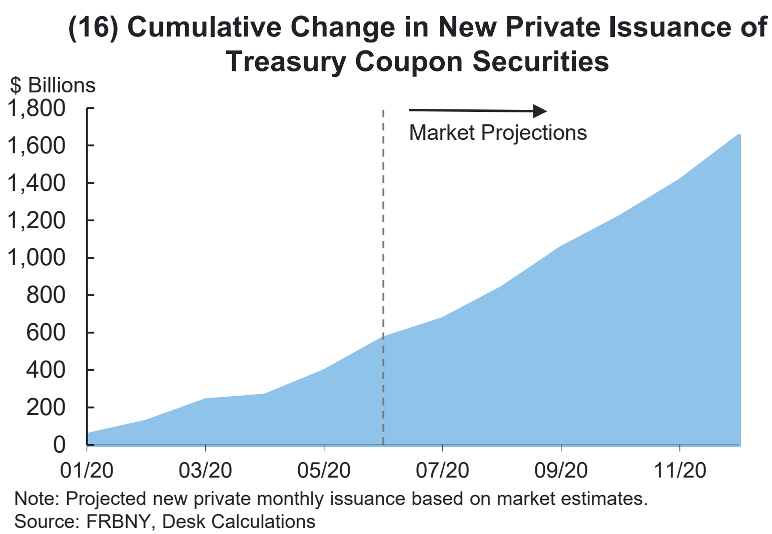
(14) Firms with Strong vs. Weak Balance Sheet Performance Since COVID-19 Outbreak

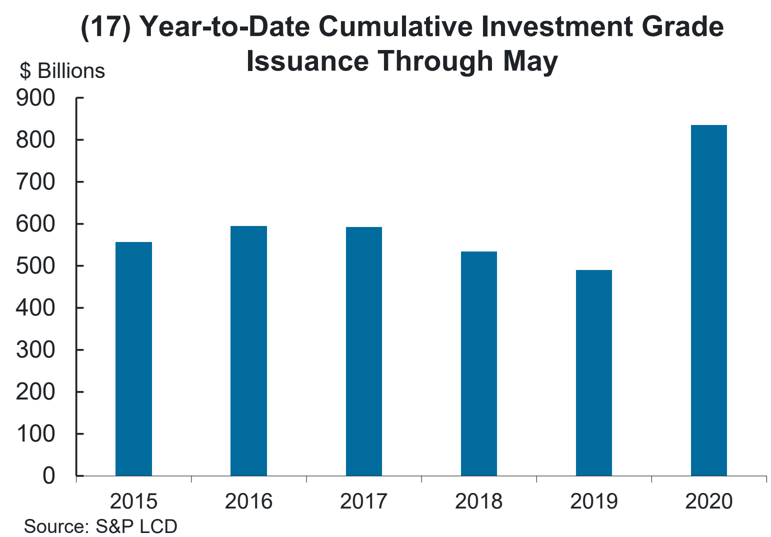


Note: Indexed to 100 at 1/1/2020. Strong/weak balance sheet basket identifies 50 S&P 500 companies with strong/weak balance sheets measured using profitability, leverage, liquidity, solvency, and activity ratios.
Source: Bloomberg, Goldman Sachs

Why has the Treasury yield curve has steepened?







Key Risks in Focus

1. Prospect for a 2nd wave of the virus and renewed disruptions

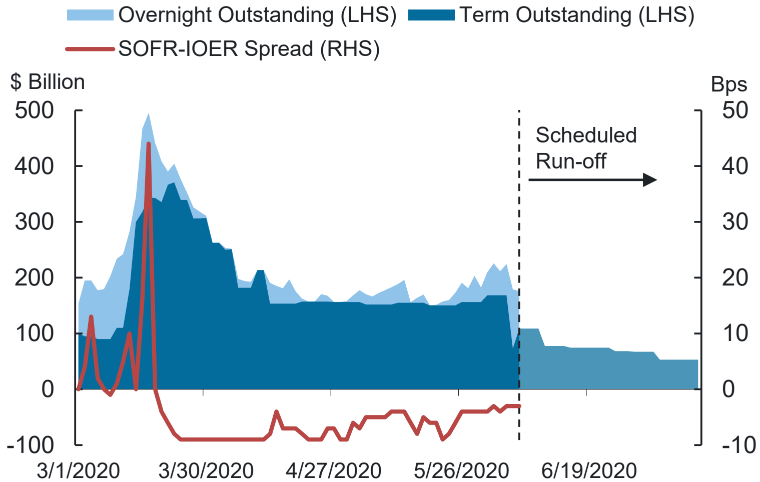
2. More severe-than-expected recessionary dynamics
   - Corporate credit
   - Emerging markets
   - Mortgage sector
   - Municipal finances

3. Geopolitical developments
   - Escalating U.S.-China tensions

Federal Reserve Operations and Facilities

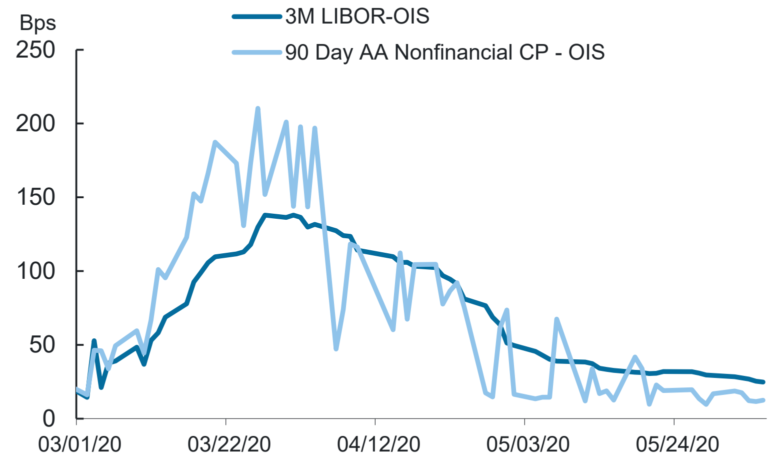
New activity in funding operations and facilities has declined…

(18) Fed Repo Outstanding by Tenor and Maturities



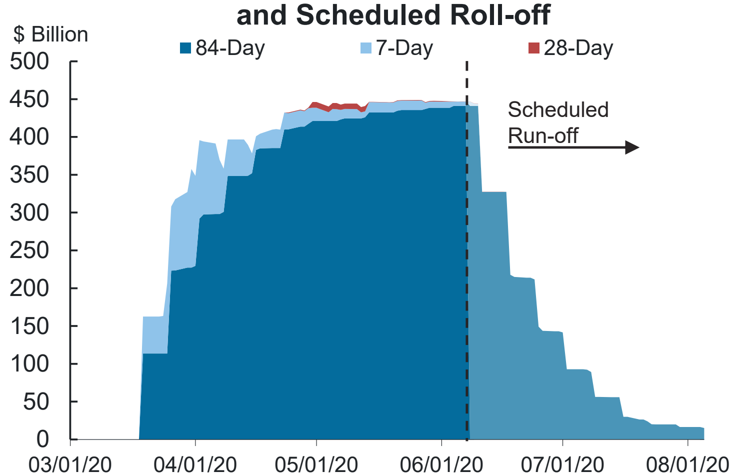
Source: FRBNY

(19) 3-Month LIBOR and CP Rate Spreads to OIS



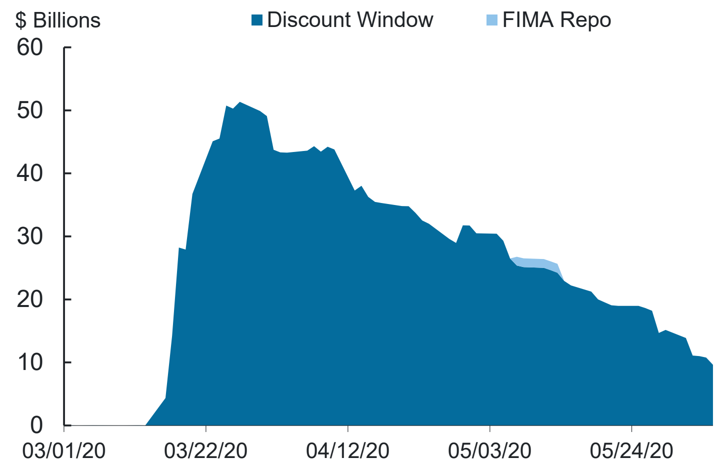
Source: Board of Governors, Bloomberg

(20) U.S. Dollar Swaps Outstanding by Tenor and Scheduled Roll-off



Source: FRBNY

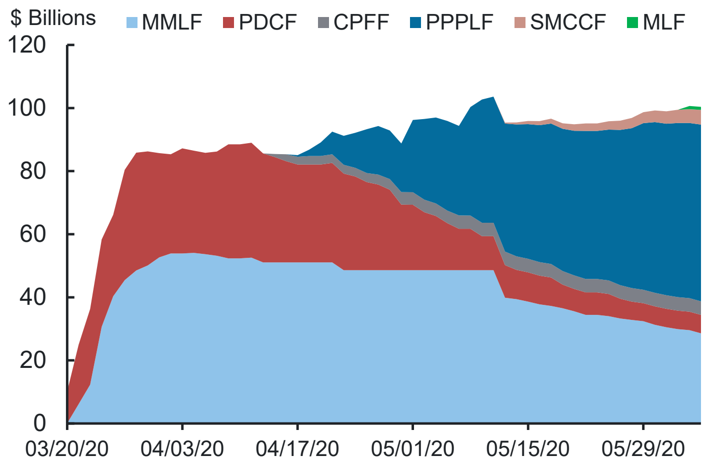
(21) Discount Window and FIMA Repo Outstanding



Source: FRBNY

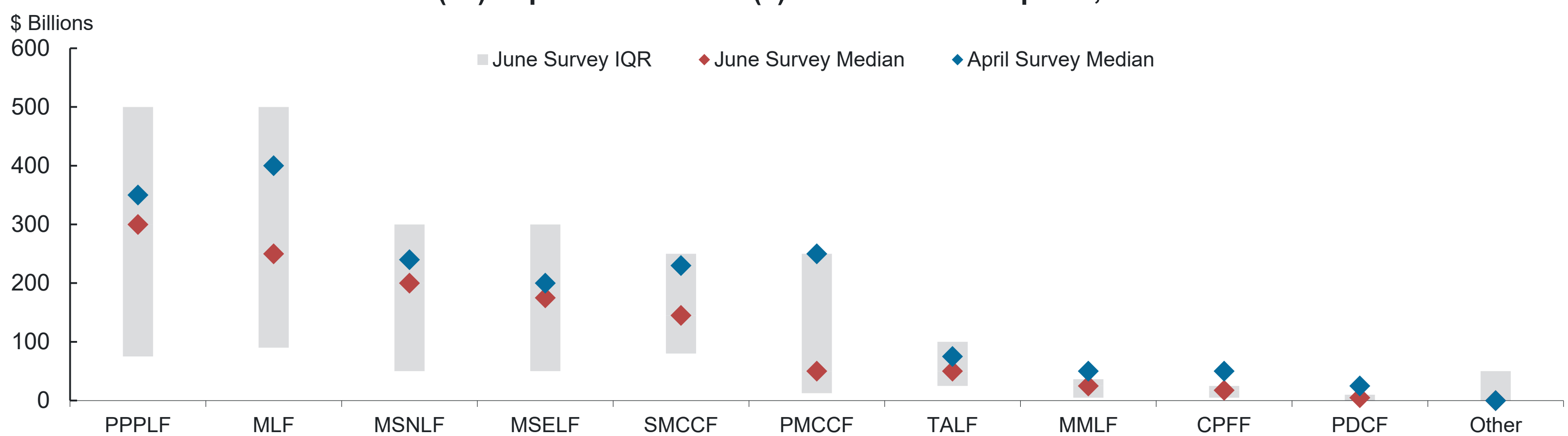
...and expectations for total 13(3) facility usage has fallen

(22) Outstanding Amounts in 13(3) Facilities



Source: FRBNY

(23) Expectations for 13(3) facilities as of Sept. 30, 2020

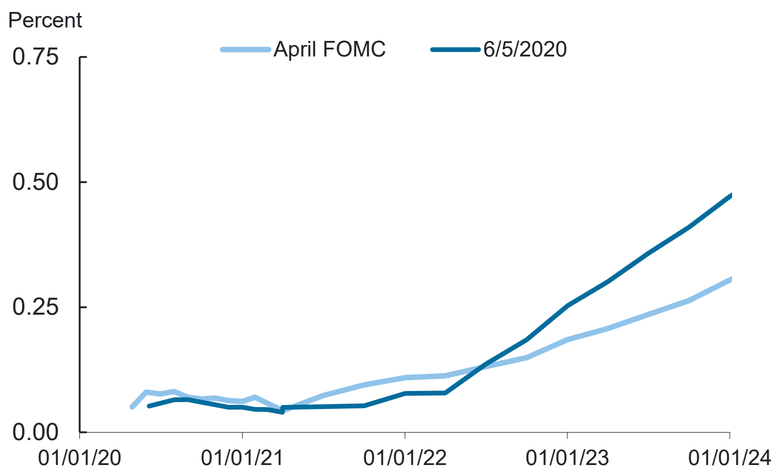


Note: Based on all responses to the Surveys of Primary Dealers and Market Participants.
Source: FRBNY

