Prefatory Note

The attached document represents the most complete and accurate version available based on original files from the FOMC Secretariat at the Board of Governors of the Federal Reserve System.

Please note that some material may have been redacted from this document if that material was received on a confidential basis. Redacted material is indicated by occasional gaps in the text or by gray boxes around non-text content. All redacted passages are exempt from disclosure under applicable provisions of the Freedom of Information Act.

Class I FOMC – Restricted Controlled (FR)

Report to the FOMC on Economic Conditions and Monetary Policy

Book B

Monetary Policy Alternatives

April 23, 2020

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

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Monetary Policy Alternatives

The numerous actions undertaken by the Federal Reserve since March and the extraordinary uncertainty associated with the economic outlook will bear importantly on policymakers' thinking regarding the appropriate path for monetary policy. In particular, at this meeting, policymakers may judge that the current stance of monetary policy—including the federal funds rate at its effective lower bound, the associated forward guidance regarding the federal funds rate, and substantial ongoing asset purchases—remains appropriately accommodative for the time being. At this time, they may judge that the immediate priority is to ensure that the various lending facilities established by the Federal Reserve in recent weeks are indeed capable of enabling these accommodative policies to be effectively transmitted to broader financial conditions and to the economy more generally. Accordingly, only a single draft policy statement for the April FOMC meeting is presented below. In this draft statement, the Committee maintains the target range for the federal funds rate at 0 to ¼ percent and continues purchasing Treasury securities and agency residential and commercial mortgage backed securities to support the smooth functioning of financial markets.

In the absence of multiple draft statements, this section describes the draft policy statement and notes the specific revisions in language relative to the March 15 and March 23 FOMC statements. Next, it presents some possible rationales for the draft statement, drawing on the economic outlook. It concludes by presenting the FOMC statements from March 15 and March 23, and finally the current draft statement and associated implementation note.

Revisions to the Statement Language

The draft statement combines elements from both the March 15 (in black text) and the March 23 (in green text) FOMC statements. It begins with the declaration that the "Federal Reserve is committed to using its full range of tools to support the U.S. economy in this challenging time." As in the March 23 statement, this language also signals the Committee's readiness to take additional action as needed.

The next paragraph begins by acknowledging the "tremendous human and economic hardship" caused by the coronavirus outbreak. In contrast to the usual more detailed review of the incoming data, the draft statement provides a high-level description of the dramatic deterioration in economic conditions that has occurred in the wake of the coronavirus outbreak, including the "sharp declines in economic activity," "a surge in job losses," and impairment to "the flow of credit to U.S. households and businesses." On inflation, the statement notes: "Weaker demand and significantly lower oil prices are holding down consumer price inflation."

The third paragraph describes the current policy decision and the outlook for policy. Relative to the March 15 statement, the new text notes that 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." The draft statement leaves the current stance of monetary policy unchanged, with the target range for the federal funds rate remaining at 0 to ¼ percent, and it retains the forward guidance that 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." The paragraph no longer includes the sentence reaffirming the dual mandate goals, as these are declared firmly in the opening paragraph of the statement. Reflecting the unprecedented detrimental economic effects of the coronavirus, the paragraph also deletes the sentence from the March 15 statement that referred to strong labor market conditions and inflation returning to 2 percent.

The fourth paragraph is unchanged from the March 15 statement. It notes that the Committee will continue to monitor "information related to public health" and will "use its tools and act as appropriate to support the economy." The final paragraph—which is largely based on the March 23 statement—reiterates the Committee's intention to purchase Treasury securities and agency residential and commercial mortgage-backed securities "in the amounts needed" to support smooth market functioning and effective monetary policy transmission.

Rationales for the Statement

With regard to the rationale underlying the draft statement, policymakers may judge that with the recent extraordinary actions taken by the Federal Reserve—including setting the federal funds rate at the effective lower bound, the associated forward guidance, and substantial ongoing asset purchases—there is not an immediate need to adjust the stance of monetary policy. At this time, they may judge that the priority is to ensure that these accommodative policies are effectively transmitted to broader financial conditions and the economy more generally and that as the effects of past easing in monetary policy and measures to support the flow of credit are more fully reflected in financial market conditions and as the contours of the economic downturn come into sharper focus, the Committee can adapt and refine its monetary policy actions and communications as necessary. Until then, the Committee may want to maintain the current stance of policy while signaling that it stands ready to adjust policy in the future.

With regard to the economic outlook, policymakers may broadly share the staff's assessment of the unprecedented magnitude of the ongoing economic disruption. The staff projects GDP to decline at an annual rate of more than 35 percent this quarter and then to rapidly rebound in the second half of the year, with GDP ending the year about 4 percent below its level of a year earlier. The April employment report is expected to show an unprecedented decline in payrolls of over 21 million jobs, and the unemployment rate is expected to peak at 18 percent in May before falling back to 14 percent in June and to just below 8 percent by the end of the year.

The staff has further revised down its inflation projection for this year, as downward pressures—notably the emergence of substantial economic slack, lower energy prices, and the stronger dollar—are seen to dominate the upward pressures on prices arising from disruptions to production and supply chains. Core PCE inflation is expected to be 1.4 percent this year, with total inflation markedly lower because of the steep drop in oil prices. Staff projections for both total and core PCE inflation then increase to 1.8 percent and 1.7 percent, respectively, in 2022, as the economy recovers. Despite the tumultuous situation, preliminary April survey-based measures of longer-term inflation expectations are little changed. In contrast, market-based measures of inflation compensation have been volatile amid strained liquidity conditions and dramatic movements in oil prices.

There is extraordinary uncertainty about the path of the coronavirus outbreak and the economic outlook at this time, and policymakers may judge that the nature and scale of additional monetary policy actions to support the Committee's objectives will be more easily determined after some of the uncertainties regarding the evolution of public health and social-distancing restrictions are resolved. In particular, they may note that the staff's economic outlook is premised on the assumption that there will be substantial loosening of social-distancing restrictions by year-end. By contrast, in the "Second Waves" scenario described in the Risks and Uncertainty section of Tealbook A, the staff assumes that significant further outbreaks occur later this year, requiring a second round of strict social-distancing measures into next year. Under this scenario, which the staff views as about as plausible as the baseline, the unemployment rate jumps back up to near 13 percent by the end of next year, inflation drops below 1.5 percent, and the scars of the pandemic are longer lasting. The unprecedented depth, speed, and nature of the downturn, along with the uncertain outlook, make it especially hard to judge the timing and trajectory of the eventual recovery.

Amid the dramatic deterioration in the economic outlook, the Federal Reserve has taken numerous actions to support economic activity and financial market functioning and to facilitate the flow of credit to households and businesses. Policymakers may judge that, with the federal funds rate at its effective lower bound, the stance of policy is currently very accommodative. They may also judge that their forward guidance has given market participants confidence that this accommodative stance will be maintained for the next couple of years, as suggested by responses to the latest Desk's surveys. Policymakers may further believe that the ongoing asset purchases to preserve smooth financial market functioning and secure effective policy transmission (as described in the Balance Sheet Projections section of Tealbook B) are also putting downward pressure on longer-term interest rates; despite substantial upcoming Treasury debt issuance, the 10-year nominal Treasury yield stands around 70 basis points. Policymakers may see these actions as providing policy accommodation that is consistent with the Committee's goals.

Policymakers may also judge that in the coming weeks, additional detail regarding the implementation of Federal Reserve lending programs as well as the programs' initial effects, the extent of fiscal stimulus, and the strategy for reopening the economy will be clearer. Against this background, policymakers might prefer to keep the stance of monetary policy unchanged at this meeting by maintaining the target range for the federal funds rate at 0 to ¼ percent and retaining the existing forward guidance. In the meantime, policymakers may want to signal their readiness to adjust policy and refine communications about the Committee's policy intentions in the future. This idea is captured by the opening statement that the "Federal Reserve is committed to using its full range of tools to support the U.S. economy," as well as by the statement in the fourth paragraph that the Committee will "use its tools and act as appropriate to support the economy."

In light of recent financial market volatility, it is difficult to anticipate how market participants would react to an FOMC statement along the lines of the draft policy statement. Financial market quotes and responses to the Desk's latest surveys suggest that market participants expect the FOMC to keep the target range for the federal funds rate at its current level for at least the next 1½ years. A majority of Desk survey respondents who provided expectations about forward guidance indicated that they do not expect a change at this meeting to the forward guidance provided in the Committee's March 15 statement. Furthermore, the modest updates to the statement language, including the description of the deteriorating conditions in the second paragraph and the acknowledgment that "the effects of the coronavirus will weigh heavily on economic activity, employment, and inflation in the near term" are not at odds with recent communications. Consequently, the effect of an announcement like the draft policy statement on the expected path of short-term interest rates and on the prices of financial assets could be modest. As noted above, however, market reactions are particularly difficult to gauge in the current environment.

