

### **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)

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# Report to the FOMC on Economic Conditions and Monetary Policy



## Book B Monetary Policy Alternatives

October 29, 2020

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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

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In its September postmeeting statement, the Committee established outcome-based forward guidance that indicated its expectation that it will be appropriate to maintain the current 0 to  $\frac{1}{4}$  percent target range for the federal funds rate until labor market conditions have reached levels consistent with the Committee's assessment of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time. Since the September meeting, incoming data have indicated that the broad-based expansion is continuing, although at a more moderate pace than earlier in the recovery. This moderation in the pace of the recovery is occurring while the economy remains substantially away from the Committee's maximum employment and price stability goals. The three alternative policy statements presented below differ from the September postmeeting statement only with regard to the characterization of the incoming data. All three alternative policy statements maintain the target range for the federal funds rate at 0 to  $\frac{1}{4}$  percent, reaffirm the outcome-based forward guidance adopted at the September meeting, and continue to increase securities holdings at least at the current pace.

The three alternative statements update the description of recent readings on employment, economic activity, inflation, and financial conditions, with some differences across the alternatives. Reflecting the moderation in the pace of the recovery, Alternative B notes that economic activity and employment have "continued to recover" in recent months, while Alternative A describes activity and employment as having "continued to increase... but at a slowing pace." Alternative C offers a more upbeat assessment, retaining the September statement's description of activity and employment as having "picked up."

Energy prices have retraced part of the steep decline registered in the second quarter. In recognition of these developments and their implications for 12-month inflation, Alternative B states that "earlier declines" in energy prices "have been" holding down inflation. Alternative C instead emphasizes recent monthly increases in consumer prices by noting: "After slowing sharply earlier in the year, inflation has moved up recently." Alternative A retains the sentence from the September statement without modification.

In recent months, market-based financing conditions have been broadly unchanged, while bank lending conditions have tightened further, albeit by less than over the second quarter. With financial conditions overall remaining supportive of economic activity, all three alternatives state that financial conditions “remain accommodative,” rather than “have improved in recent months,” as in the September statement.

**SEPTEMBER 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 COVID-19 pandemic is causing tremendous human and economic hardship across the United States and around the world. Economic activity and employment have picked up in recent months but remain well below their levels at the beginning of the year. Weaker demand and significantly lower oil prices are holding down consumer price inflation. Overall financial conditions have improved in recent months, in part reflecting policy measures to support the economy and the flow of credit to U.S. households and businesses.
3. The path of the economy will depend significantly on the course of the virus. The ongoing public health crisis will continue to weigh on economic activity, employment, and inflation in the near term, and poses considerable risks to the economic outlook over the medium term.
4. The Committee seeks to achieve maximum employment and inflation at the rate of 2 percent over the longer run. With inflation running persistently below this longer-run goal, the Committee will aim to achieve inflation moderately above 2 percent for some time so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent. The Committee expects to maintain an accommodative stance of monetary policy until these outcomes are achieved. The Committee decided to keep the target range for the federal funds rate at 0 to 1/4 percent and expects it will be appropriate to maintain this target range until labor market conditions have reached levels consistent with the Committee's assessments of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time. In addition, over coming months the Federal Reserve will increase its holdings of Treasury securities and agency mortgage-backed securities at least at the current pace to sustain smooth market functioning and help foster accommodative financial conditions, thereby supporting the flow of credit to households and businesses.
5. In assessing the appropriate stance of monetary policy, the Committee will continue to monitor the implications of incoming information for the economic outlook. The Committee would be prepared to adjust the stance of monetary policy as appropriate if risks emerge that could impede the attainment of the Committee's goals. The Committee's assessments will take into account a wide range of information, including readings on public health, labor market conditions, inflation pressures and inflation expectations, and financial and international developments.