Monetary Policy Expectations

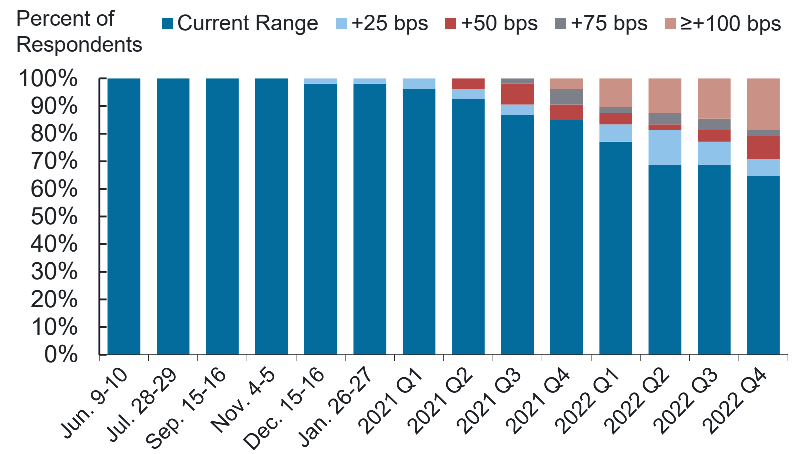
Rates expected to remain near ZLB …but with perceived upside risk

(24) Market-Implied Path of Policy



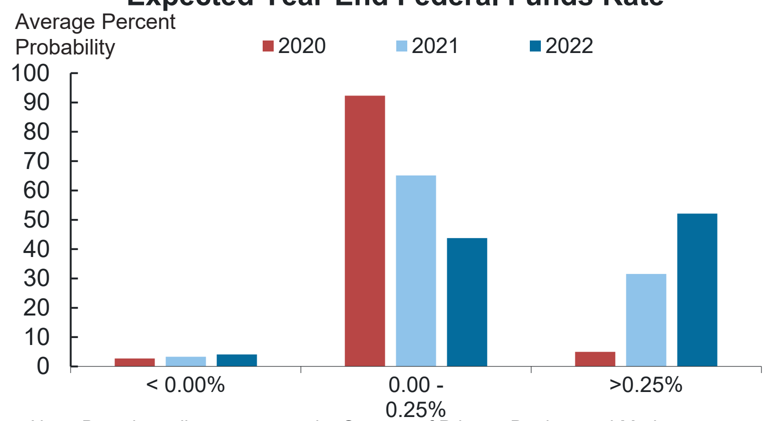
Source: Bloomberg, Staff Calculations

(25) Modal Target Rate Expectations



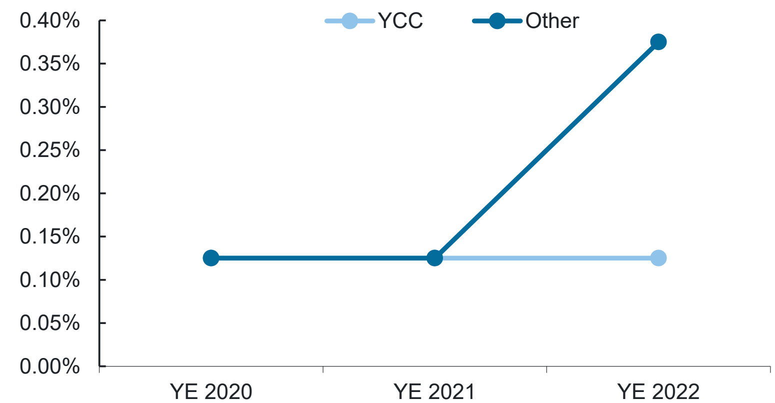
Note: Based on all responses to the Surveys of Primary Dealers and Market Participants.
Source: FRBNY

(26) Probability Distribution for Expected Year-End Federal Funds Rate



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

(27) Median Expectations for Median SEP "Dots"

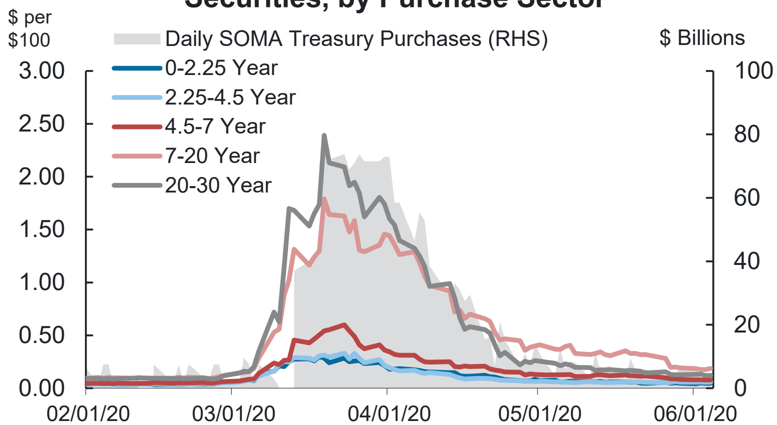


Note: Based on all responses to the Surveys of Primary Dealers and Market Participants, grouped by those who mentioned YCC and those who did not.
Source: FRBNY

Treasury and Agency MBS Market Functioning

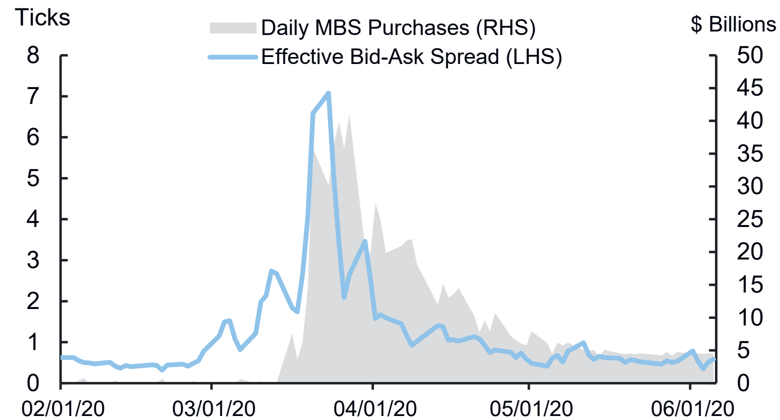
Market functioning has improved further

(28) Average Bid-Ask Spread for Nominal Treasury Securities, by Purchase Sector



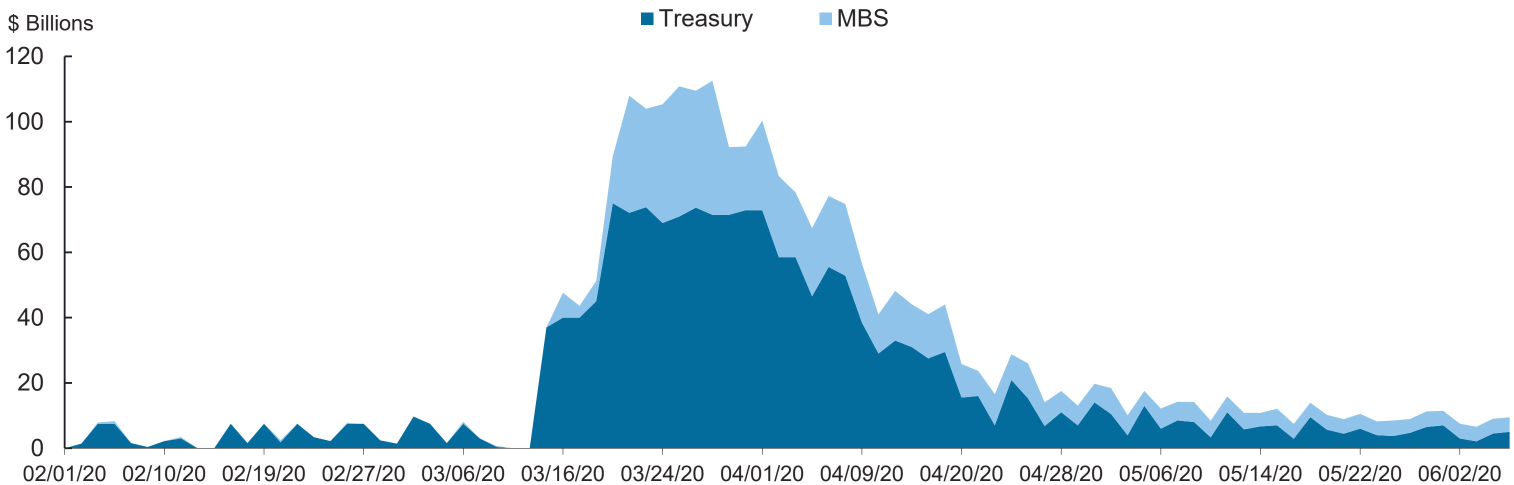
Note: Average bid-ask spreads for off-the-run nominal Treasury coupon securities.
Source: FRBNY

(29) Agency MBS Bid-Ask Spread



Note: Two-day moving average. Includes dealer-to-client transactions for 30-yr and 15-yr TBA securities acoss agencies.
Source: Bloomberg, Desk Calculations, FRBNY, FINRA, TRACE

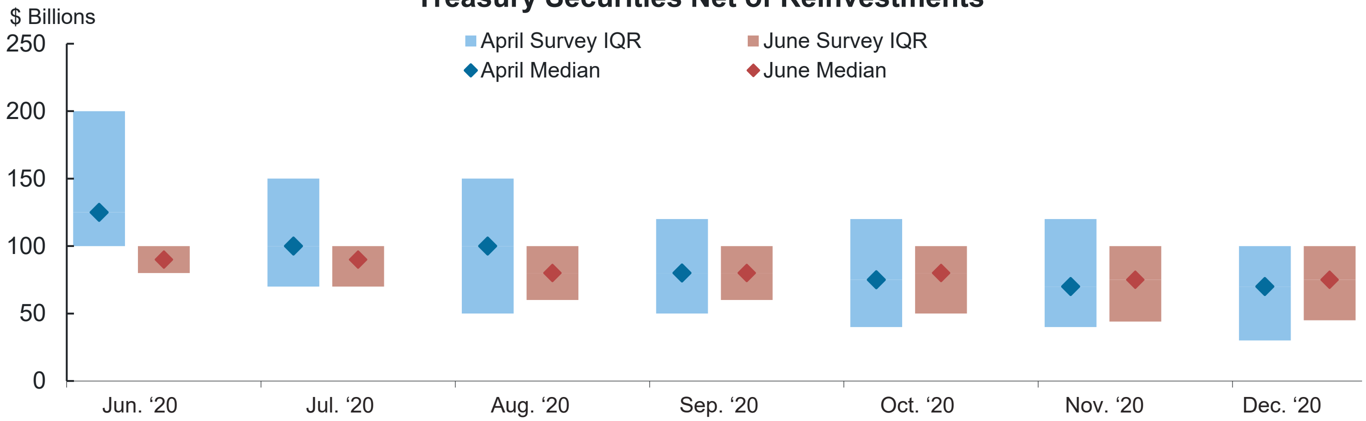
(30) Daily SOMA Treasury and MBS Purchases



Source: FRBNY

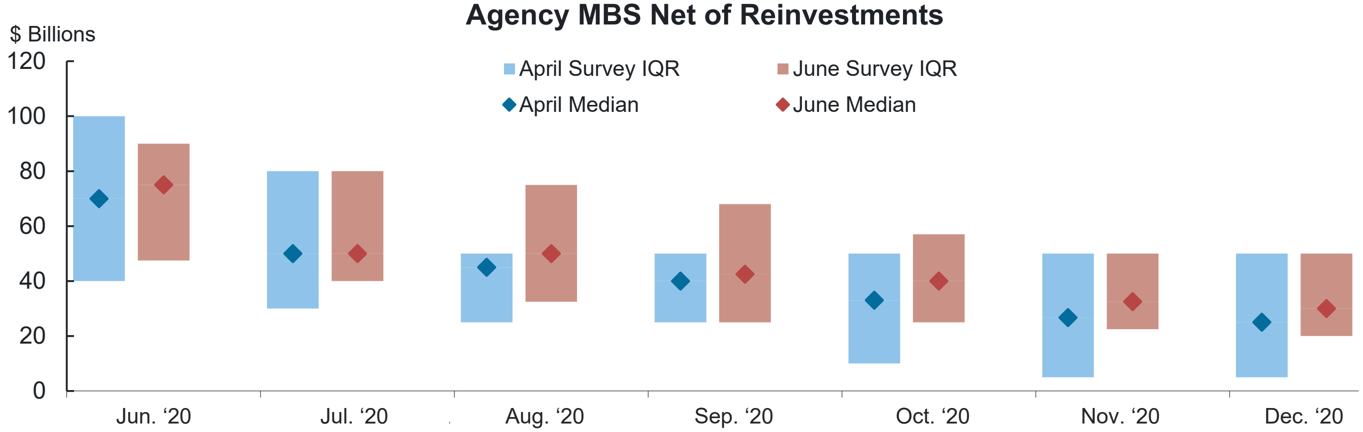
Expectations for the pace of asset purchases

(31) Expectations for Monthly Purchases of Treasury Securities Net of Reinvestments



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

(32) Expectations for Monthly Purchases of Agency MBS Net of Reinvestments



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

Appendix

Appendix I

[Draft]

Statement Regarding Treasury Securities, Agency Mortgage-Backed Securities, and Agency Commercial Mortgage-Backed Securities Operations

June 10, 2020

Effective June 11, 2020, the Federal Open Market Committee (FOMC) directed the Open Market Trading Desk (the Desk) at the Federal Reserve Bank of New York to increase the System Open Market Account (SOMA) holdings of Treasury securities, agency mortgage-backed securities (MBS), and agency commercial mortgage-backed securities (CMBS) at least at the current pace to sustain the smooth functioning of markets for these securities, thereby fostering effective transmission of monetary policy to broader financial conditions.

Consistent with this directive, the Desk plans to continue to increase SOMA holdings of Treasury securities at the current pace, which is the equivalent of approximately $80 billion per month. Treasury purchases will be conducted on a monthly basis, starting with the period from mid-June to mid-July, and will continue to be conducted across a range of maturities and security types. The Desk will continue to roll over at auction all principal payments from SOMA holdings of maturing Treasury securities.