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Monetary Policy Expectations and Uncertainty

Federal funds rate expectations declined over the intermeeting period amid mounting fallout from the COVID-19 outbreak on the global economy. Measures based on financial market quotes suggest that the federal funds rate is expected to remain at the effective lower bound for at least the next 1½ years. Similarly, the median forecast from the Desk's April surveys of primary dealers and market participants places the most likely federal funds target range at its current level of 0 to 0.25 percent until the end of 2022.

The probability distribution for the federal funds rate after the April FOMC meeting, as derived from a straight read on option quotes, implies an unchanged target range with near certainty (not shown). For the end of 2020, the option-implied probability that the effective funds rate will be within its current target range is around 40 percent, with about 35 percent probability that it will be at or below zero (figure 1). Moreover, figure 2 shows that the option-implied probability of negative short-term interest rates one year ahead based on three-month LIBOR, without adjusting for risk premiums, has reached historic highs of late, exceeding the elevated levels seen in early 2016.[1] At the same time, the average across Desk survey respondents' probability distributions for the federal funds rate at the end of 2020 places odds of around 90 percent on the 0 to 0.25 percent range and assigns negligible probability to policy rates below zero (figure 3). In addition, a vast majority of survey participants continued to judge the level of the ELB on the federal funds rate to be at or above zero, reportedly in line with broader market commentary. Thus, a sizeable portion of the option-implied probabilities of negative rates is likely due to risk premiums on particularly adverse economic outcomes rather than investor expectations that the target range would be set below zero.[2] Consistent with this interpretation, a more granular analysis of the option-implied probabilities in figure 1 reveals that a sizeable portion of the probability of negative outcomes is on only modestly negative realized effective rates.

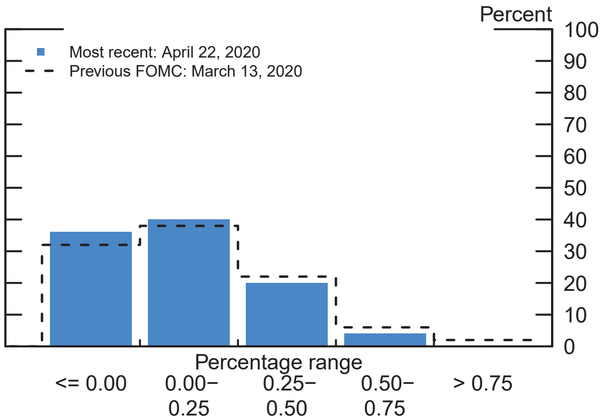
[1] In early 2016, investor speculation about the future possibility of negative short-term interest rates in the U.S. intensified after the Bank of Japan cut its interest rate on excess reserves into negative territory, despite previously communicating they would not introduce negative rates.

While the reporting commitment of banks participating in the determination of LIBOR ends at the end of 2021, contracts tied to LIBOR with maturities well beyond 2021 continue to be actively traded.

The current spread between three-month LIBOR and the three-month OIS rate is 95 basis points. Over the last year, it has fluctuated between 12 and 138 basis points, with an average of about 35 basis points. Looking back further, this spread was larger during the financial crisis in 2008, in part due to the credit risk embedded in LIBOR, and was on average about 100 basis points between December 2007 and June 2009, with a peak level of 364 basis points in October 2008.

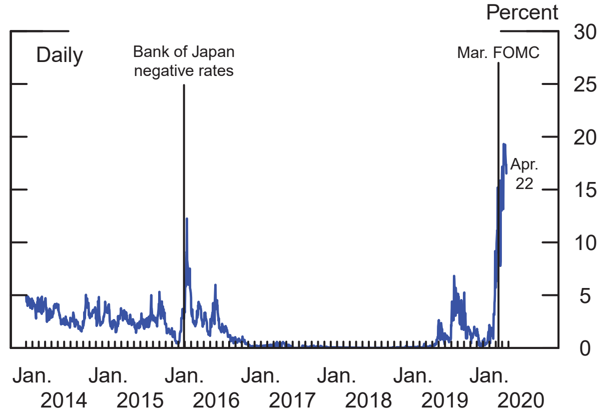
[2] In addition to risk premiums, option quotes may, at times, be affected by low liquidity.

Figure 1: Market−Implied Probability Distribution of the Federal Funds Rate, Year−End 2020



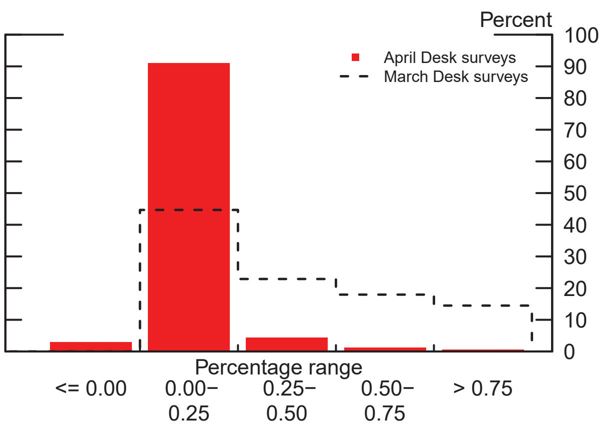
Note: Estimated from federal funds futures options, not adjusted for risk premiums. The distribution for January 2021 is used to provide a read on the distribution at the end of 2020.
Source: CME Group; Board staff calculations.

Figure 2: Market−Based Probability of 3−Month LIBOR Turning Negative 1 Year Ahead



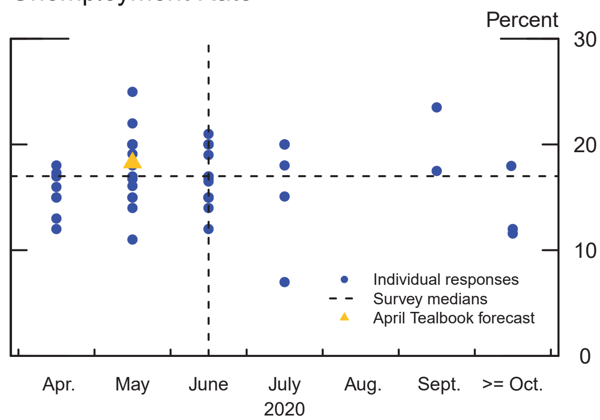
Note: Estimated from options on Eurodollar futures using a model based on a mixture of normal distributions.
Source: CME Group; Board staff calculations.

Figure 3: Desk Surveys Probability Distribution of the Federal Funds Rate, Year−End 2020



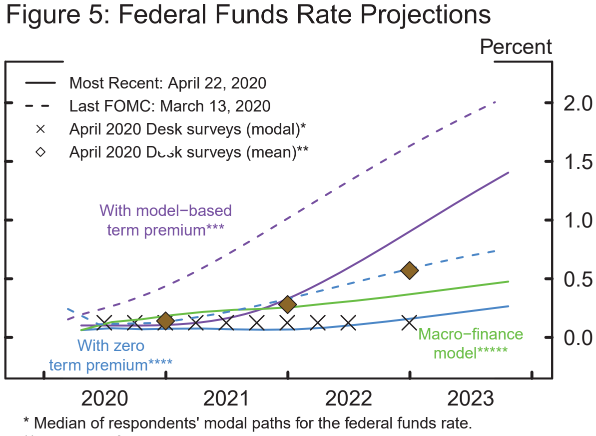
Note: Probabilities are the averages of the probabilities assigned by respondents to the Survey of Market Participants and Survey of Primary Dealers to different ranges of the federal funds rate at the end of 2020.
Source: FRBNY.

Figure 4: Timing and Level of Peak Unemployment Rate



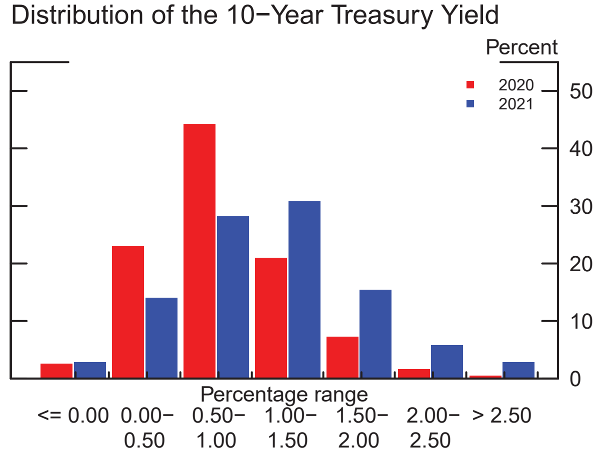
Note: Based on all responses from the April 2020 Desk surveys. Respondents were asked for their expectations regarding the level and timing of the next peak in the U−3 unemployment rate.
Source: FRBNY; Board staff calculations.