**ALTERNATIVE A FOR NOVEMBER 2020**

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 COVID-19 pandemic is causing tremendous human and economic hardship across the United States and around the world. Economic activity and employment have ~~picked up~~ **continued to increase** in recent months but **at a slowing pace, and both** remain well below their levels at the beginning of the year. Weaker demand and significantly lower oil prices are holding down consumer price inflation. Overall financial conditions ~~have improved in recent months~~ **remain accommodative**, in part reflecting policy measures to support the economy and the flow of credit to U.S. households and businesses.
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**ALTERNATIVE B FOR NOVEMBER 2020**

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 COVID-19 pandemic is causing tremendous human and economic hardship across the United States and around the world. Economic activity and employment have ~~picked up in recent months~~ **continued to recover** but remain well below their levels at the beginning of the year. Weaker demand and ~~significantly lower~~ **earlier declines in** oil prices ~~are~~ **have been** holding down consumer price inflation. Overall financial conditions ~~have improved in recent months~~ **remain accommodative**, in part reflecting policy measures to support the economy and the flow of credit to U.S. households and businesses.
3. The path of the economy will depend significantly on the course of the virus. The ongoing public health crisis will continue to weigh on economic activity, employment, and inflation in the near term, and poses considerable risks to the economic outlook over the medium term.
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**ALTERNATIVE C FOR NOVEMBER 2020**

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 COVID-19 pandemic is causing tremendous human and economic hardship across the United States and around the world. Economic activity and employment have picked up in recent months but remain well below their levels at the beginning of the year. ~~Weaker demand and significantly lower oil prices are holding down consumer price inflation.~~ After slowing sharply earlier in the year, inflation has moved up recently. Overall financial conditions ~~have improved in recent months~~ remain accommodative, in part reflecting policy measures to support the economy and the flow of credit to U.S. households and businesses.
3. The path of the economy will depend significantly on the course of the virus. The ongoing public health crisis will continue to weigh on economic activity, employment, and inflation in the near term, and poses considerable risks to the economic outlook over the medium term.
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## ECONOMIC CONDITIONS AND OUTLOOK

- The data released during the intermeeting period indicate that economic activity is expanding at a more moderate clip than earlier in the recovery.
  - Real GDP is estimated to have soared 33 percent at an annual rate in the third quarter, according to the Bureau of Economic Analysis advance estimate. The staff projects that real GDP growth in the fourth quarter will be much more subdued, at an annual rate of 3.9 percent. For the year as a whole, real GDP is expected to record a decline of 2.8 percent.
  - Consumer spending is expected to increase at a 2.6 percent annual rate in the fourth quarter, following a sharp rebound in the third quarter. Retail sales data for September were unexpectedly strong, but services spending indicators remain well below the levels prevailing prior to the pandemic.
  - The staff projects that residential investment will continue to surge in the fourth quarter, increasing at a 25 percent annual rate. In part supported by low interest rates, residential construction and home sales have now exceeded their pre-pandemic levels.
  - Although equipment and intangibles investment appears to be expanding robustly, investment in nonresidential structures has continued to decline. Overall, business fixed investment is projected to expand at a 4.7 percent annual rate in the fourth quarter and to regain its pre-pandemic level in the second half of next year.
- Readings on the labor market indicate continuing improvement, but at a more moderate pace than in recent months. The staff expects the pace of improvement to step down further, as the boost from recall hiring fades and the hard-hit services sector continues to struggle.
  - Currently published data indicate that private sector employers added 877,000 jobs in September, while government payrolls fell 216,000 due to layoffs in state and local education and reductions in temporary census jobs. Despite recent gains, nonfarm payrolls have so far retraced only about half of the decline that occurred in March and April.
  - The reported unemployment rate declined 0.5 percentage point to 7.9 percent in September and is expected to reach 6.9 percent by the end of

- the year. The pace of improvement is expected to slow in part because of the shrinking share of the unemployed that is on temporary layoff.
- Despite the decline in total unemployment, long-term unemployment rose sharply in September, bringing the number of workers who have been jobless for 27 weeks or more to a level more than double the levels prevailing prior to the pandemic. Many such workers have exhausted regular state unemployment benefits and could lose access to unemployment insurance early next year as supplemental benefit programs phase out.
  - The decline in the unemployment rate in September was accompanied by a 0.3 percentage point decline in the labor force participation rate. The staff attributes this decline partly to increased childcare responsibilities associated with schools moving to virtual learning.
- The staff estimates core PCE inflation to have been 1.7 percent over the 12 months ending in September, modestly higher than in the September Tealbook.
    - The staff expects that unusually large recent increases in durable goods prices will be transitory. Accordingly, core PCE prices, after increasing at a 4.1 percent annual rate in the third quarter, are projected to increase in the fourth quarter at a 1.5 percent annual rate and for the year as a whole (measured on a twelve-month basis) by 1.5 percent.
    - Service price inflation remains soft with prices for those service categories most affected by the pandemic being particularly weak.
    - Energy prices edged up in recent months. The staff expects a net decline of 13 percent in energy prices over the 12 months ending in December.
    - Over the medium term, with economic slack and pandemic effects diminishing, the staff expects total inflation to move up to 1.6 percent in 2021. Thereafter, with further improvements in the labor market, inflation rises to 1.7 percent in 2022 and 1.9 percent in 2023.
    - Survey measures of longer-term inflation expectations have changed little, on balance, this year.
  - Overall financial conditions remained accommodative over the intermeeting period.
    - Financing conditions in capital markets were broadly unchanged, although bank lending conditions reportedly tightened somewhat further.