Similarly, the Desk plans to continue to increase SOMA holdings of agency MBS at the current pace, which is the equivalent of approximately $40 billion per month. Agency MBS purchases will be conducted on a monthly basis, starting with the period from mid-June to mid-July. Total purchases during this monthly period are expected to be approximately $[96] billion, which includes approximately $[56] billion in purchases to reinvest principal payments from existing SOMA holdings of agency debt and agency MBS anticipated to be received in the month of June. Agency MBS purchases will continue to generally be concentrated in recently produced coupons in 30-year and 15-year fixed rate agency MBS in the To-Be-Announced (TBA) market.

The Desk will announce the planned monthly amount of Treasury and agency MBS purchases on or around the ninth business day of each month and will release tentative schedules of purchase operations twice a month, on or around the ninth and the nineteenth business days. The first monthly purchase period will begin on June 12, 2020 and continue through July 13, 2020. Updated information on purchase amounts and schedules can be found on the Treasury Securities Operational Details and the Agency MBS Operation Schedule pages.

In addition, the Desk plans to continue to increase SOMA holdings of agency CMBS at the current pace by conducting weekly operations of approximately $250 to $500 million. Purchases will include the reinvestment of principal payments from SOMA holdings of agency CMBS. Purchases will continue to be secured primarily by multifamily home mortgages that are guaranteed fully as to principal and interest by Fannie Mae, Freddie Mac, and Ginnie Mae and that the Desk has determined are suitable for purchase. Updated information on purchase amounts and the schedule can be found on the Agency CMBS Operations Schedule page.

Consistent with the FOMC Directive, the Desk is prepared to increase the size and adjust the composition of its purchase operations as needed to sustain the smooth functioning of the Treasury, agency MBS, and agency CMBS markets. Additional information on Treasury, agency MBS, and agency CMBS purchases can be found in the following locations:

FAQs: Treasury Purchases »
FAQs: Agency MBS Purchases »
FAQs: Agency CMBS Purchases »

Appendix II

(1) Summary of Operational Testing

Summary of Operational Tests in prior period:

- Domestic Authorization
  - May 21: Securities lending (using the backup tool) for $68 million
  - May 26 and 27: Coupon swap with unsettled MBS holdings for $20 million, total
- Foreign Authorization
  - May 21: Yen-denominated sovereign debt purchase from private counterparties for ¥300 million
  - May 21: Yen-denominated sovereign debt sale to private counterparties for ¥300 million
  - May 26: Euro-denominated repo with private counterparties for €7.5 million

Upcoming Operational Tests:

- 3 tests scheduled under the Domestic Authorization
  - June 16: Treasury outright sale for up to $25 million
  - June 17: Overnight repo (with back up tool) for up to $75 million
  - June 23 and 25: MBS specified pool sale for up to $180 million, total
- 2 tests scheduled under the Foreign Authorization
  - June 16: Euro-denominated sovereign debt purchase from private counterparties for €1.2 million
  - June 23: Euro-denominated sovereign debt sale to private counterparties for €1.2 million

(2) FX Intervention

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

Appendix 3: Materials used by Ms. Tevlin

Class II FOMC - Restricted (FR)

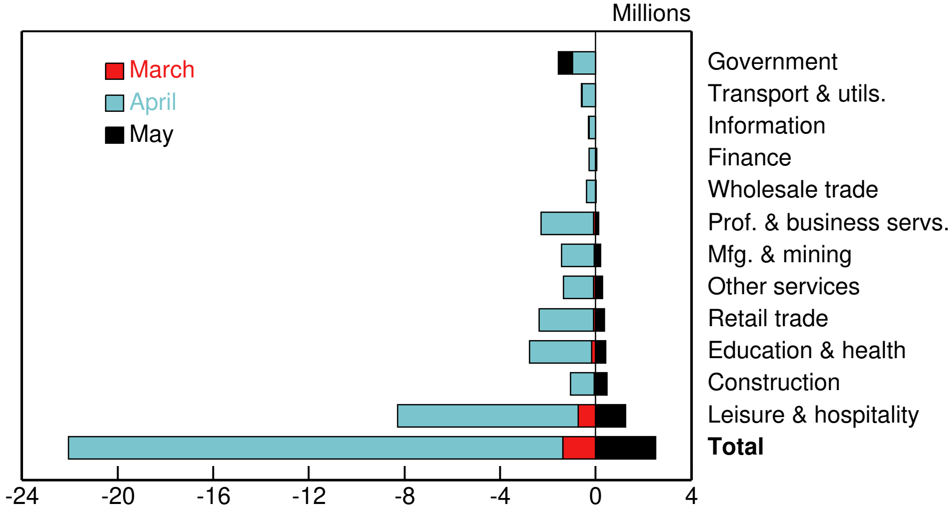
Material for Briefing on

The U.S. Outlook

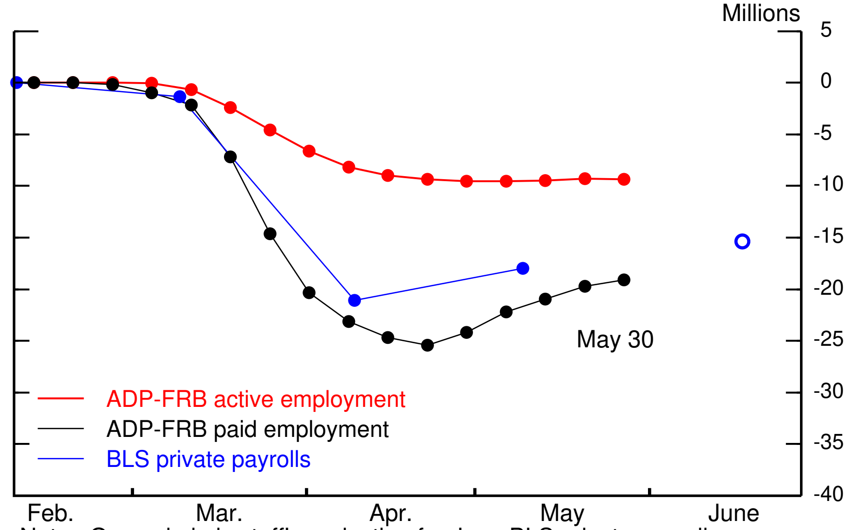
Stacey Tevlin
Exhibits by Rosemary Rhodes and Ashley Sexton
June 9, 2020

Labor Market Recovery May Have Started

1. May Job Gains Were Widespread Across Industries

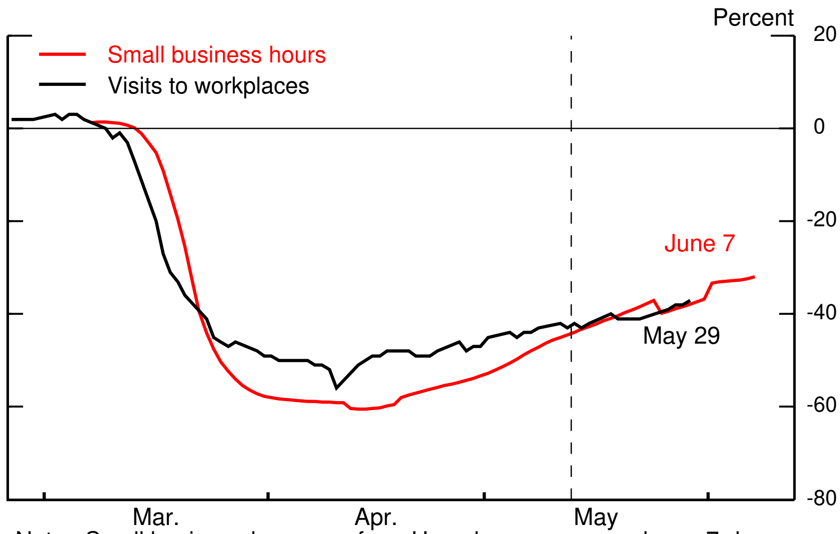


2. Cumulative Job Losses Still Large



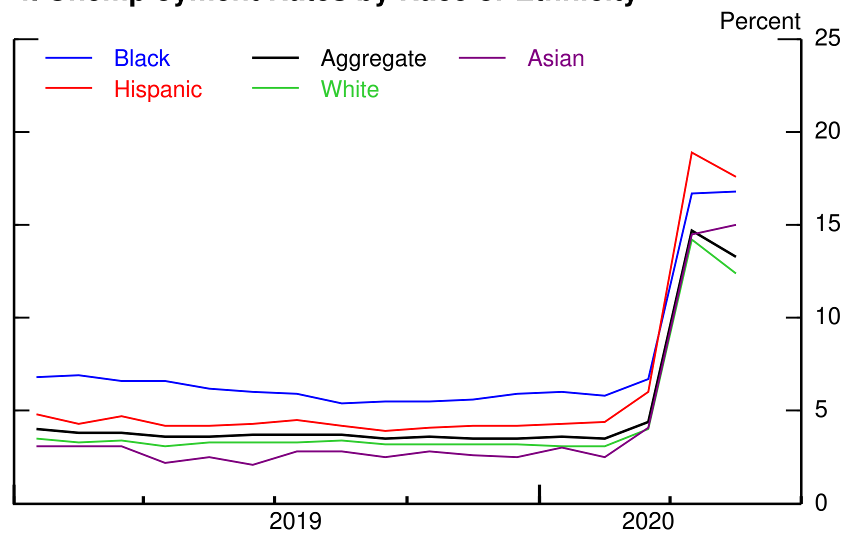
Note: Open circle is staff's projection for June BLS private payrolls.

3. Other Indicators Point to June Job Gains



Note: Small business hours are from Homebase, expressed as a 7-day trailing average of the change from January. Visits to workplaces are from the Google mobility index for cellphones that visit workplaces, expressed as a deviation from baseline.

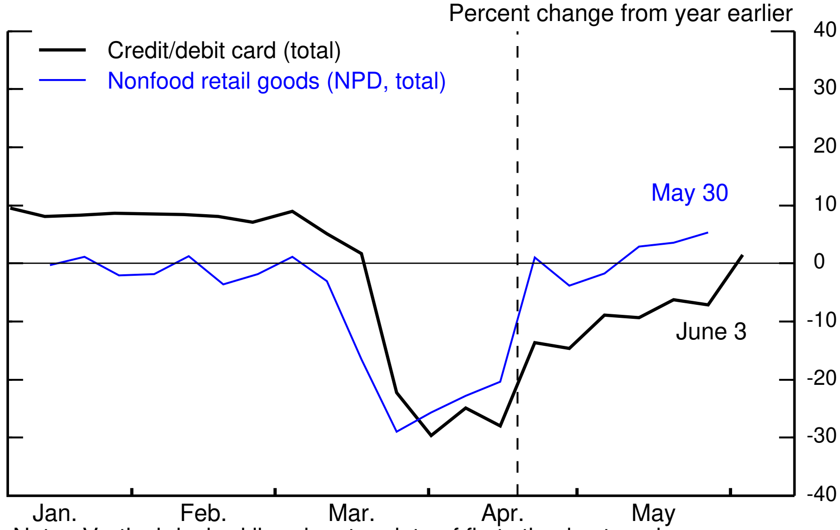
4. Unemployment Rates by Race or Ethnicity



Note: Categories are not mutually exclusive, as "Hispanic" may include people of any race.

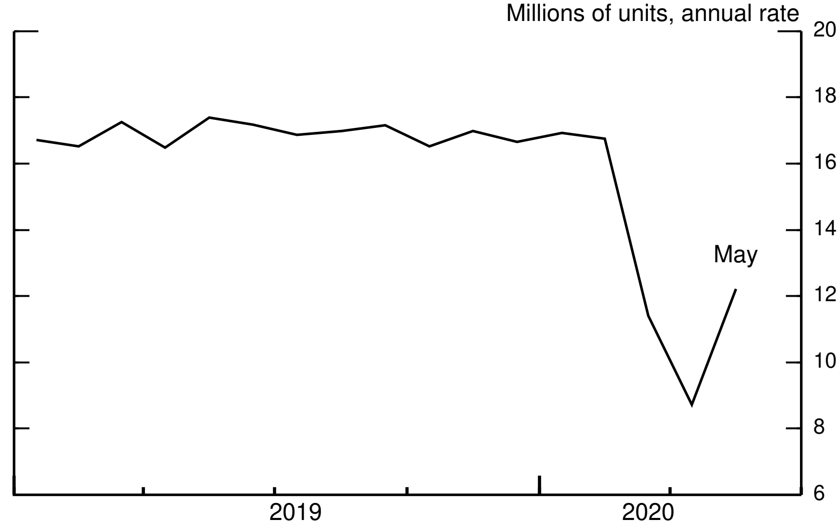
Consumer Spending on the Rise

5. High-Frequency Spending Indicators

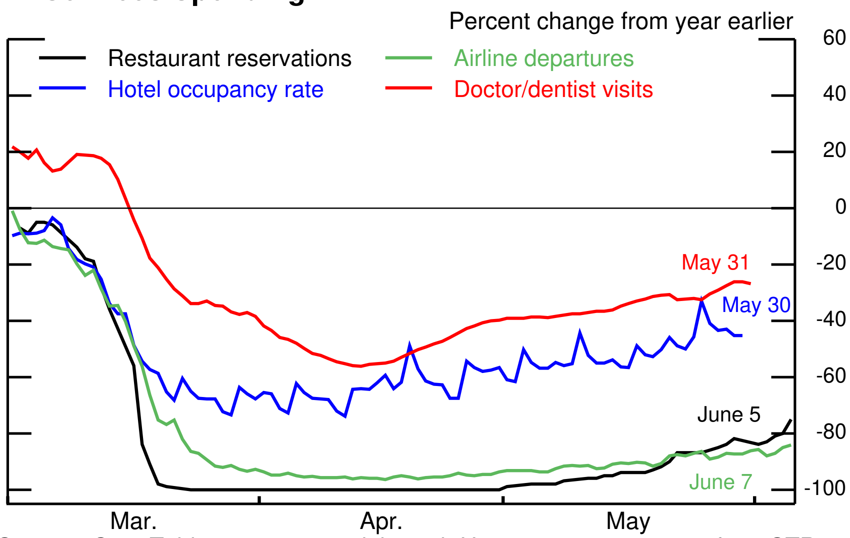


Note: Vertical dashed line denotes date of first stimulus tranche.