Figure 5: Federal Funds Rate Projections



* Median of respondents' modal paths for the federal funds rate.
** Estimated from respondents' unconditional year−end probability distributions.
*** Adjusting for premiums using a term structure model maintained by Board staff.
**** Estimated using overnight index swap quotes with a spline approach and a term premium of zero basis points.
***** Macro−finance model path is estimated by averaging over regressions of survey−OIS gaps on the covariances between real and nominal variables based on Diercks and Carl (2019).
Source: Bloomberg; Board staff calculations; FRBNY.

Figure 6: April Desk Surveys Probability Distribution of the 10−Year Treasury Yield



Note: Probabilities are the averages of the probabilities assigned by respondents to the Survey of Market Participants and Survey of Primary Dealers to different ranges of the 10−year treasury yield at the end of 2020 and 2021.
Source: FRBNY.

Near-term policy expectations reflect an acute deterioration in the economic outlook due to COVID-19. Desk survey respondents assigned average probabilities of 97 percent and 59 percent to the U.S. economy being in a recession now and in six months, respectively (up from 24 percent and 45 percent, respectively, in March). Figure 4 shows Desk survey respondents' modal projections for the timing and level of the next peak of the U.S. unemployment rate. While the majority of respondents consider it most likely that unemployment will peak by mid-year, there is substantial disagreement about its most likely peak level, with individual estimates ranging from 7 percent to 25 percent. The survey median projects a peak level of 17 percent, close to the staff's April Tealbook forecast of around 18 percent (the yellow triangle in figure 4).

Looking further ahead, the expected path of the federal funds rate over the next several years implied by OIS quotes, and without adjusting for term premiums, has flattened noticeably since the March FOMC meeting, and it now consists of an expected rate path that remains within the current target range until mid-2023 (the solid blue line in figure 5). The expected path implied by a staff macro-finance model (the green line) is only a touch above the unadjusted forward rates, while the median across Desk survey respondents' modal paths for the federal funds rate (the black crosses) is flat at the lower bound through the end of 2022 (the end of the survey forecast horizon).[3] The average of respondents' mean expectations in the Desk surveys (the gold diamonds) increases gradually after the end of 2020, consistent with uncertainty about the federal funds rate that is tilted to the upside at the lower bound. Similarly, a staff term structure model that adjusts OIS forward rates for term premiums points to increasing policy rate expectations beyond mid-2021 (the solid purple line).

The Desk surveys also asked respondents to report their probability distributions for the 10-year Treasury yield at the ends of 2020 and 2021.[4] The average distributions, shown in figure 6, suggest that respondents on average considered it most likely that the 10-year yield would be close to its current level (about 0.7 percent) at the end of 2020 and somewhat above its current level at the end of 2021. However, respondents, on average, assigned meaningful probabilities of 30 percent and 55 percent that the 10-year Treasury yield would exceed 1 percent at the end of 2020 and 2021, respectively.

[3] The median of survey respondents' modal forecasts for the "longer-run" federal funds rate declined by 25 basis points to 2.0 percent.

[4] Relatedly, Desk survey respondents' expectations for the size and composition of the Federal Reserve's balance sheet are discussed in the Balance Sheet Projections section of this Tealbook.

MARCH 2020 FOMC STATEMENTS

March 15 Statement

1. The coronavirus outbreak has harmed communities and disrupted economic activity in many countries, including the United States. Global financial conditions have also been significantly affected. Available economic data show that the U.S. economy came into this challenging period on a strong footing. Information received since the Federal Open Market Committee met in January indicates that the labor market remained strong through February and economic activity rose at a moderate rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Although household spending rose at a moderate pace, business fixed investment and exports remained weak. More recently, the energy sector has come under stress. 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 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. The effects of the coronavirus will weigh on economic activity in the near term and pose risks to the economic outlook. In light of these developments, the Committee decided to lower the target range for the federal funds rate to 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. This action will help support economic activity, strong labor market conditions, and inflation returning to the Committee's symmetric 2 percent objective.

3. 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.

4. The Federal Reserve is prepared to use its full range of tools to support the flow of credit to households and businesses and thereby promote its maximum employment and price stability goals. To support the smooth functioning of markets for Treasury securities and agency mortgage-backed securities that are central to the flow of credit to households and businesses, over coming months the Committee will increase its holdings of Treasury securities by at least $500 billion and its holdings of agency mortgage-backed securities by at least $200 billion. The Committee will also reinvest all principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities. In addition, the Open Market Desk has recently expanded its overnight and term repurchase agreement operations. The Committee will continue to closely monitor market conditions and is prepared to adjust its plans as appropriate.

March 23 Statement

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

2. The Federal Open Market Committee is taking further actions to support the flow of credit to households and businesses by addressing strains in the markets for Treasury securities and agency mortgage-backed securities. The Federal Reserve will continue to purchase Treasury securities and agency mortgage-backed securities in the amounts needed to support smooth market functioning and effective transmission of monetary policy to broader financial conditions. The Committee will include purchases of agency commercial mortgage-backed securities in its agency mortgage-backed security purchases. In addition, the Open Market Desk will continue to offer large-scale overnight and term repurchase agreement operations. The Committee will continue to closely monitor market conditions, and will assess the appropriate pace of its securities purchases at future meetings.

DRAFT FOMC STATEMENT FOR APRIL 2020

1. The Federal Reserve is committed to us~~e~~**ing** its full range of tools to support the U.S. economy in this challenging time**,** ~~and~~ thereby promot~~e~~**ing** its maximum employment and price stability goals.

2. The coronavirus outbreak ~~has harmed communities and disrupted economic activity in many countries, including the United States~~ **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**. ~~Global financial conditions have also been significantly affected. Available economic data show that the U.S. economy came into this challenging period on a strong footing. Information received since the Federal Open Market Committee met in January indicates that the labor market remained strong through February and economic activity rose at a moderate rate. Job gains have been solid, on average, in recent months, and the unemployment rate has remained low. Although household spending rose at a moderate pace, business fixed investment and exports remained weak. More recently, the energy sector has come under stress. 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 have declined; survey-based measures of longer-term inflation expectations are little changed.~~

3. ~~Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability.~~ The ~~effects of the coronavirus~~ **ongoing public health crisis** will weigh **heavily** on economic activity**, employment, and inflation** in the near term**,** and pose**s considerable** risks to the economic outlook **over the medium term**. In light of these developments, the Committee decided to ~~lower~~ **maintain** the target range for the federal funds rate ~~to~~ **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. ~~This action will help support economic activity, strong labor market conditions, and inflation returning to the Committee's symmetric 2 percent objective.~~

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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. ~~The Federal Reserve is prepared to use its full range of tools to support the flow of credit to households and businesses and thereby promote its maximum employment and price stability goals. To support the smooth functioning of markets for Treasury securities and agency mortgage-backed securities that are central to the flow of credit to households and businesses, over coming months the Committee will increase its holdings of Treasury securities by at least $500 billion and its holdings of agency mortgage-backed securities by at least $200 billion. The Committee will also reinvest all principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities. In addition, the Open Market Desk has recently expanded its overnight and term repurchase agreement operations. The Committee will continue to closely monitor market conditions and is prepared to adjust its plans as appropriate.~~

5. ~~The Federal Open Market Committee is taking further actions~~ To support the flow of credit to households and businesses, ~~by addressing strains in the markets for Treasury securities and agency mortgage-backed securities.~~ 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, ~~and~~ **thereby fostering** effective transmission of monetary policy to broader financial conditions. ~~The Committee will include purchases of agency commercial mortgage-backed securities in its agency mortgage-backed security purchases.~~ In addition, the Open Market Desk will continue to offer large-scale overnight and term repurchase agreement operations. The Committee will ~~continue to~~ closely monitor market conditions~~, and will assess the appropriate pace of its securities purchases at future meetings.~~ and is prepared to adjust its plans as appropriate.

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IMPLEMENTATION NOTE

A draft implementation note appears on the following pages. Struck-out text indicates language deleted from, and bold red underlined text indicates language added to, the most recent text—the combination of the implementation note issued March 15, 2020, and the FOMC's directive to the Desk issued March 23, 2020. Blue underlined text indicates text that links to websites.

The revisions to the directive streamline the text and make few changes in substance. The draft directive is in a new, bulleted format to reduce repetition (especially of "the Committee directs") and improve readability. The second bullet on asset purchases consolidates the reference to agency CMBS purchases with those for Treasury and agency MBS purchases. To remove unnecessary detail, language in the ON RRP bullet no longer describes the nature of an overnight transaction.