6. Light Vehicle Sales

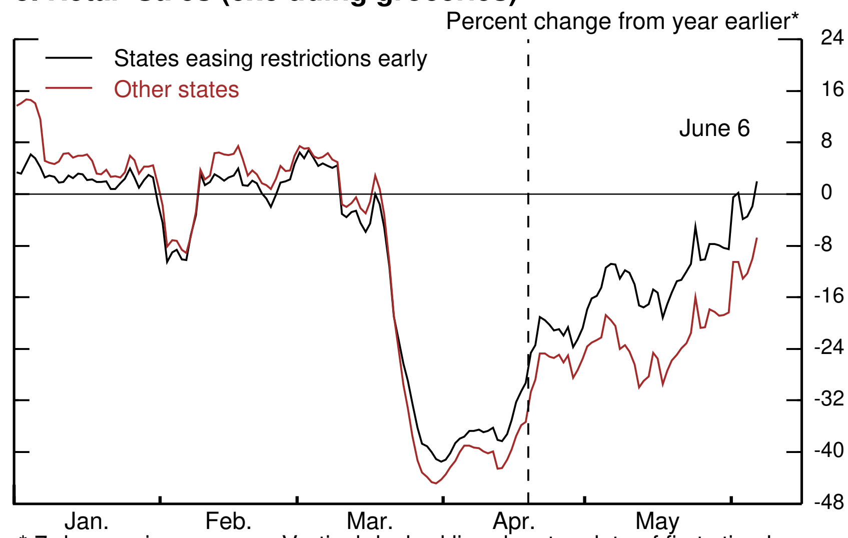


7. Services Spending



Source: OpenTable.com accessed through Haver; occupancy rates from STR; Transportation Security Administration; SafeGraph, using cell phone geo-location data.

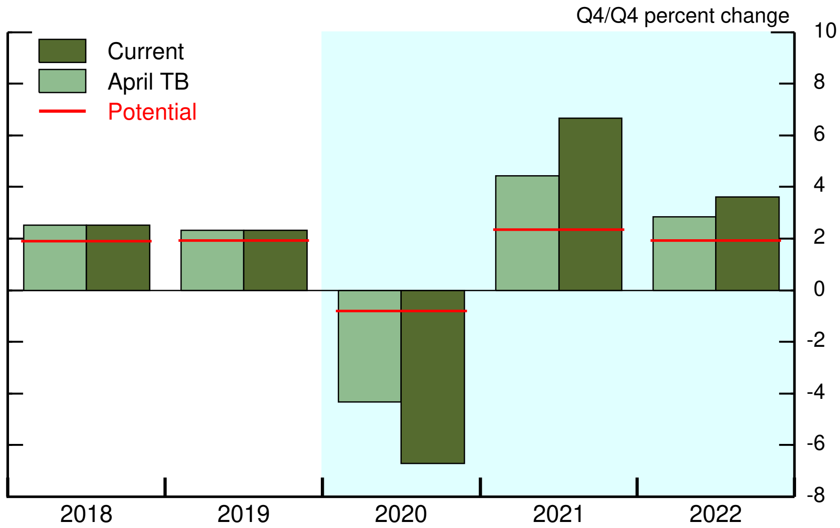
8. Retail Sales (excluding groceries)



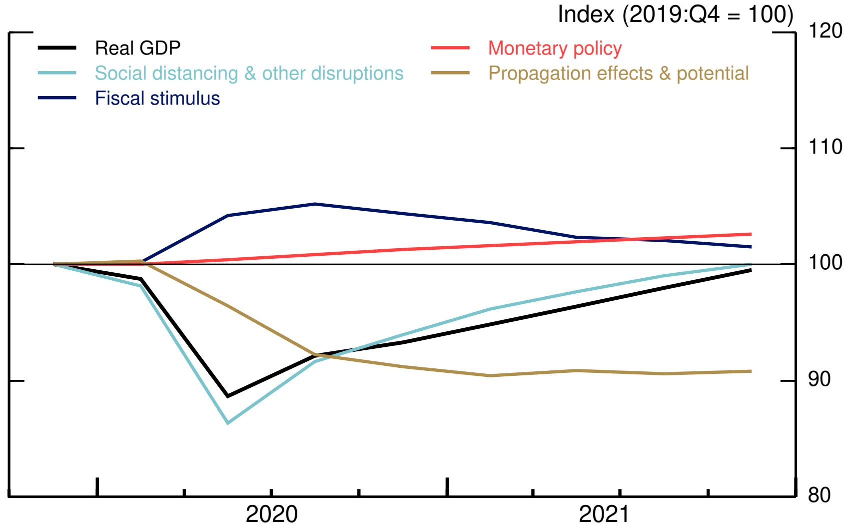
* 7-day moving average. Vertical dashed line denotes date of first stimulus tranche.
Source: Fiserv.

Contending Forces Influence Activity over the Medium Term

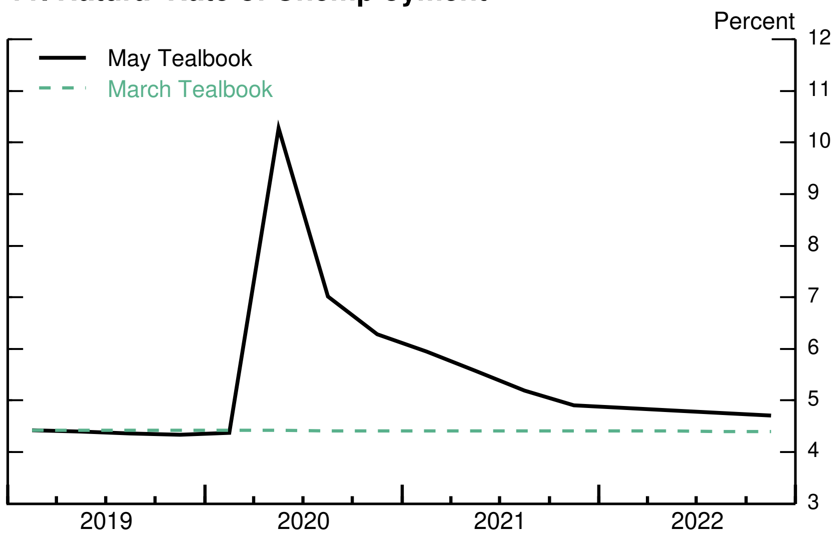
9. Medium-Term GDP Outlook



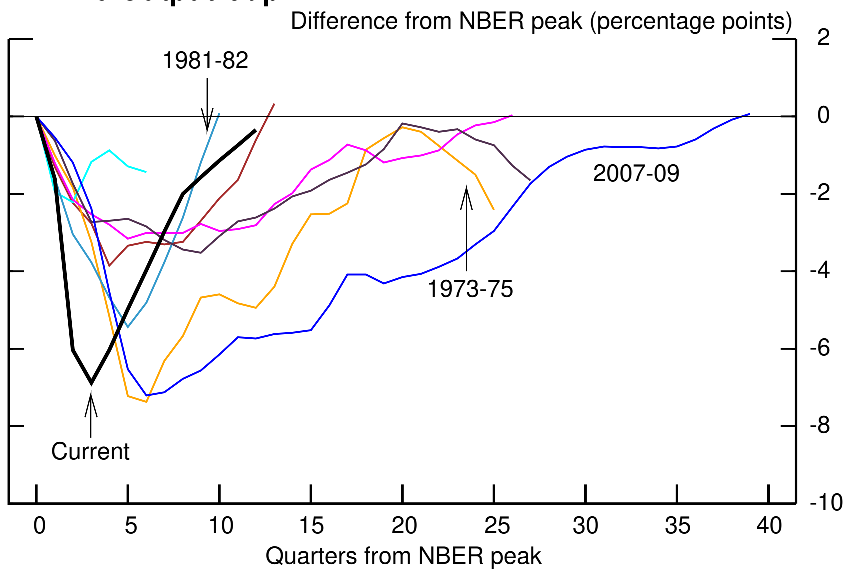
10. Factors Influencing the Contour of Output



11. Natural Rate of Unemployment



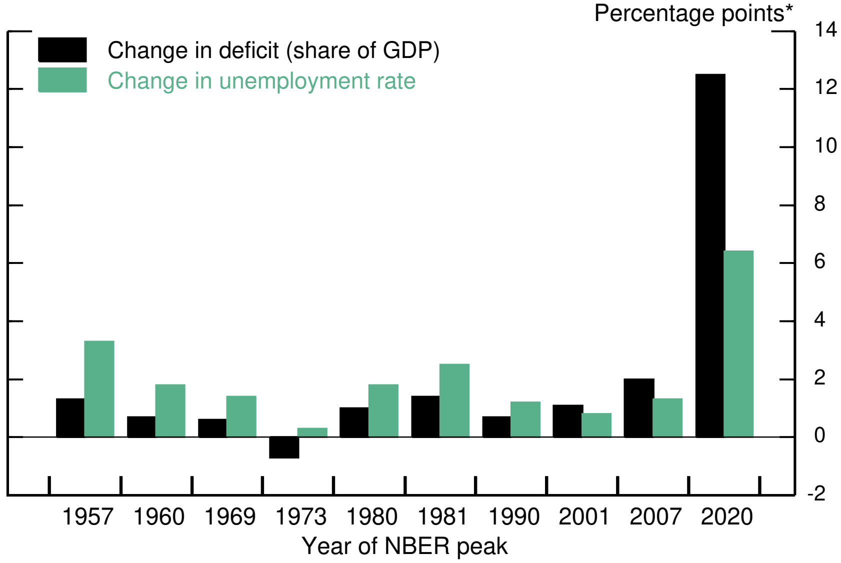
12. The Projected Recovery in Perspective: The Output Gap



Class II FOMC - Restricted (FR)

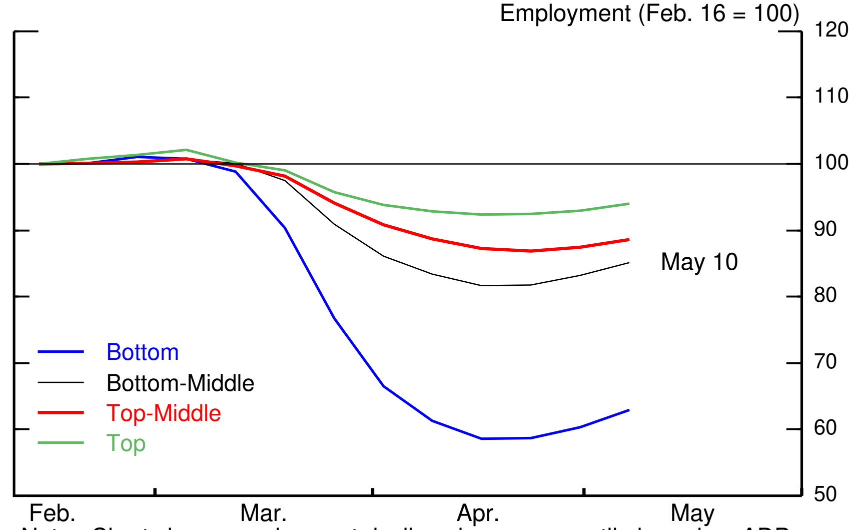
Fiscal Policy Supports Household Spending

13. The Fiscal Response Has Been Rapid and Large



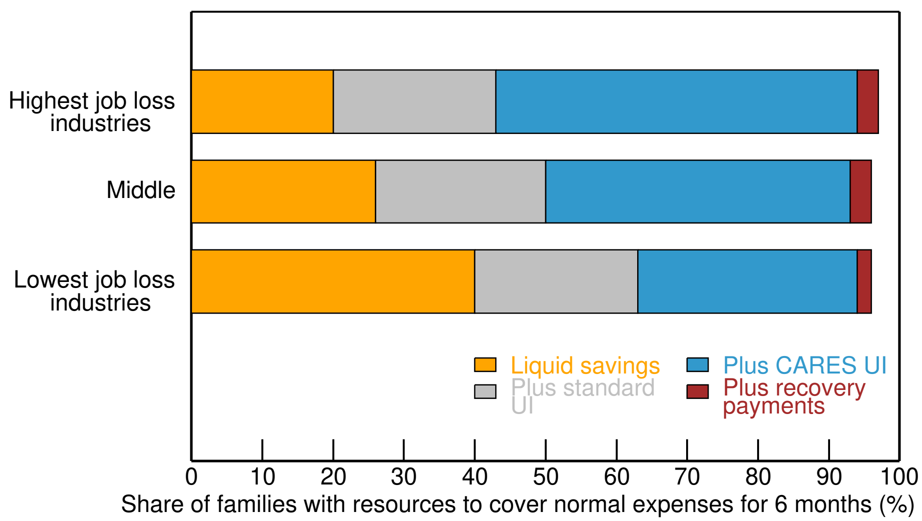
* Change in deficit from fiscal year prior to peak to next fiscal year; change in unemployment rate uses corresponding fiscal year averages.

14. Low-Wage Earners Have Been Hit Hardest

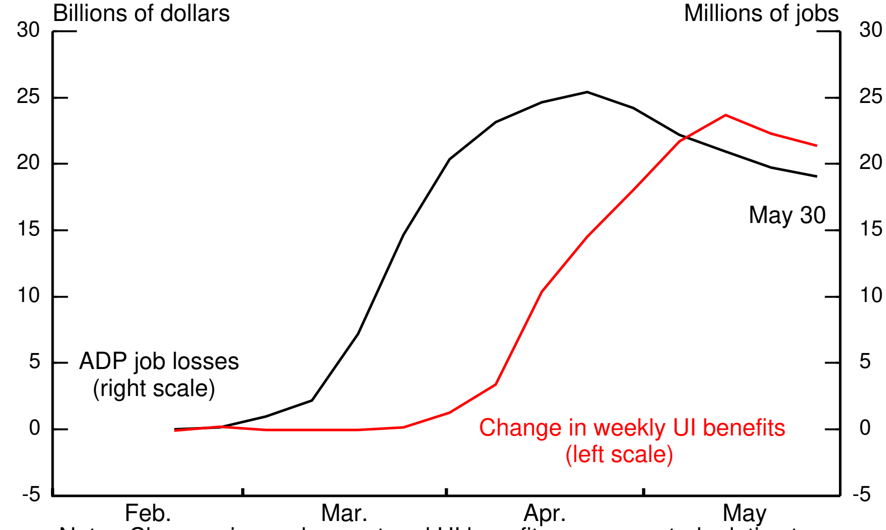


Note: Chart shows employment declines by wage quartile based on ADP data. Wage quartiles are defined using the February wage distribution.

15. Most Working Families Have Resources to Get By



16. UI Benefit Payout Has Lagged Job Losses



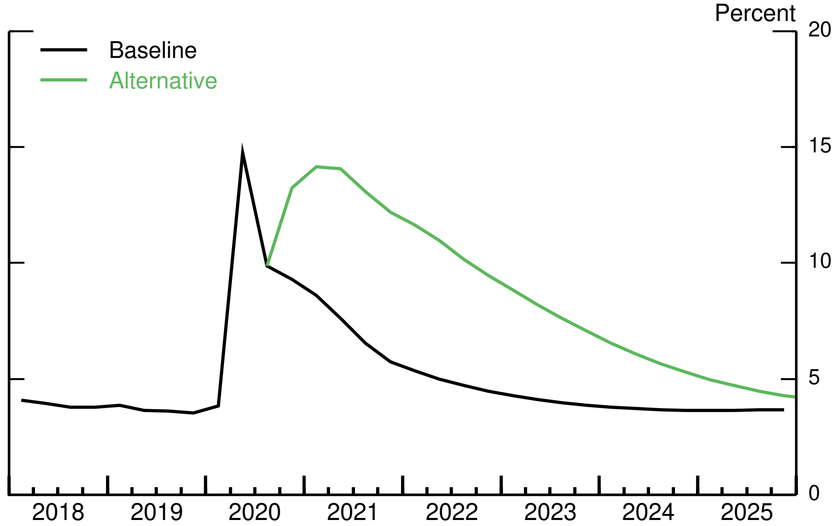
Note: Changes in employment and UI benefits are computed relative to their February 15th levels.

A "Second Waves" Scenario Remains Equally Plausible

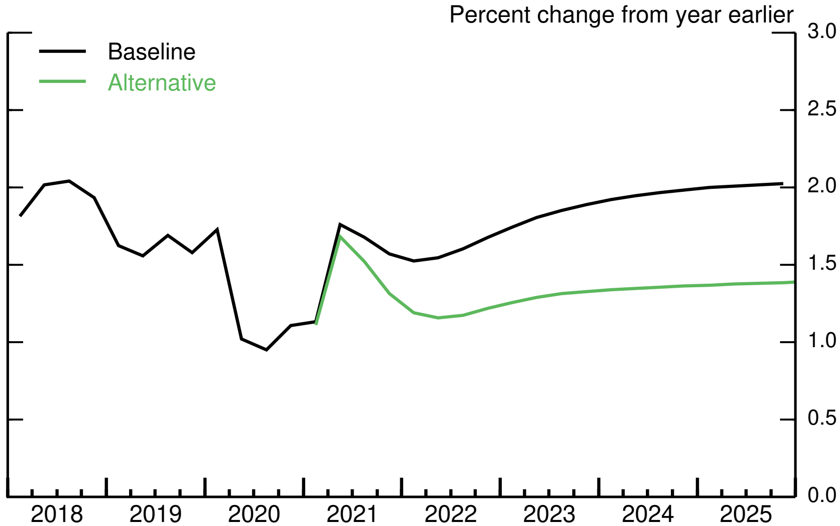
17. How a Second Wave Could Play Out

- Caseloads soar in the fall.
- Resurgence results in the reinstatement of intensive social distancing.
- Policymakers have less capacity to respond.
- Additional supply-side damage results.

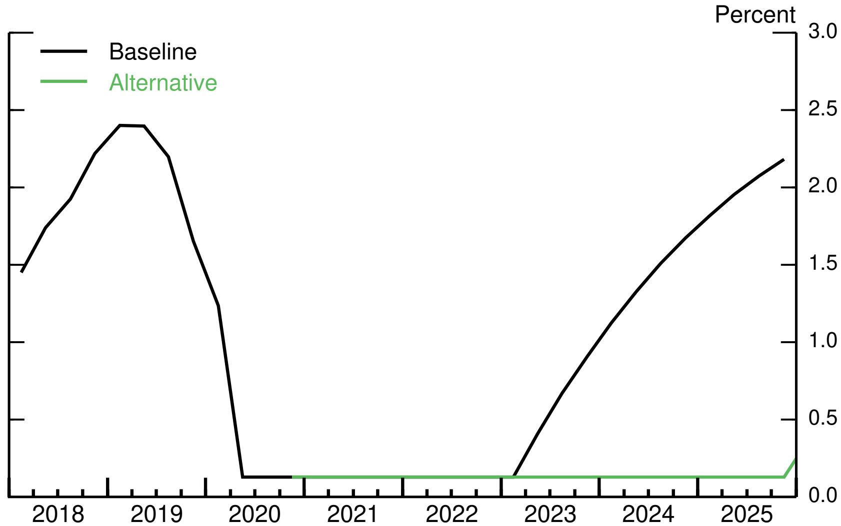
18. Unemployment Rate



19. Core PCE Prices



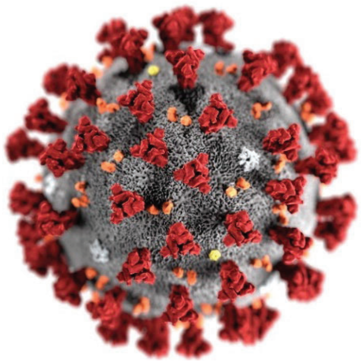
20. Federal Funds Rate



Appendix 4: Materials used by Ms. Wilson

Material for Briefing on

The International Outlook



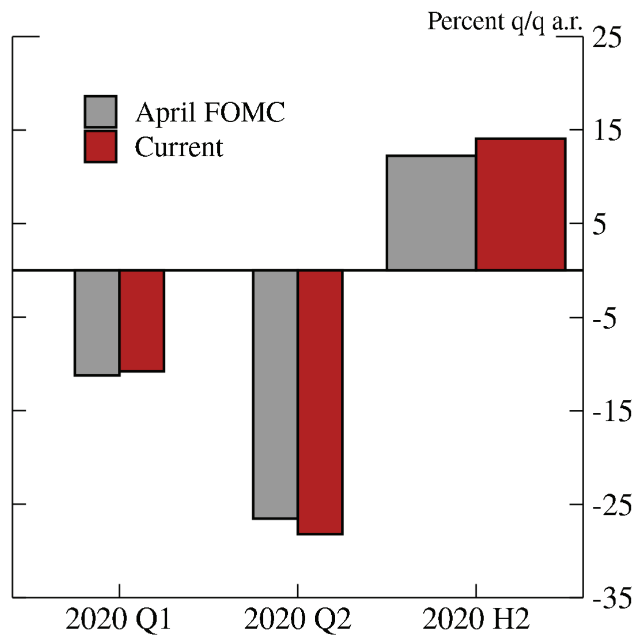
Beth Anne Wilson
Exhibits by Matthew Deininger and Theresa Dinh

June 9, 2020

Outlook for Foreign GDP

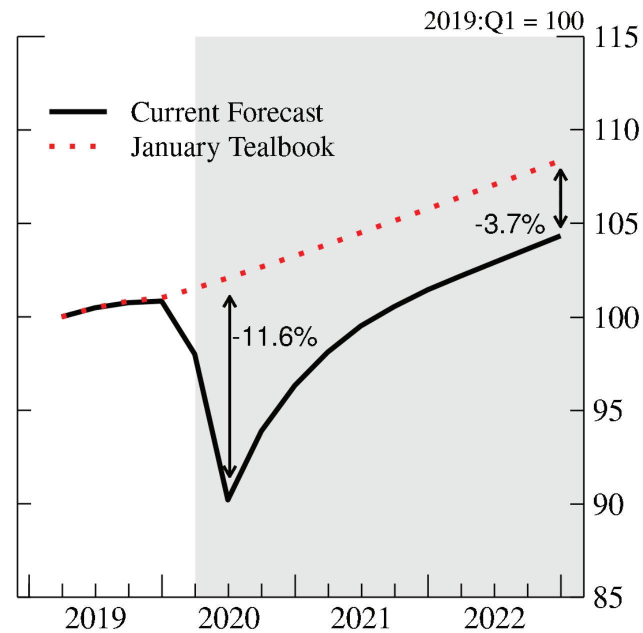
- A collapse in the foreign economies is very much in train.
- With little hope of a full return to pre-COVID path in the medium term.

Foreign Real GDP Growth



Source: Staff calculations.

Foreign GDP Level



Source: Staff calculations.

COVID-19 and its containment central to outlook

- The disease and restrictions in response started in China and East Asia, spread to Europe, and are now hitting other EMEs, importantly Latin America.

- We anticipate that the easing of restrictions will follow that same pattern.

Stringency of Restrictions due to COVID-19

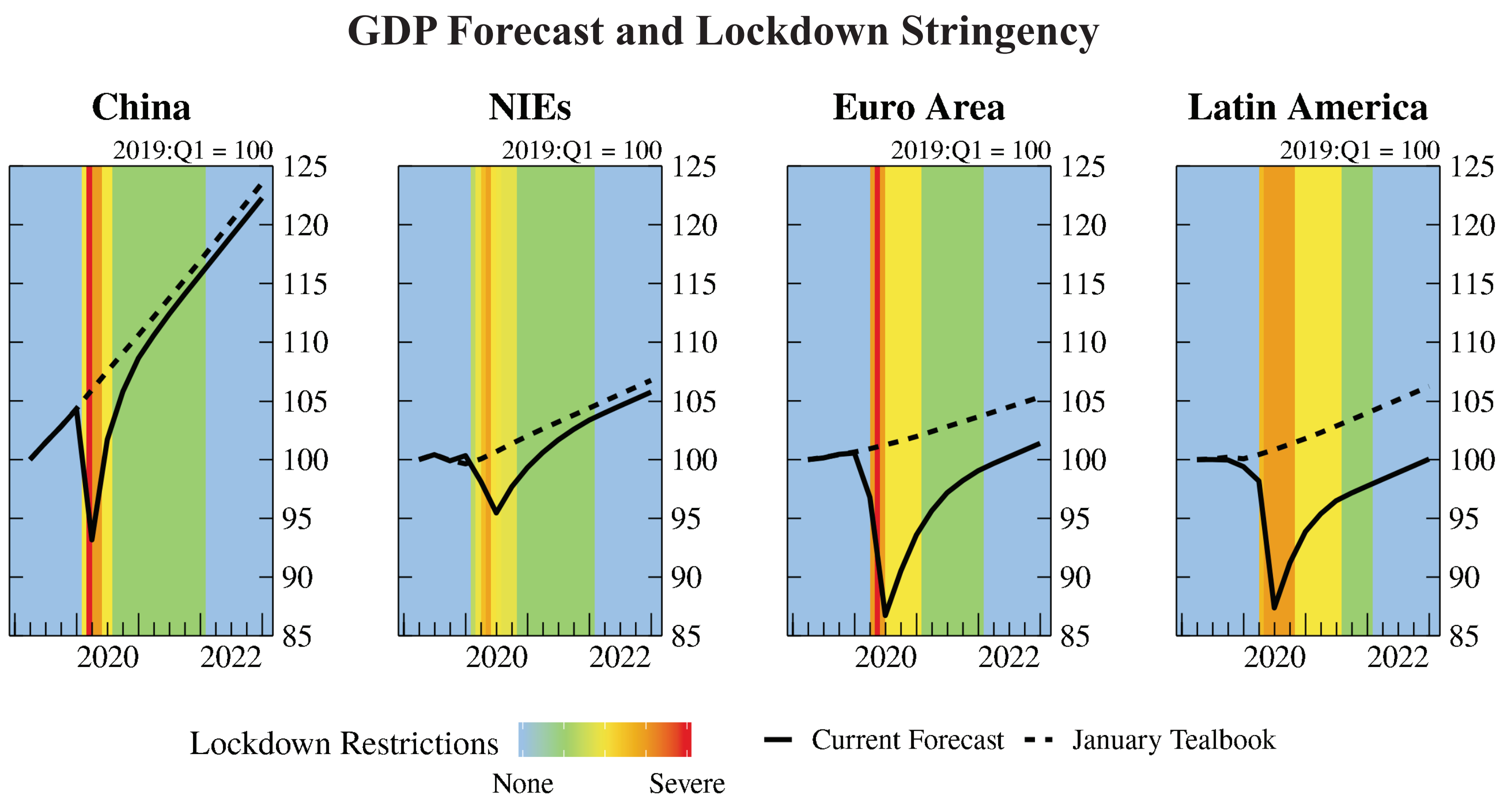
		Emerging Asia					Major Advanced Foreign Economies				Latin America	
		China	Hong Kong	Korea	Taiwan	Singapore	Japan	Euro area	Canada	United Kingdom	Brazil	Mexico
Historical	January 2020	Moderate	Moderate	Moderate	None	None	None	None	None	None	None	None
	February 2020	Elevated	Moderate	Moderate	Moderate	Low	Low	None	None	None	None	None
	March 2020	Notable	Notable	Notable	Moderate	Low	Moderate	Notable	Moderate	Low	Notable	Moderate
	April 2020	Notable	Notable	Notable	Moderate	Elevated +	Notable	Elevated	Notable	Notable	Notable	Notable
	May 2020	Moderate –	Moderate –	Moderate –	Low –	Elevated +	Notable	Notable	Notable	Notable	Notable	Notable
Forecast	June 2020	Moderate	Moderate	Moderate	Low –	Notable +	Moderate	Moderate	Notable	Notable	Notable	Notable
	2020:Q3	Low –	Moderate	Moderate	Low	Moderate	Moderate	Moderate	Moderate	Moderate	Notable	Notable
	2020:Q4	Low	Low –	Low –	Low	Low –	Low	Moderate	Moderate	Moderate	Moderate	Moderate
	2021:H1	Low	Low	Low	Low	Low	Low	Low	Low	Low	Moderate	Moderate
	2021:H2	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
	2022	None	None	None	None	None	None	None	None	None	None	None

None	No restrictions
Low	Some restrictions on social interaction and on international travel
Moderate	Some nonessential activity shut down
Notable	Majority of nonessential activity shut down; limited movement; schools closed
Elevated	Shelter in place

Note: + and - signs signify a notch increase and decrease, respectively, in the stringency of measures from the April Tealbook.