In terms of substantive revisions, the reference to repos as a tool "to ensure that the supply of reserves remains ample" has been struck in light of the recent, substantial increase in reserve balances. As a matter of prudent planning, the directive notes (subject to approval of the Committee) that the Chair has discretion to temporarily lift the per-counterparty limit on the overnight reverse repurchase facility if needed to help maintain interest rate control. Finally, the directive now indicates that principal payments from holdings of agency CMBS will be reinvested in agency CMBS for the time being.

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Implementation Note for April 2020

Release Date: April 29, 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 ~~March 23~~ **April 30**, 2020:

- The Board of Governors of the Federal Reserve System voted **[** unanimously **]** to ~~set~~ **maintain** the interest rate paid on required and excess reserve balances at 0.10 percent, effective ~~March 16~~ **April 30**, 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 ~~March 23~~ **April 30**, 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.
  - ~~The Committee directs the Desk to~~ Increase the System Open Market Account holdings of Treasury securities**,** ~~and~~ agency mortgage-backed securities (MBS)**, and agency commercial mortgage-backed securities (CMBS)** in the amounts needed to support the smooth functioning of markets for ~~Treasury~~ **these** securities ~~and agency MBS. The Committee also directs the Desk to include purchases of agency commercial mortgage-backed securities in its agency mortgage-backed security purchases~~.
  - ~~The Committee also directs the Desk to continue conducting~~ **Conduct** term and overnight repurchase agreement operations ~~to ensure that the supply of reserves remains ample and~~ to support **effective policy implementation and** the smooth functioning of short-term U.S. dollar funding markets.
  - ~~In addition, the Committee directs the Desk to~~ Conduct overnight reverse repurchase **agreement** 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 0.00 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~~ **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**.
  - ~~The Committee directs the Desk to continue rolling~~ **Roll** over at auction all principal payments from the Federal Reserve's holdings of Treasury securities and ~~to~~ reinvest all principal payments from the Federal

Reserve's holdings of agency debt and agency ~~mortgage-backed securities~~ **MBS** ~~received during each calendar month~~ in agency ~~mortgage-backed securities~~ **MBS and all principal payments from holdings of agency CMBS in agency CMBS**. ~~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~~ **MBS** transactions."

- In a related action, the Board of Governors of the Federal Reserve System voted unanimously to approve ~~a 1-1/2 percentage point decrease in~~ **the establishment of** the primary credit rate ~~to~~ **at the existing level of** 0.25 percent~~, effective March 16, 2020~~. ~~In taking this action, the Board approved requests to establish that rate submitted by the Boards of Directors of the Federal Reserve Banks of Minneapolis and New York.~~

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.

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Balance Sheet and Income Projections

The staff has prepared projections of the Federal Reserve's balance sheet and the associated income statement that are consistent with the projections in Tealbook A. Since the March 15 FOMC meeting, the steps taken by the Federal Reserve to alleviate strains in financial markets triggered by the COVID-19 pandemic have expanded the Federal Reserve's balance sheet substantially, and are expected to continue to do so at least through the third quarter of this year.[1] We project that total assets will jump from under 20 percent of nominal GDP at the start of March 2020 to 45 percent in September 2020, an all-time high (see the bottom-left figure in the exhibit titled "Total Assets and Selected Balance Sheet Items").[2] Subsequently, total assets are projected to decline over the next several years as facilities and repo operations decline and Treasury securities and MBS roll off the balance sheet. Assets level off at 22 percent of nominal GDP by April 2025.

Evolution of the SOMA Portfolio. At the end of March 2020, about $4.73 trillion of securities were held outright in the SOMA portfolio, consisting of about $3.27 trillion of Treasury securities and $1.46 trillion of agency securities (see the exhibit titled "Federal Reserve Balance Sheet Month-end Projections—April Tealbook").[3] We assume purchases of Treasury securities and agency MBS to support the smooth functioning of these markets will be phased out by the end of June. Specifically, we assume a total of $1.4 trillion in purchases of Treasury securities in March and April, $80 billion in May, $60 billion in June, and zero thereafter.[4] MBS purchases are assumed to be about $620 billion in March and April, $40 billion per month in May and June, and zero thereafter.[5]

[1] These actions and their effects on financial markets and conditions are summarized in the April FOMC memo titled "Intermeeting Report on the Federal Reserve Balance Sheet."

[2] For reference, the previous peak of about 25 percent was reached in 2014.

[3] SOMA securities held outright exclude securities held temporarily through the Desk's overnight and term repo operations.

[4] In projecting these purchases of Treasury securities, we must make an assumption regarding their maturity distribution. Our assumption is based on actual purchases that have occurred since March 13, which excludes bills.

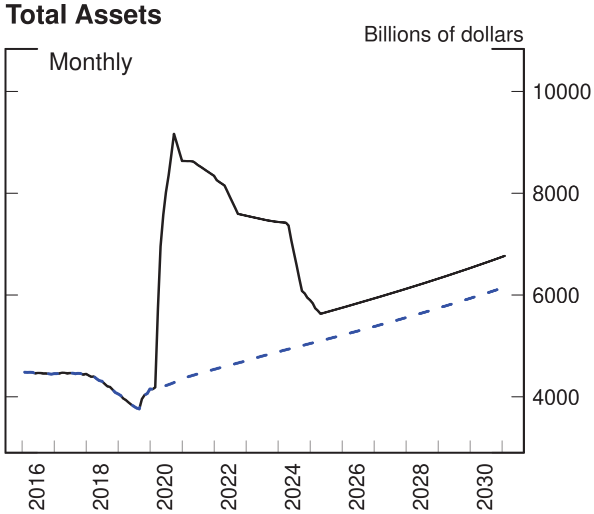
[5] These values are for committed MBS purchases. MBS purchases are generally done in the to-be-announced market and settle one or two months later. Therefore, the actual change in MBS holdings is significantly lower than the committed amounts. Unless otherwise noted, all numerical figures here and henceforth referring to "MBS" entail agency (residential) MBS, excluding CMBS. Agency CMBS purchases have been small to date and we assume they remain fixed at their purchase quantity-to-date of $7

Balance Sheet & Income

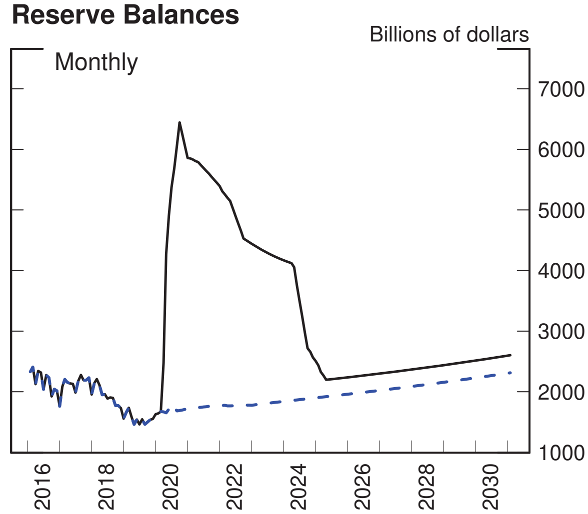
Total Assets and Selected Balance Sheet Items