Source: Federal Reserve Board staff calculation from University of Oxford's Stringency Index through May 2020 and staff forecasts thereafter.

Foreign forecasts and COVID-19 restrictions



Source: Oxford's Stringency Index; Staff Calculations.
Note: Newly Industrialized Economies (NIEs) include Hong Kong, Singapore, South Korea and Taiwan.

Diminish Uncertainty – Emerging Patterns

- Lockdowns generally effective in controlling the spread of the virus.
- Earlier, more rigorous, and more strategic responses have typically led to less costly experiences.
- Slower and less stringent responses and countries with structural challenges appear to face greater economic costs.

These patterns help shape our baseline outlook – leading us to be more confident about our forecasts for China and East Asia and more concerned about other emerging market economies.

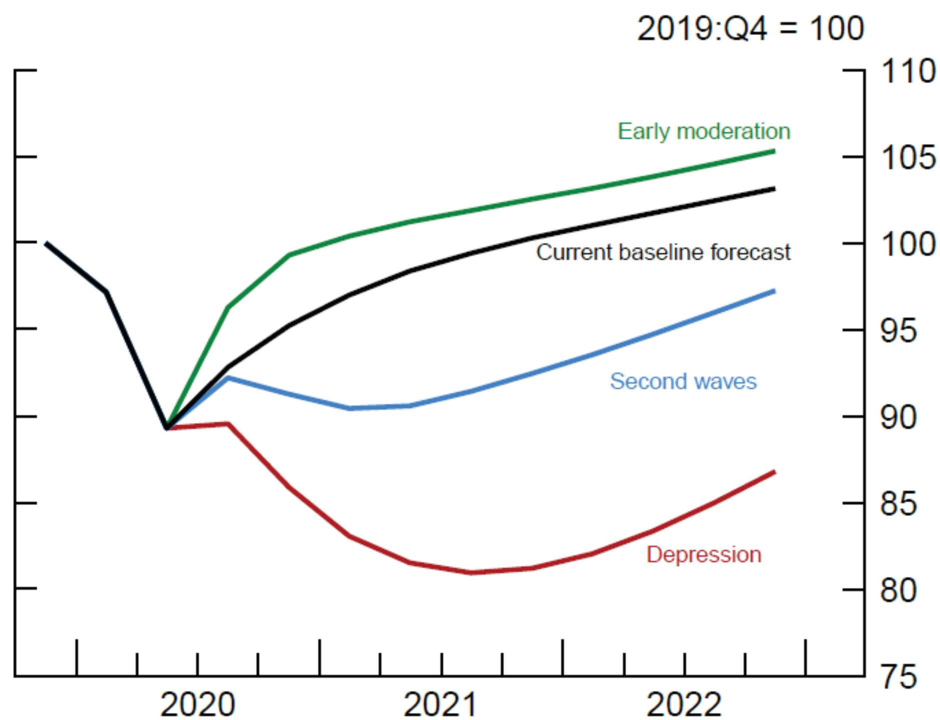
Define Uncertainty – Scenario Analysis

- Early Moderation—faster economic rebound; earlier medical breakthroughs.

- Second Waves – greater difficulty containing the virus; possible resurgence with greater economic, financial, and social costs.

- Depression – virus and its impact trigger financial and political crises.

Foreign GDP: Baseline and Scenarios

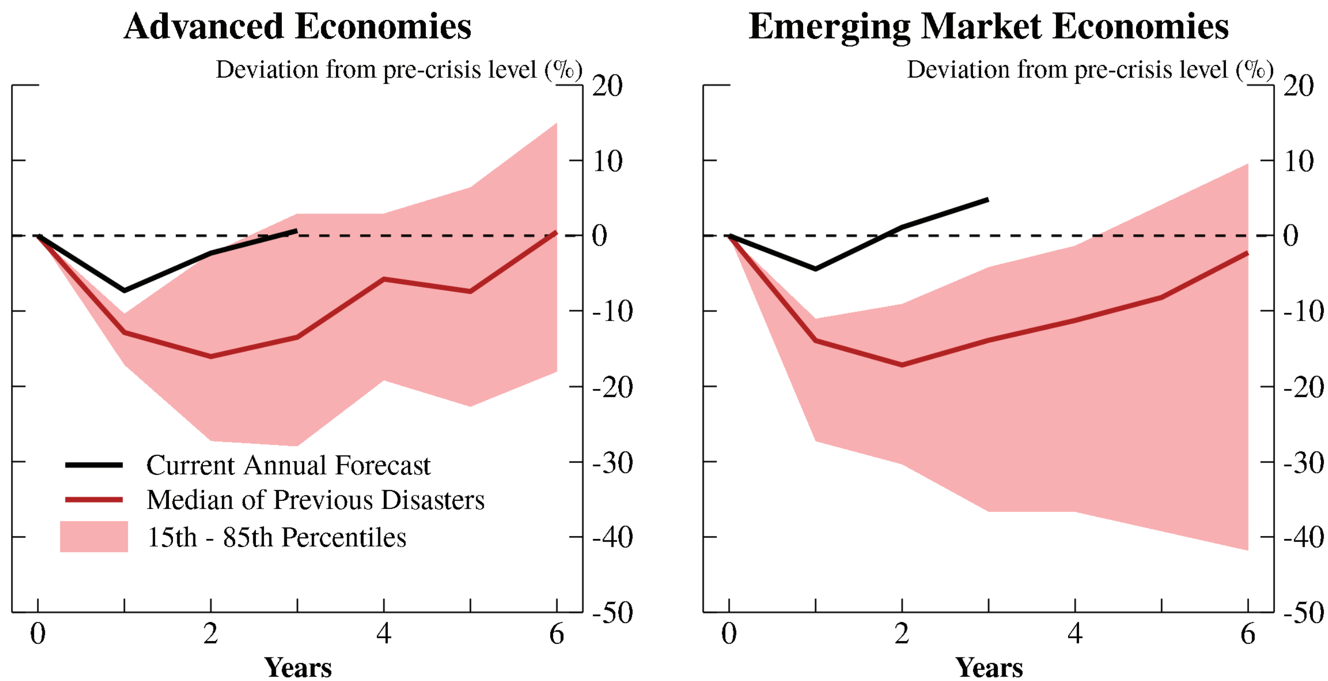


Source: Staff calculations.

Quantify Uncertainty – Past Experiences

- Compared to past extreme macro events, our Tealbook outlook might look too optimistic …

Extreme Macroeconomic Events: 1890 to 2009

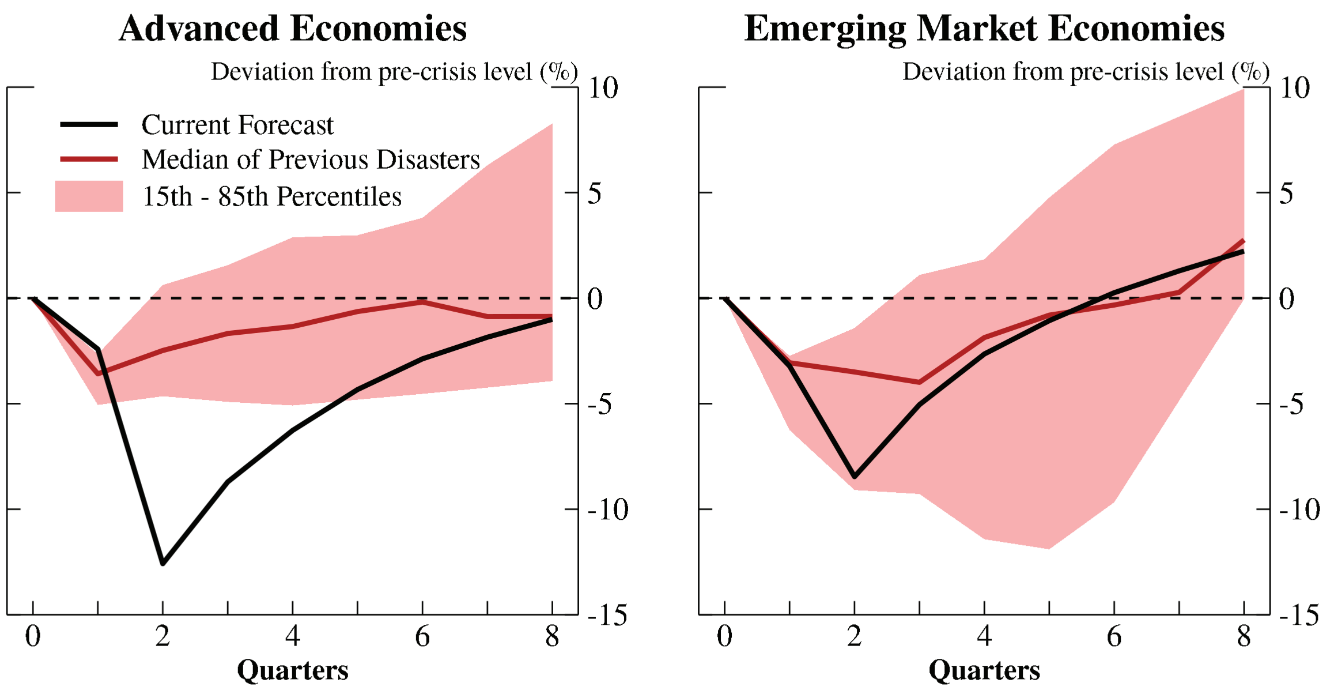


Source: Staff calculations.
Note: Yearly GDP per capita data for a panel of 42 countries from 1890 to 2009 (Barro and Ursua, 2008). There were 21 events for advanced economies and 11 for emerging market economies where annual GDP declined greater than 10 percent. These episodes were overwhelmingly concentrated around WWI, the Spanish Flu, the Great Depression, and WWII.

Quantify Uncertainty – Past Experiences

- … But compared to severe contractions post-WWII, our current projection is initially more negative, but returns to pre-crisis levels in about the same time.

Severe Economic Contractions: 1960 to 2013

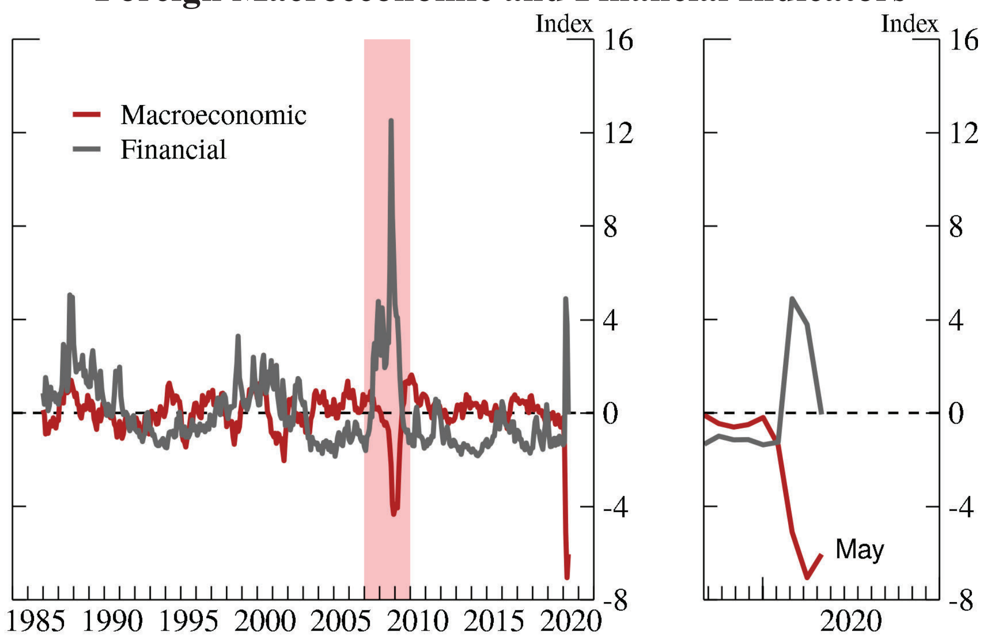


Source: Staff calculations.
Note: Quarterly GDP per capita data for a panel of 54 countries from 1960 to 2013. There were 26 severe contractions for advanced economies and 13 for emerging market economies where quarterly GDP per capita declined greater than 10 percent at an annual rate..

Quantify Uncertainty – Past Experiences (GaR)

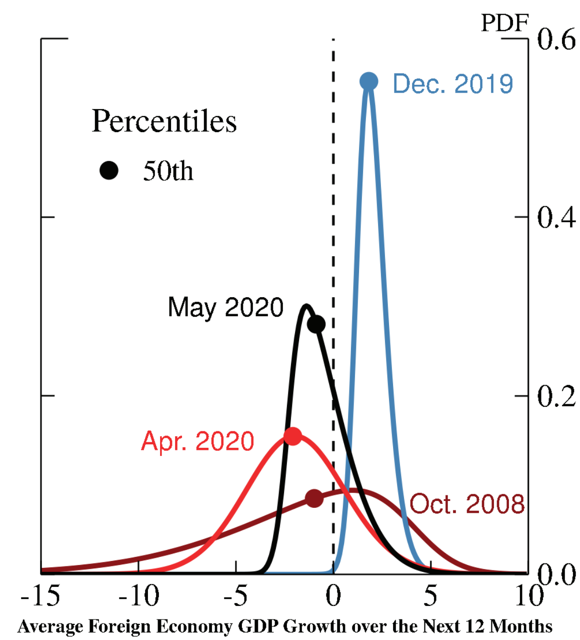
- Framework generates estimates of the range of GDP growth based on current macroeconomic and financial conditions and helps assess uncertainty around future path of GDP.
- Comparing the May and April distributions, we can see the benefits of reduced financial stresses and the risks should financial conditions deteriorate again.

Foreign Macroeconomic and Financial Indicators



Source: Caldara, Cascaldi-Garcia, Cuba-Borda, Loria (2020).

Growth At Risk Distributions



APPENDIX

EME Stress Monitor

TABLE 2: EME FINANCIAL STRESS INDEX

Country	Financial Markets as of March 18	Index Component Score: Low=1, Medium-Low=2, Medium-High=3, High=4						Overall Financial Stress*
		Financial Markets as of May 21	Market Access	Non-Financial Corporations	Sovereign	Banking	Text-Based Analysis	
Taiwan	2	1	1	1.3	1	2.1	1.7	1.4
Singapore	3	1	1	1.7	1	2.6	3.2	1.7
Israel	4	2	2	1.7	1	2.5	2.2	1.9
Thailand	4	2	1	2.3	2	2.3	2.0	1.9
China	3	1	2	2.5	2	2.5	2.2	2.0
Hong Kong	2	1	2	3.3	1	2.2	2.8	2.0
Philippines	4	2	2	1.7	2	2.4	2.3	2.1
Saudi Arabia	4	2	2	1.7	2	2.8	2.2	2.1
Korea	3	2	2	2.5	1	2.5	2.8	2.1
Malaysia	4	2	2	3.0	2	2.6	2.2	2.3
Vietnam	4	2	3	2.0	2	2.8	2.2	2.3
Russia	4	2	2	3.0	3	3.3	1.5	2.5
India	4	2	2	2.7	3	2.9	2.5	2.5
Chile	4	2	2	3.0	2	2.7	3.8	2.6
South Africa	4	3	3	2.0	3	2.5	3.5	2.8
Indonesia	4	4	2	3.7	3	2.3	2.2	2.9
Brazil	4	4	3	2.3	3	2.7	2.5	2.9
Colombia	4	3	3	3.0	3	2.9	2.7	2.9
Mexico	4	3	3	3.3	3	2.7	2.8	3.0
Turkey	4	2	4	3.3	4	3.0	2.3	3.1
Argentina	4	4	4	4.0	4	3.1	3.0	3.7
Avg.	3.7	2.2	2.3	2.6	2.3	2.6	2.5	2.4
Weighted Avg.**	3.4	1.8	2.2	2.6	2.3	2.6	2.3	2.3

*Represents average of component index scores, sorted from lowest to highest stress. ** Weighted by shares of nominal GDP in US$ for 2019.
Color-codes for overall financial stress: Blue=1-1.75, Yellow=1.75-2.5, Orange=2.5-3.25, Red=3.25-4.0

1. **Financial market stress** has fallen substantially since March, when 16 of 21 countries were highly stressed.

2. Stresses are fairly evenly distributed across sectors

3. High- and moderate-stress countries account for a third of the GDP of the group, and **over 10 percent of global GDP**. **Brazil**, **Mexico**, and **India** rank relatively highly on our systemic importance rankings.

Appendix 5: Materials used by Mr. Carlson

Material for Briefing on

Summary of Economic Projections

Mark Carlson
Exhibits and support by Erik Larsson and Craig Chikis
June 9, 2020

Exhibit 1. Economic projections for 2020–22 and over the longer run (percent)

Change in real GDP

	2020	2021	2022	Longer run
Median	-6.5	5.0	3.5	1.8
December projection	2.0	1.9	1.8	1.9
Range	-10.0–-4.2	-1.0–7.0	2.0–6.0	1.6–2.2
December projection	1.8–2.3	1.7–2.2	1.5–2.2	1.7–2.2
Memo: Tealbook	-6.7	6.7	3.6	1.7
December projection	2.1	1.9	1.7	1.7

Unemployment rate

	2020	2021	2022	Longer run
Median	9.3	6.5	5.5	4.1
December projection	3.5	3.6	3.7	4.1
Range	7.0–14.0	4.5–12.0	4.0–8.0	3.5–4.7
December projection	3.3–3.8	3.3–4.0	3.3–4.1	3.5–4.5
Memo: Tealbook	9.1	5.5	4.3	4.3
December projection	3.5	3.5	3.5	4.4

PCE inflation

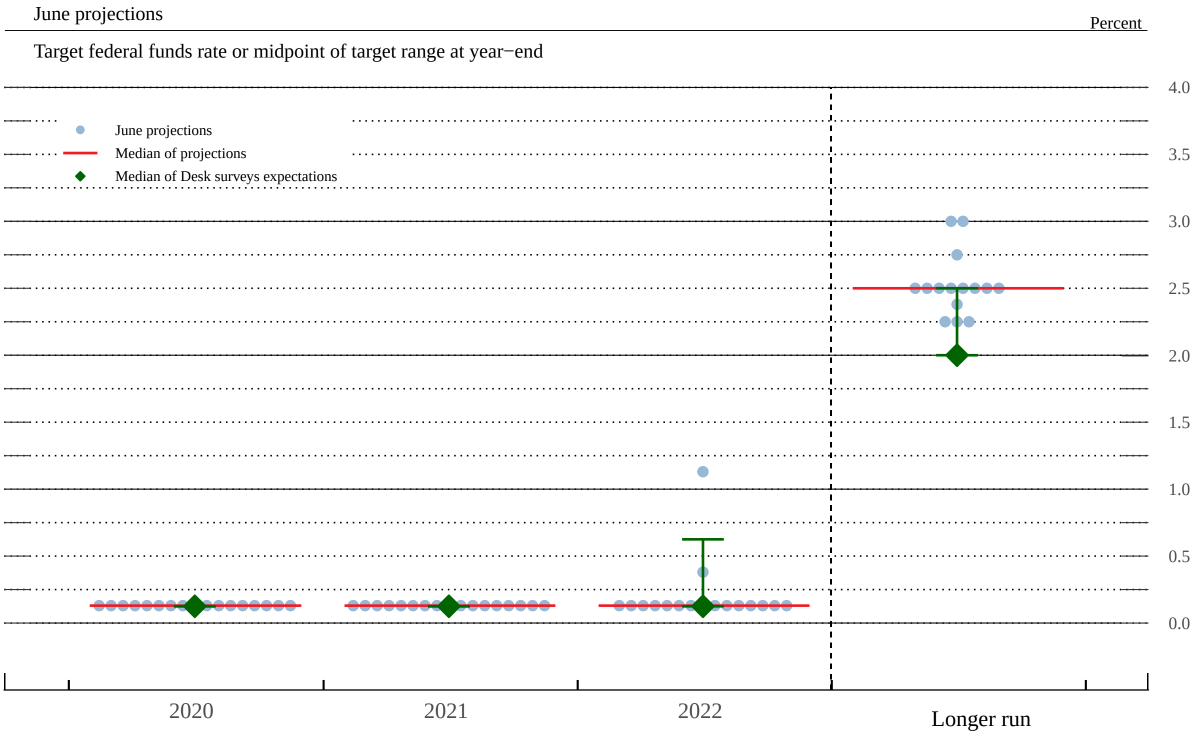
	2020	2021	2022	Longer run
Median	0.8	1.6	1.7	2.0
December projection	1.9	2.0	2.0	2.0
Range	0.5–1.2	1.1–2.0	1.4–2.2	2.0
December projection	1.7–2.1	1.8–2.3	1.8–2.2	2.0
Memo: Tealbook	0.9	1.6	1.8	2.0
December projection	1.7	1.9	1.9	2.0

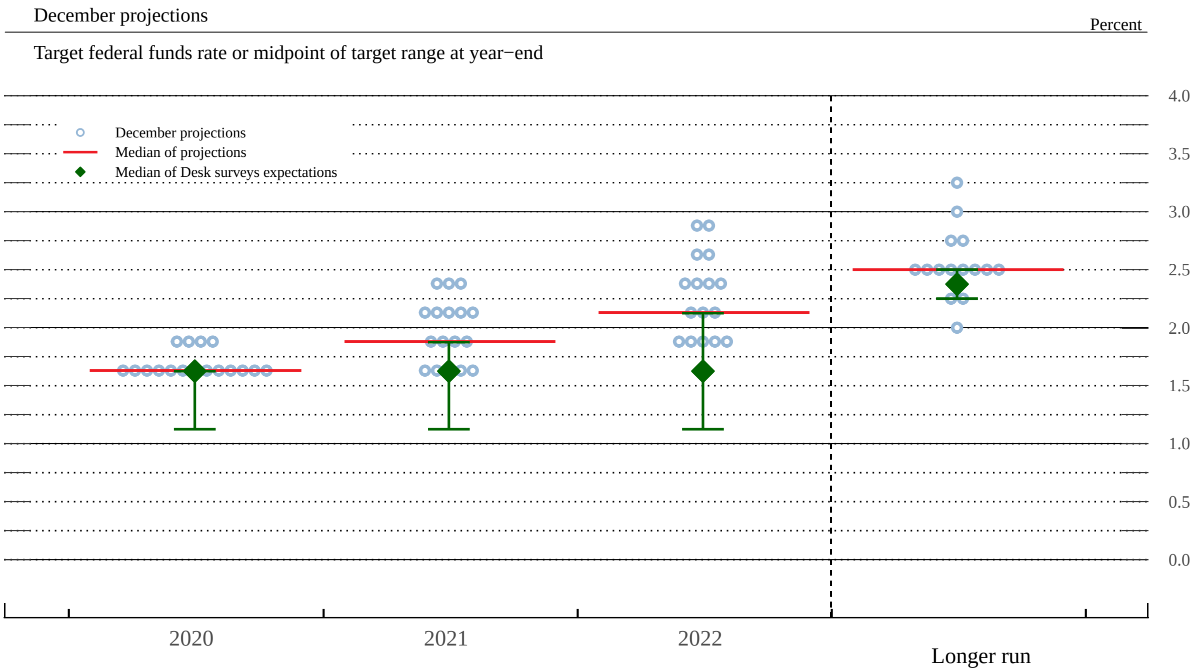
Core PCE inflation

	2020	2021	2022
Median	1.0	1.5	1.7
December projection	1.9	2.0	2.0
Range	0.7–1.3	1.2–2.0	1.2–2.2
December projection	1.7–2.1	1.8–2.3	1.8–2.2
Memo: Tealbook	1.1	1.6	1.7
December projection	1.9	1.9	1.9

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 December 10–11, 2019, meeting, and one participant did not submit such projections in conjunction with the June 9–10, 2020, meeting.

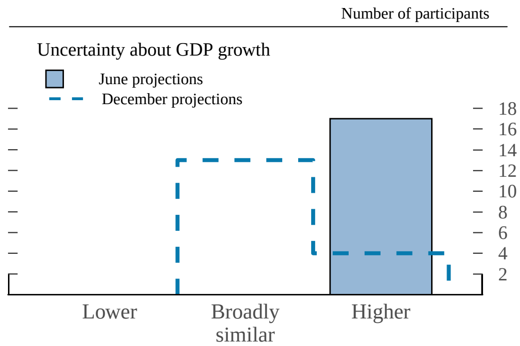
Exhibit 2. Overview of FOMC participants' assessments of appropriate monetary policy

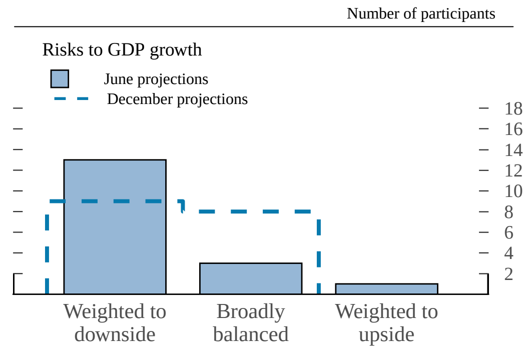


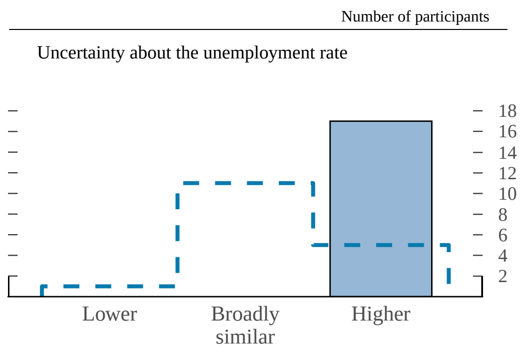


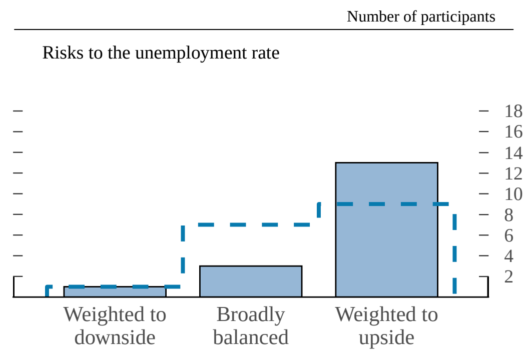
Note: In these two panels, each blue dot indicates the value (rounded to 1/8 percentage point) of an individual participant's judgment of the midpoint of the appropriate target range for the federal funds rate, or the appropriate target level for that rate, at the end of the specified year or over the longer run. One participant did not submit longer-run projections for the federal funds rate. Each green diamond represents the most likely outcomes reported by the median respondent to the Desk's surveys of primary dealers and market participants for the periods in the surveys that encompass the final quarter of each calendar year shown. The green whiskers show, for each corresponding time period, the interquartile range of the distribution of most likely outcomes reported in the Desk surveys.