April Tealbook baseline
March Tealbook baseline

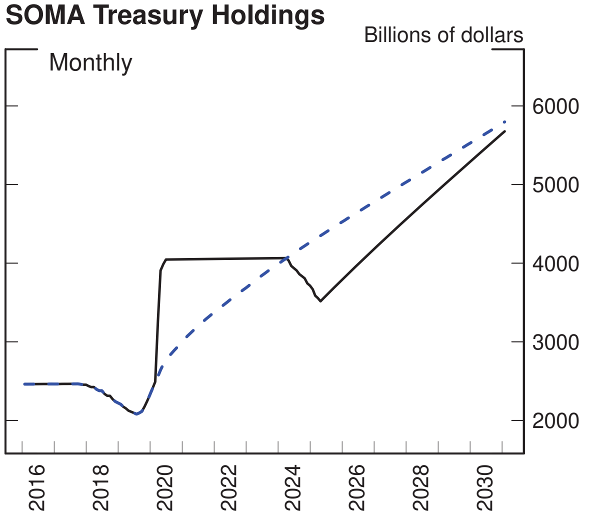
Total Assets



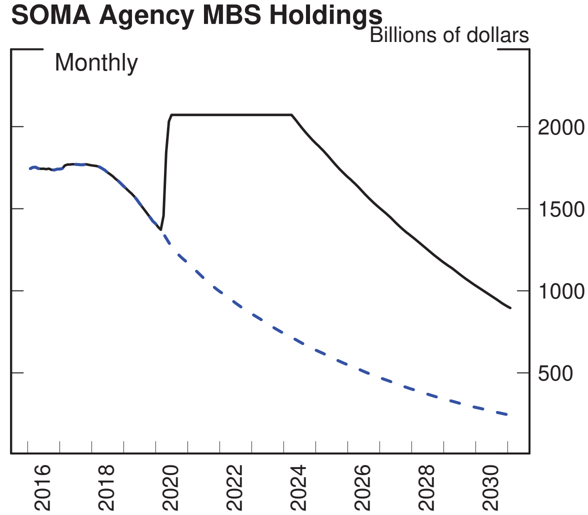
Reserve Balances



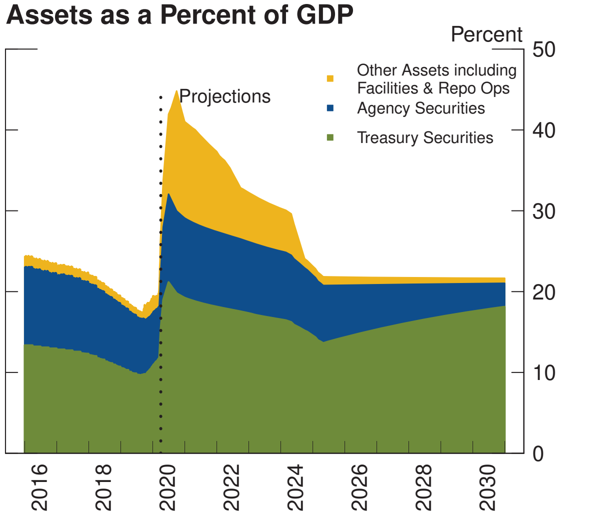
SOMA Treasury Holdings



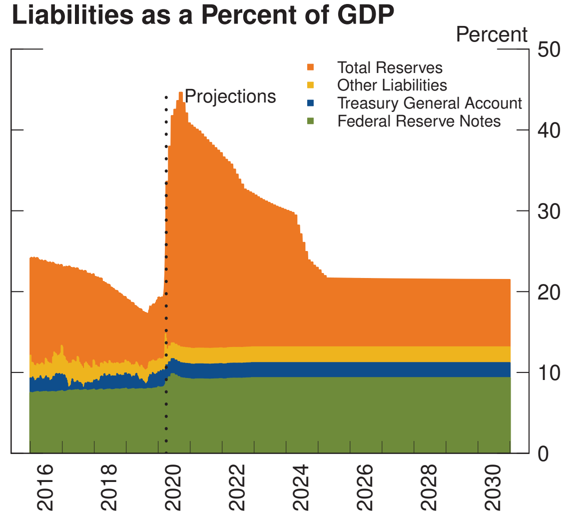
SOMA Agency MBS Holdings



Assets as a Percent of GDP



Liabilities as a Percent of GDP



Federal Reserve Balance Sheet
Month-end Projections – April Tealbook
(Billions of dollars)

	Historical*			Projections				
	Sep 2017	Feb 2020	Mar 2020	Dec 2020	Dec 2021	Dec 2023	Dec 2025	Dec 2030
Total assets	4,460	4,158	5,743	8,634	8,341	7,437	5,749	6,748
Selected assets								
Loans and other credit extensions	6	0	493	2,100	1,826	994	0	0
Facilities	2	0	86	2,100	1,826	994	0	0
Discount Window	0	0	49	0	0	0	0	0
Central bank liquidity swaps	4	0	358	0	0	0	0	0
Repurchase Agreements	0	126	263	50	50	0	0	0
Securities held outright	4,240	3,863	4,727	6,123	6,128	6,137	5,485	6,553
U.S. Treasury securities	2,465	2,489	3,268	4,049	4,054	4,063	3,789	5,647
Agency debt securities	7	2	2	2	2	2	2	2
Agency mortgage-backed securities	1,768	1,372	1,457	2,071	2,071	2,071	1,693	904
Unamortized premiums	162	123	203	289	265	232	193	129
Unamortized discounts	-14	-13	-9	-2	-2	-2	-4	-8
Total other assets	66	58	66	75	75	75	75	75
Total liabilities	4,419	4,119	5,704	8,595	8,302	7,394	5,702	6,689
Selected liabilities								
Federal Reserve notes in circulation	1,532	1,753	1,830	1,931	2,050	2,281	2,453	2,898
Reverse repurchase agreements	557	229	569	257	273	299	322	380
Deposits with Federal Reserve Banks	2,323	2,131	3,288	6,395	5,965	4,798	2,910	3,391
Reserve balances held by depository institutions	2,073	1,691	2,474	5,857	5,395	4,171	2,236	2,595
U.S. Treasury, General Account	159	357	515	397	421	463	498	588
Other deposits	91	83	298	141	149	164	176	208
Earnings remittances due to the U.S. Treasury	2	2	4	0	0	0	0	0
Total Federal Reserve Bank capital**	41	39	39	39	39	43	47	59

Source: Federal Reserve H.4.1 daily data and staff calculations.
Note: Components may not sum to totals due to rounding.
*September 2017 corresponds to the last month-end before the initiation of the normalization program; February 2020 corresponds to the last month-end before the initiation of Federal Reserve actions and plans designed to improve market functioning.
**Total capital includes capital paid-in and capital surplus accounts.

Absent further guidance from the Committee, we have not included additional asset purchases beyond June in the balance sheet projections this round. By comparison, the median response from the April 2020 Survey of Primary Dealers and Survey of Market Participants projected purchases of Treasury securities and of agency MBS, net of reinvestments, to continue at a monthly pace of about $100-150 billion during the second half of the year, and to gradually slow thereafter.[6]

We assume that maturing Treasury securities are reinvested at auction and principal received on agency MBS will be fully reinvested into agency MBS until the federal funds rate reaches 1.25 percent, which is projected to take place around 2024:Q2 according to the Tealbook baseline.[7] Subsequently, Treasury securities and agency MBS roll off the balance sheet as they mature. The roll-off period is assumed to conclude around April 2025, when reserves balances reach about $2 trillion.[8] After this date, principal received on agency MBS will be reinvested into Treasury securities.[9] In addition, reserve management purchases of Treasuries are assumed to expand SOMA in line with trend increases in reserves and in other Federal Reserve liabilities. With these liabilities assumed to grow roughly at the pace of nominal GDP, the size of the balance sheet as a share of nominal GDP remains near 22 percent for the remainder of the projection horizon, 3 percentage points higher than in the previous Tealbook.

Facilities and Repo Operations. The staff has also incorporated projections for the size of facilities and other Federal Reserve operations that have been expanded or

billion over the next 6 months, before gradually rolling off the balance sheet completely by December 2020.

[6] The median respondent to the April 2020 Survey of Primary Dealers and Survey of Market Participants (combined) forecasted net purchases of $150 billion of Treasury securities in May 2020, $125 billion in June, $100 billion in July, and between $70 and $100 billion per month for the remainder of the year. The median respondent also forecasted net purchases of agency (residential) MBS of $100 billion in May, $70 billion in June, $50 billion in July, and between $25 and $45 billion per month for the remainder of the year.

[7] Even though these purchases are being made for market functioning purposes, we assume that securities are held until the federal funds rate is well above the effective lower bound. Any reduction in SOMA holdings would likely be seen as policy tightening.

[8] The level of $2 trillion was chosen because it is at least as large as reserve balances would have been in April 2025 according to the March 2020 Tealbook projections (as shown by the blue dashed line in the upper-right panel in the exhibit titled "Total Assets and Selected Balance Sheet Items") and consistent with current expectations for future reserve demand in the ample reserves regime.

[9] We assume that rollovers of maturing Treasury securities will continue to be directed toward newly issued securities at Treasury auctions in proportion to the maturity distribution of Treasury debt issued at the time of rollover.

initiated in response to the COVID-19 crisis. These facilities are expected to see large take-up initially, but to taper off over time at a pace consistent with the maturity of their underlying assets as the economy improves (see the exhibit titled "Staff Assumptions on Facilities and Operations"). Specifically, we assume that those facilities that were operational at the end of March—the discount window, central bank liquidity swaps, Primary Dealer Credit Facility (PDCF), and Money Market Mutual Fund Liquidity Facility (MMLF)—stay at their March-end levels for 6 months, a total of $493 billion, after which time they gradually taper off. The staff also assumes that repo operations will decline over the 3 months following April, from a March month-end level of $263 billion to $50 billion, and stay at that level through December 2021, before declining to zero. For those facilities that became operational in April, or are forthcoming, we assume a peak total take-up of $2.1 trillion in September 2020 and tapering to zero through 2024.[10,11]

Reserve Balances. At the end of March 2020, the level of reserve balances stood at $2.47 trillion. The staff projects this level to more than double to about $6.5 trillion by the end of September 2020, reflecting the assumptions of substantial asset purchases, repo operations, and take-up of Federal Reserve lending facilities discussed above (see the upper-right panel in the exhibit titled "Total Assets and Selected Balance Sheet Items"). For about the next five years, reserve balances fall gradually as the use of facilities and operations declines in response to an improving economy, and as other non-reserve liabilities grow with nominal GDP.[12] In April 2025, reserves reach their assumed

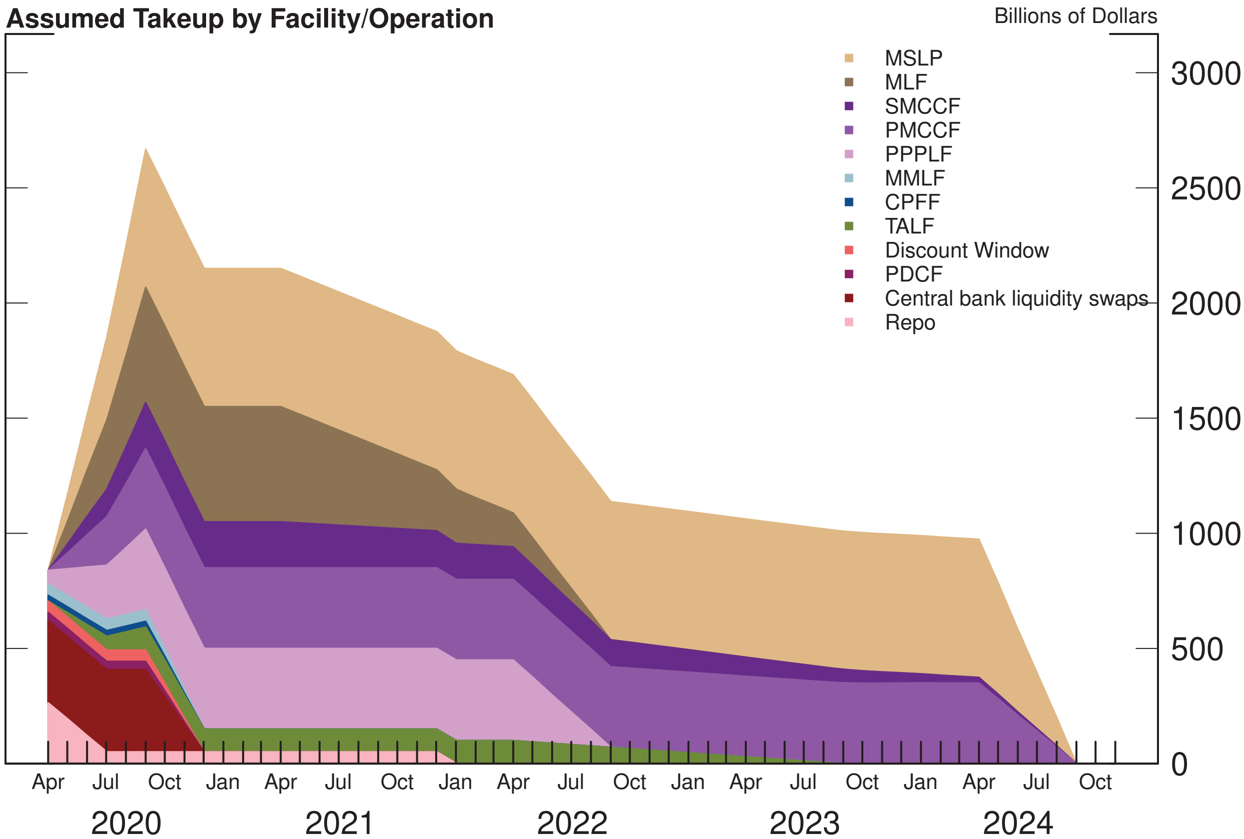
[10] Facilities that became operational in early April are the Commercial Paper Funding Facility (CPFF) and the Paycheck Protection Program Liquidity Facility (PPPLF). Based on existing data and staff assumptions, the take-up in these facilities is assumed to be $25 billion and $58 billion, respectively, in April. Facilities that are forthcoming include the Main Street New Loan Facility (MSNLF) and Main Street Expanded Loan Facility (MSELF) that jointly constitute the Main Street Lending Program (MSLP), the Municipal Liquidity Facility (MLF), the Primary Market Corporate Credit Facility (PMCCF), the Secondary Market Corporate Credit Facility (SMCCF), and the Term Asset-Backed Securities Loan Facility (TALF). We assume these facilities start in May 2020, peak in September 2020, and remain constant at that level until they begin rolling off over the following 2 to 4 years, depending on the facility. PPPLF follows a similar path after April. CPFF stays constant through September before declining. There is considerable uncertainty about the take-up in these facilities, and our assumptions influence both the peak size of the balance sheet and subsequent timing of normalization. However, take-up would need to be materially larger than our current assumptions in order to change our projected normalization timing.

[11] The median respondent to the April 2020 Survey of Primary Dealers and Survey of Market Participants (combined) forecasted total take-up of $1.8 trillion for this same subset of facilities on September 30, 2020.

[12] The staff assumes that liability items other than reserves and currency—such as TGA, the foreign repo pool, overnight reverse repo operations, and DFMU balances—grow in line with nominal

Balance Sheet & Income

Staff Assumptions on Facilities and Operations



*The following facilities are abbreviated above: Primary Dealer Credit Facility (PDCF), Term Asset−Backed Securities Loan Facility (TALF), Commercial Paper Funding Facility (CPFF), Money Market Mutual Fund Liquidity Facility (MMLF), Paycheck Protection Program Liquidity Facility (PPPLF), Primary Market Corporate Credit Facility (PMCCF), Secondary Market Corporate Credit Facility (SMCCF), Municipal Liquidity Facility (MLF), Main Street Lending Program (MSLP)

Balance Sheet & Income

minimum level of just above $2 trillion. Thereafter, reserves are projected to grow in line with nominal GDP.

Duration. Recent policy actions and the above assumptions imply significant changes to the projected maturity composition of Treasury securities held in the SOMA. As shown in the exhibit titled "Projections for the Characteristics of SOMA Treasury Securities Holdings," the path for the weighted-average duration of the SOMA Treasury portfolio is notably higher than in the March Tealbook. Weighted average duration is now projected to increase to a maximum of 6.6 years in May 2025, about 1.6 years higher than the previous Tealbook at the same point. Subsequently, duration declines to about 5 years by 2030, as the share of bills increases to 28 percent of the SOMA Treasury portfolio from 10 percent at the end of last month. The projected decline in duration slows shortly thereafter, reflecting the slower pace of bill purchases.[13] All told, the SOMA Treasury portfolio attains its assumed longer-run composition, consisting of one-third Treasury bills, in 2032:Q2, about eight years later than in the previous Tealbook.

Total Term Premium Effect. As shown in the table "Projections for the 10-Year Treasury Total Term Premium Effect (TTPE)," the securities held in the SOMA portfolio are estimated to be reducing the term premium embedded in the 10-year Treasury yield by 214 basis points in the current quarter, 80 basis points more reduction than in the previous Tealbook. Over the projection horizon, the magnitude of the downward pressure exerted on the term premium in longer-term Treasury yields is estimated to diminish gradually, beginning at an average pace of about 11 basis points per year. The gradual reduction in downward pressure reflects the decrease in the size of the Federal Reserve's securities holdings relative to GDP over the projection horizon. At the end of the projection horizon in 2030, the total term premium effect of the SOMA portfolio on the 10-year Treasury yield is estimated to be about 129 basis points.