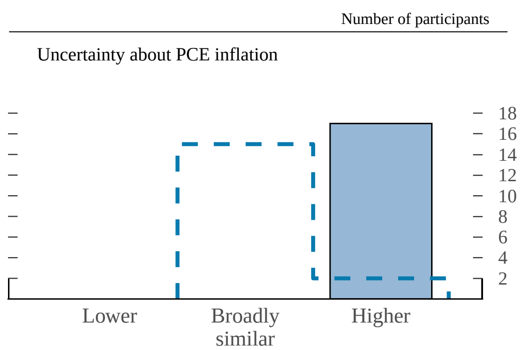
Exhibit 3. Uncertainty and risks in economic projections

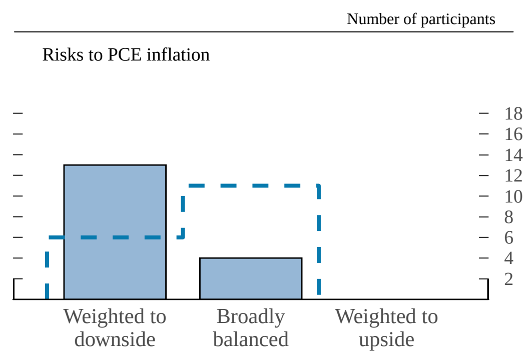


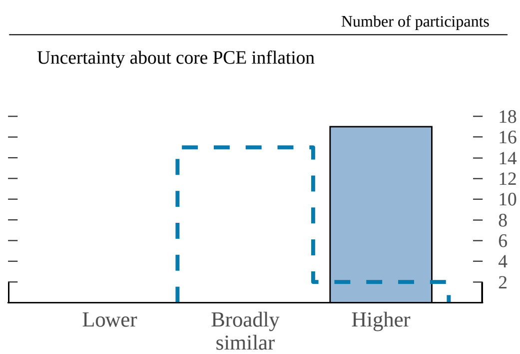


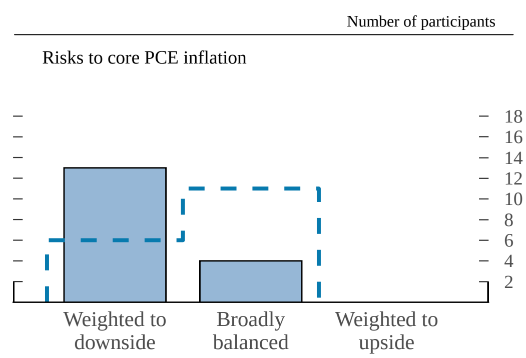












Appendix 6: Materials used by Ms. Edge

Class I FOMC – Restricted Controlled (FR)

Material for the Briefing on

Monetary Policy Alternatives

Rochelle M. Edge
Exhibits by Gurubala Kotta
June 9-10, 2020

Monetary Policy Considerations

Optimal Control Simulations

- Solve for the optimal path of the federal funds rate
- Rely on three inputs
  - A loss function
  - An outlook for the economy
  - A macroeconomic model

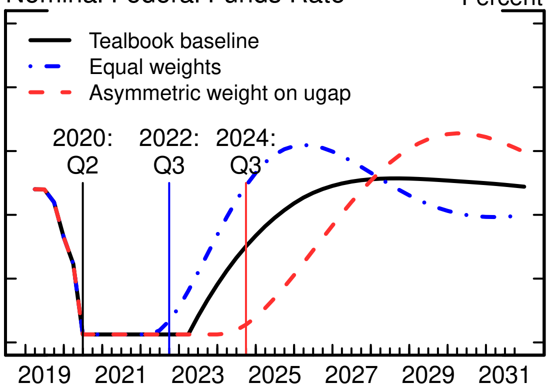
Optimal Control Simulations: Conditions Associated with Liftoff

	Date	Unemp. Rate* (percent)	Unemp. Gap* (p.p.)	Core PCE Inflation* (4–qtr. pct. ch.)
TB baseline, equal weights	2022:Q3	5.2	0.4	1.5
TB baseline, asymm. weight	2024:Q3	3.2	–1.3	2.1
Second waves, equal weights	2027:Q3	3.3	–1.0	1.6
Second waves, asymm. weight	2030:Q1	1.4	–2.9	2.4

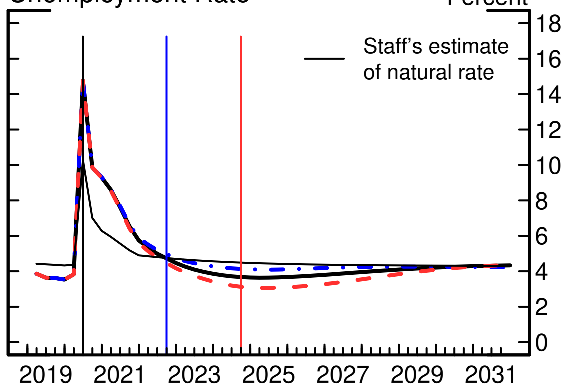
*Note: Values are for the quarter before liftoff.

Simulations Conditioned on the May 2020 Tealbook Baseline

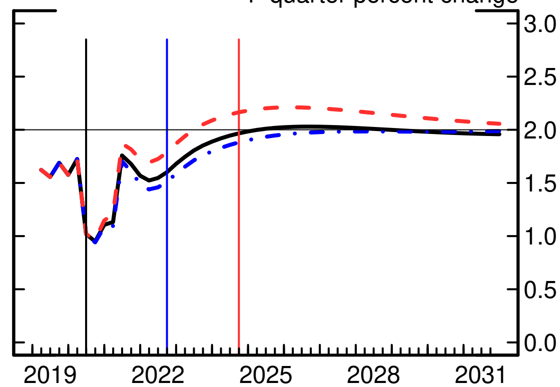
Nominal Federal Funds Rate Percent



Unemployment Rate Percent

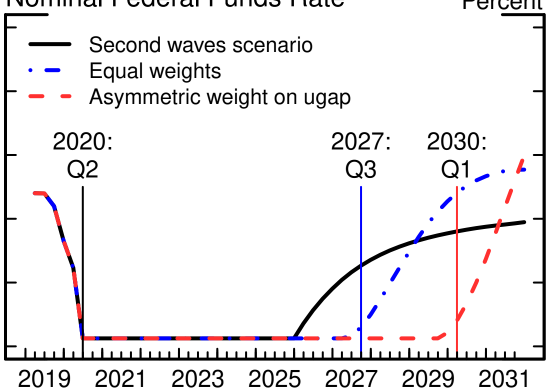


Core PCE Inflation 4–quarter percent change

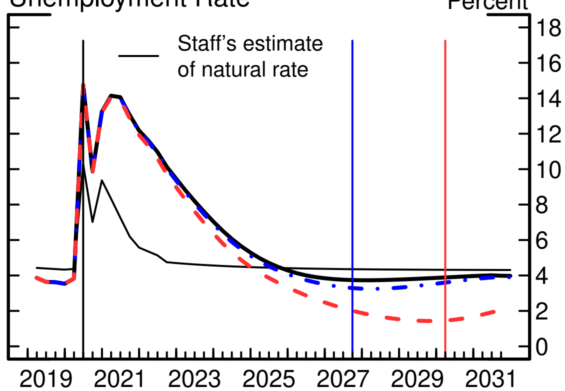


Simulations Conditioned on the May 2020 Tealbook Second Waves Scenario

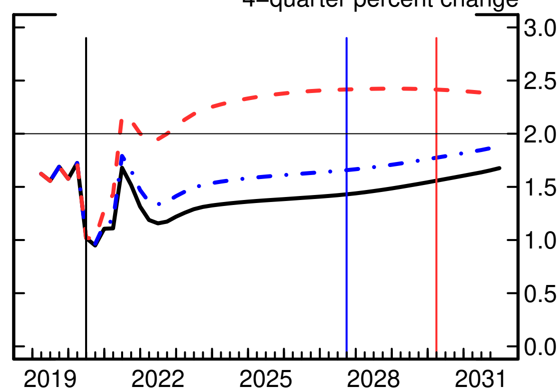
Nominal Federal Funds Rate Percent



Unemployment Rate Percent



Core PCE Inflation 4–quarter percent change



April 2020 FOMC Statement

1. The Federal Reserve is committed to using its full range of tools to support the U.S. economy in this challenging time, thereby promoting its maximum employment and price stability goals.

2. The coronavirus outbreak is causing tremendous human and economic hardship across the United States and around the world. The virus and the measures taken to protect public health are inducing sharp declines in economic activity and a surge in job losses. Weaker demand and significantly lower oil prices are holding down consumer price inflation. The disruptions to economic activity here and abroad have significantly affected financial conditions and have impaired the flow of credit to U.S. households and businesses.

3. The ongoing public health crisis will weigh heavily on economic activity, employment, and inflation in the near term, and poses considerable risks to the economic outlook over the medium term. In light of these developments, the Committee decided to maintain the target range for the federal funds rate at 0 to 1/4 percent. The Committee expects to maintain this target range until it is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals.

4. The Committee will continue to monitor the implications of incoming information for the economic outlook, including information related to public health, as well as global developments and muted inflation pressures, and will use its tools and act as appropriate to support the economy. In determining the timing and size of future adjustments to the stance of monetary policy, 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.

5. To support the flow of credit to households and businesses, the Federal Reserve will continue to purchase Treasury securities and agency residential and commercial mortgage-backed securities in the amounts needed to support smooth market functioning, thereby fostering effective transmission of monetary policy to broader financial conditions. In addition, the Open Market Desk will continue to offer large-scale overnight and term repurchase agreement operations. The Committee will closely monitor market conditions and is prepared to adjust its plans as appropriate.

Draft of the June 2020 FOMC Statement

1. The Federal Reserve is committed to using its full range of tools to support the U.S. economy in this challenging time, thereby promoting its maximum employment and price stability goals.

2. The coronavirus outbreak is causing tremendous human and economic hardship across the United States and around the world. The virus and the measures taken to protect public health ~~are inducing~~ **have induced** sharp declines in economic activity and a surge in job losses. Weaker demand and significantly lower oil prices are holding down consumer price inflation. ~~The disruptions to economic activity here and abroad have significantly affected~~ Financial conditions ~~and~~ have ~~impaired~~ **improved, in part reflecting policy measures to support the economy and** the flow of credit to U.S. households and businesses.

3. The ongoing public health crisis will weigh heavily on economic activity, employment, and inflation in the near term, and poses considerable risks to the economic outlook over the medium term. In light of these developments, the Committee decided to maintain the target range for the federal funds rate at 0 to 1/4 percent. The Committee expects to maintain this target range until it is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals.

4. The Committee will continue to monitor the implications of incoming information for the economic outlook, including information related to public health, as well as global developments and muted inflation pressures, and will use its tools and act as appropriate to support the economy. In determining the timing and size of future adjustments to the stance of monetary policy, 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.

5. To support the flow of credit to households and businesses, **over coming months** the Federal Reserve will ~~continue to purchase~~ **increase its holdings of** Treasury securities and agency residential and commercial mortgage-backed securities ~~in the amounts needed~~ **at least at the current pace** to ~~support~~ **sustain** smooth market functioning, thereby fostering effective transmission of monetary policy to broader financial conditions. In addition, the Open Market Desk will continue to offer large-scale overnight and term repurchase agreement operations. The Committee will closely monitor ~~market conditions~~ **developments** and is prepared to adjust its plans as appropriate.

Implementation Note for June 2020

Release Date: June 10, 2020

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 ~~April 29~~ **June 10**, 2020:

- The Board of Governors of the Federal Reserve System voted **[** unanimously **]** to maintain the interest rate paid on required and excess reserve balances at 0.10 percent, effective ~~April 30~~ **June 11**, 2020.
- 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 ~~April 30~~ **June 11**, 2020, 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 0 to 1/4 percent.
  - Increase the System Open Market Account holdings of Treasury securities, agency mortgage-backed securities (MBS), and agency commercial mortgage-backed securities (CMBS) ~~in the amounts needed~~ **at least at the current pace** to ~~support the~~ **sustain** smooth functioning of markets for these securities**, thereby fostering effective transmission of monetary policy to broader financial conditions**.
  - Conduct term and overnight repurchase agreement operations to support effective policy implementation and the smooth functioning of short-term U.S. dollar funding markets.
  - Conduct overnight reverse repurchase agreement operations at an offering rate of 0.00 percent and with a per-counterparty limit of $30 billion per day; the per-counterparty limit can be temporarily increased at the discretion of the Chair.
  - Roll over at auction all principal payments from the Federal Reserve's holdings of Treasury securities and reinvest all principal payments from the Federal Reserve's holdings of agency debt and agency MBS in agency MBS and all principal payments from holdings of agency CMBS in agency CMBS.
  - **Allow modest deviations from stated amounts for purchases and reinvestments, if needed for operational reasons.**
  - Engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS 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 0.25 percent.

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

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

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

Interest on excess reserve balances

Leave the interest rate paid on required and excess reserve balances unchanged at 0.10 percent.

Establishment of the primary, secondary, and seasonal credit rates

Approve establishment of the primary credit rate at the existing rate of 0.25 percent and establishment of the rates for secondary and seasonal credit under the existing formulas specified in the staff's June 5, 2020, memo to the Board.