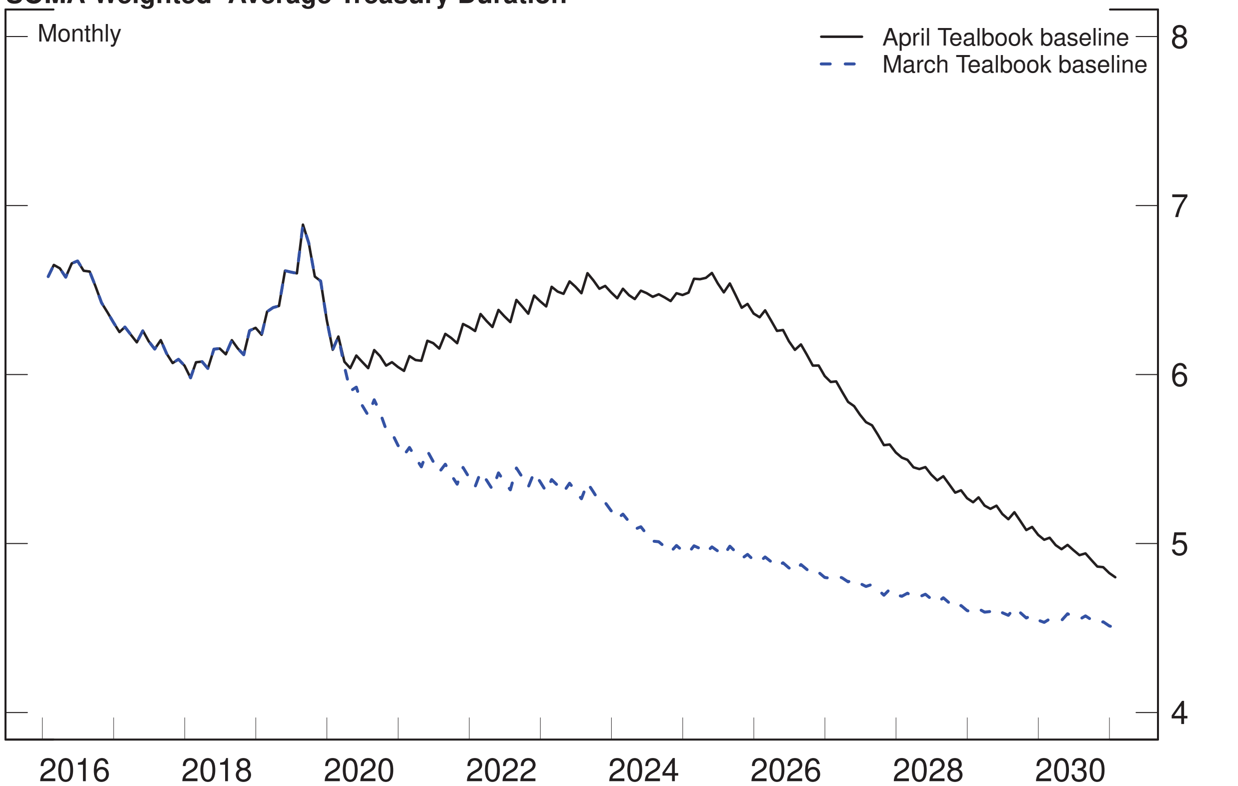
It is important to keep in mind that the TTPE is defined as the effect on term premiums of only the Treasury securities and agency (residential) MBS held in the

GDP from the start of the projection period. Currency grows in line with the staff's near-term forecasts through December 2021 and with nominal GDP thereafter.

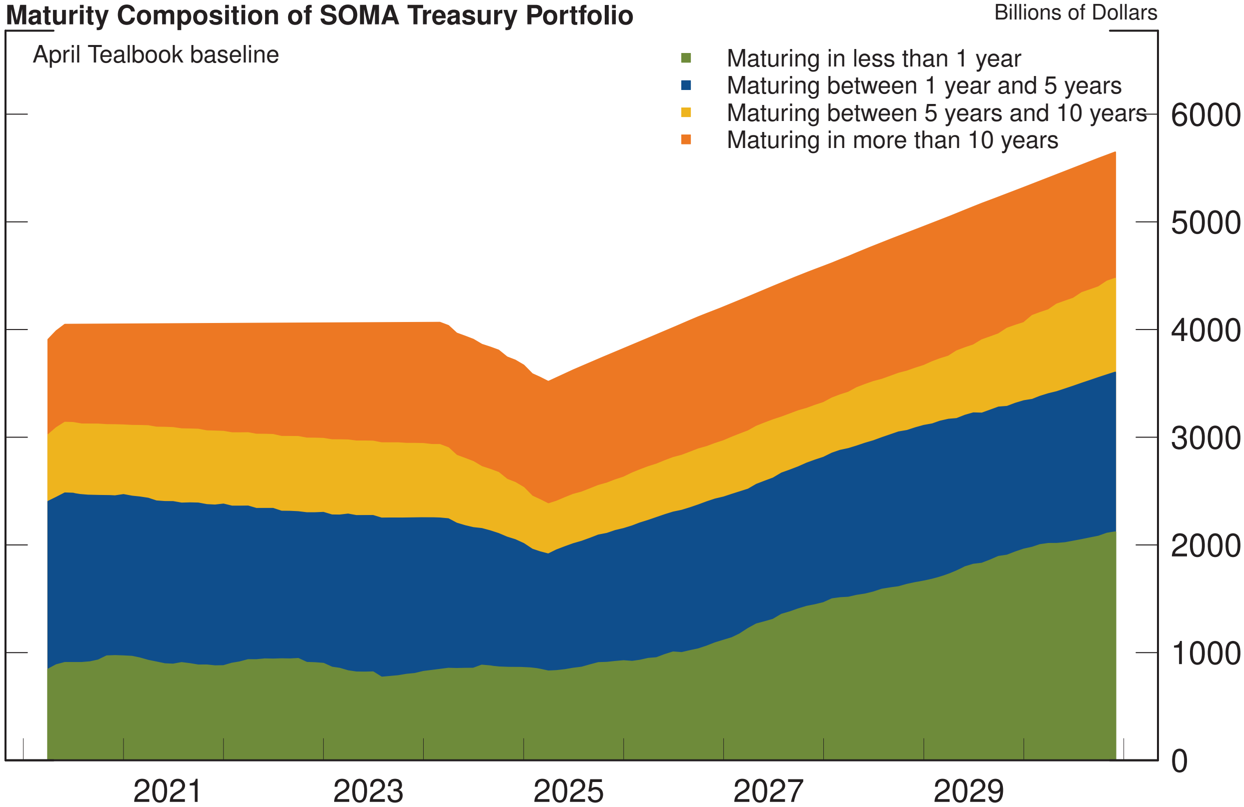
[13] We continue to assume that purchases aimed at accommodating trend growth in Federal Reserve liabilities will be directed entirely toward Treasury bills until bills constitute approximately one-third of the Federal Reserve's portfolio of Treasury securities, close to the pre-2008 composition. Once that composition is reached, further purchases aimed at accommodating growth in Federal Reserve liabilities are assumed to reflect the projected maturity distribution of Treasury securities outstanding at that time.

Projections for the Characteristics of SOMA Treasury Securities Holdings

SOMA Weighted–Average Treasury Duration



Maturity Composition of SOMA Treasury Portfolio



Balance Sheet & Income

Projections for the 10-Year Treasury Total Term Premium Effect (TTPE)

(Basis Points)

Date	April Tealbook	March Tealbook
	Quarterly Averages	
2020:Q2	-214	-134
Q3	-211	-133
Q4	-208	-133
2021:Q4	-198	-130
2022:Q4	-187	-127
2023:Q4	-175	-124
2024:Q4	-164	-121
2025:Q4	-157	-119
2026:Q4	-150	-117
2027:Q4	-144	-115
2028:Q4	-138	-113
2029:Q4	-133	-111
2030:Q4	-129	-110

SOMA portfolio; other factors, notably Treasury issuance, can also have important effects on the term premium as estimated using term structure models or survey expectations.[14] Additionally, the effect of facilities as well as the small amount of agency CMBS purchases are not incorporated in the TTPE model directly. Instead, the effects of these policy actions on credit spreads are embedded in the financial projections presented in Tealbook A. These effects enter indirectly into the TTPE model through their influence on the economy and resulting projected paths for interest rates.

Unrealized Gains or Losses. The path for the unrealized gain position of the SOMA portfolio has stepped up significantly through June 2021, reflecting the lower projected path of interest rates (see the bottom charts in the exhibit titled "Income Projections"). The SOMA portfolio was in a net unrealized gain position of about $391 billion at the end of March. With longer-term interest rates projected to rise, the unrealized gain position is expected to decline over the next few years and become an unrealized loss position around 2022:Q4. The unrealized loss position of the SOMA portfolio bottoms out at around $240 billion in 2026:Q1.[15]

Remittances. Remittances are projected to be considerably higher over the next few years compared to the previous Tealbook (see the middle charts in the exhibit titled "Income Projections"). This upward adjustment is a result of both interest expense falling due to the reduction in IOER and interest income increasing given the new facilities (see the top charts in the exhibit).

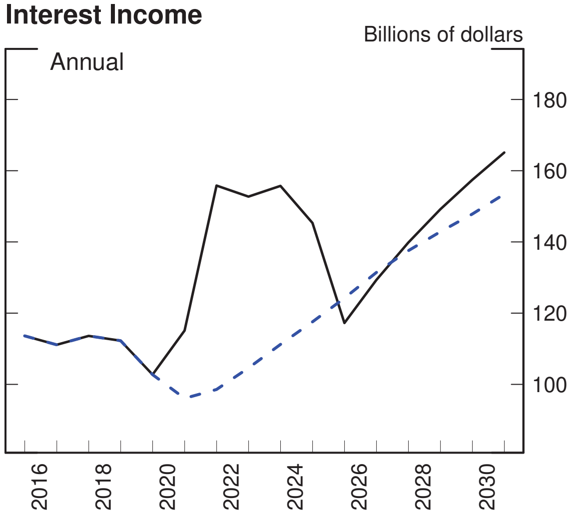
[14] See the September 2019 Tealbook B box titled "Measuring the Combined Effects of the Federal Reserve's Asset Purchase Programs and Treasury's Debt Management."

[15] See the June 2018 Tealbook B box titled "What Does It Mean for the SOMA Portfolio to Be in an 'Unrealized Loss' Position?" for an explanation of the accounting concepts underlying unrealized and realized gain and loss positions, as well as their implications for the Federal Reserve's ability to meet its obligations.

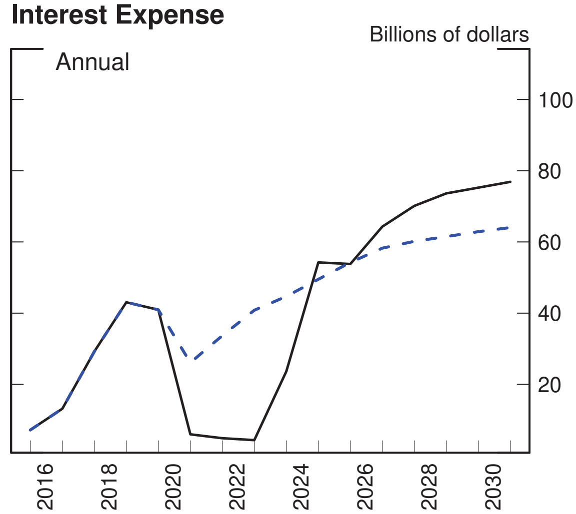
Income Projections

April Tealbook baseline — March Tealbook baseline

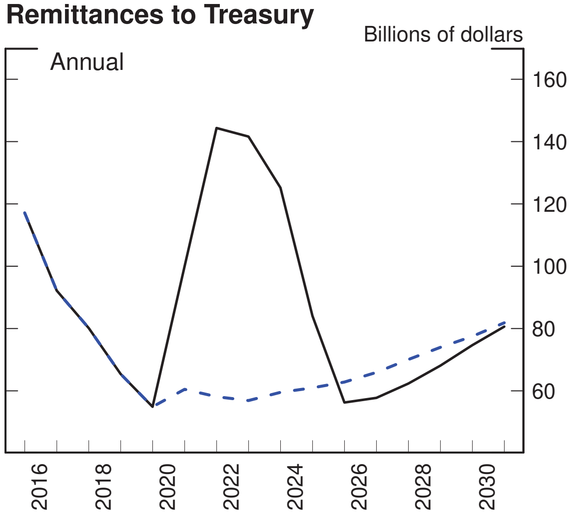
Interest Income



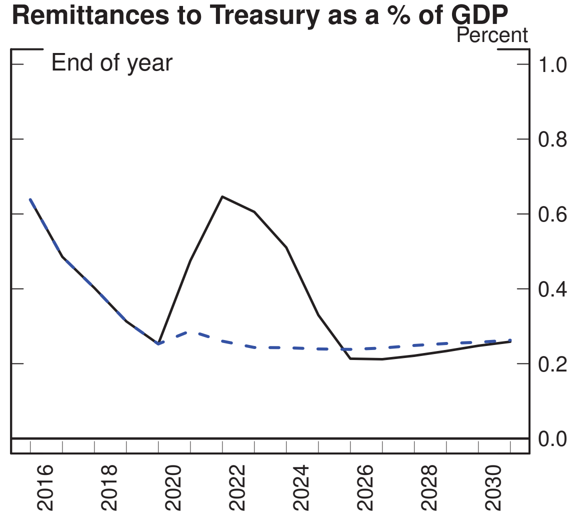
Interest Expense



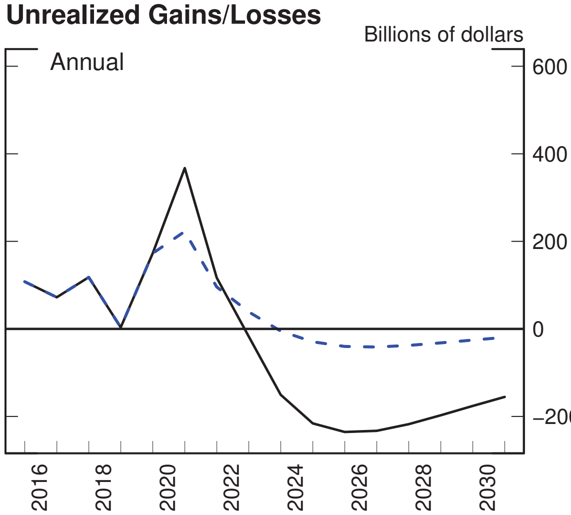
Remittances to Treasury



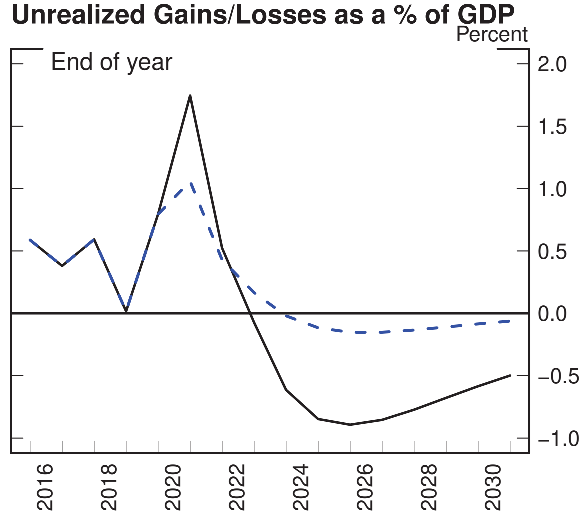
Remittances to Treasury as a % of GDP



Unrealized Gains/Losses



Unrealized Gains/Losses as a % of GDP



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Abbreviations

ABS	asset-backed securities
AFE	advanced foreign economy
BEA	Bureau of Economic Analysis, Department of Commerce
BHC	bank holding company
CARES Act	Coronavirus Aid, Relief, and Economic Security Act
CDS	credit default swaps
CFTC	Commodity Futures Trading Commission
C&I	commercial and industrial
CLO	collateralized loan obligation
CMBS	commercial mortgage-backed securities
CPFF	Commercial Paper Funding Facility
CPI	consumer price index
CRE	commercial real estate
DEDO	section in Tealbook A: “Domestic Economic Developments and Outlook”
Desk	Open Market Desk
DFMU	Designated Financial Market Utilities
ECB	European Central Bank
EFFR	effective federal funds rate
ELB	effective lower bound
EME	emerging market economy
EU	European Union
FAST Act	Fixing America’s Surface Transportation Act
FDIC	Federal Deposit Insurance Corporation
FOMC	Federal Open Market Committee; also, the Committee
GCF	general collateral finance
GDI	gross domestic income
GDP	gross domestic product
GSIBs	globally systemically important banking organizations

HQLA	high-quality liquid assets
IOER	interest on excess reserves
ISM	Institute for Supply Management
LIBOR	London interbank offered rate
LSAPs	large-scale asset purchases
MBS	mortgage-backed securities
MEP	Maturity Extension Program
MLF	Municipal Liquidity Facility
MMFs	money market funds
MMLF	Money Market Mutual Fund Liquidity Facility
MSELF	Main Street Expanded Loan Facility
MSNLF	Main Street New Loan Facility
NBER	National Bureau of Economic Research
NI	nominal income
NIPA	national income and product accounts
OIS	overnight index swap
ON RRP	overnight reverse repurchase agreement
PCE	personal consumption expenditures
PDCF	Primary Dealer Credit Facility
PMCCF	Primary Market Corporate Credit Facility
PPP	Paycheck Protection Program
PPPLF	Paycheck Protection Program Liquidity Facility
QS	Quantitative Surveillance
repo	repurchase agreement
RMBS	residential mortgage-backed securities
RRP	reverse repurchase agreement
SCOOS	Senior Credit Officer Opinion Survey on Dealer Financing Terms
SEP	Summary of Economic Projections
SFA	Supplemental Financing Account
SLOOS	Senior Loan Officer Opinion Survey on Bank Lending Practices

SMCCF	Secondary Market Corporate Credit Facility
SOMA	System Open Market Account
TALF	Term Asset-backed Securities Loan Facility
TBA	to be announced (for example, TBA market)
TCJA	Tax Cuts and Jobs Act of 2017
TGA	U.S. Treasury's General Account
TIPS	Treasury inflation-protected securities
TTPE	Total Term Premium Effect
WAD	Weighted Average Duration
WAM	Weighted Average Maturity
ZLB	zero lower bound

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