- Yields on 2-year nominal Treasury securities were little changed since the September FOMC meeting, while yields on 10- and 30-year Treasury securities rose.
  - Inflation compensation measures remained near pre-pandemic levels, but at the lower end of their historical ranges.
  - Amid some volatility, broad stock price indices declined moderately, on balance.
  - Liquidity conditions remained stable and trading has been orderly. In many markets, liquidity measures have been close to pre-pandemic levels. However, in some markets, liquidity conditions remained somewhat strained relative to pre-pandemic levels despite notable improvements since March.
- The staff continues to judge that the path of the COVID-19 pandemic and its consequences for the economy are highly uncertain, with risks to the forecast skewed to the downside.
  - Sharply rising cases of COVID-19 infections in many European countries and U.S. states suggest that the risk of a more adverse outcome in the United States has risen in recent weeks.
  - Since the end of the summer, as case numbers have increased, a number of European countries have enacted stricter social-distancing rules. These developments raise the possibility of public health policy in the United States moving in the same direction, should the authorities conclude that a light-touch approach to controlling the pandemic is infeasible.
  - The staff views the “Second Waves” scenario, in the “Risks and Uncertainty” section of Tealbook A, as more likely than the staff did in the previous Tealbook.
  - Fiscal policy remains highly uncertain. Amid ongoing negotiations, the size, composition, and timing of additional fiscal stimulus remains unclear. For the forecast in the current Tealbook, the staff assumed that policymakers will not enact further fiscal stimulus this quarter. However, the “Additional Fiscal Support” scenario explores an upside risk associated with a more expansionary fiscal policy than that in the baseline.

- The “Delayed Vaccine and Weaker Confidence” scenario considers the implications of initial vaccines turning out to be not very effective—an outcome that would likely prevent aggregate U.S. economic activity from returning promptly to normal levels even after a vaccine is widely available.

## **RATIONALE FOR THE ALTERNATIVES**

The September postmeeting statement incorporated key elements of the Committee’s revised Statement on Longer-Run Goals and Monetary Policy Strategy. The September statement indicated that, with inflation running persistently below the 2 percent longer run objective, the Committee will aim to achieve inflation “moderately above 2 percent for some time so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent.” The September statement also communicated that the Committee “expects to maintain an accommodative stance of monetary policy until these outcomes are achieved.” This guidance aligned the Committee’s policy communications with its newly articulated strategy, and policymakers might expect that it will be appropriate to include this guidance on an ongoing basis.

At its September meeting, the Committee also adopted forward guidance about the conditions it expects to be in place before raising the target range for the federal funds rate from its effective lower bound. The new forward guidance indicates the Committee’s expectation that it will be appropriate to maintain the current target range for the federal funds rate until three criteria are met: labor market conditions have reached levels consistent with the Committee’s assessment of maximum employment, inflation has risen to 2 percent, and inflation is on track to moderately exceed 2 percent for some time. This forward guidance is outcome-based, expected to be durable, and better enables the public to adjust its expectations about the likely path of the federal funds rate as the outlook for the economy and inflation evolve. Therefore, policymakers might judge that it is appropriate to reiterate this new guidance.

Furthermore, the Committee may view the information received during the intermeeting period as confirming that the recovery is advancing at a more moderate pace than in the late spring and early summer, with a full recovery still far away. Additionally, policymakers, like the staff, may have made few modifications to the broad contours of their outlook since the September FOMC meeting. With financial conditions having remained broadly accommodative, policymakers might wish to continue their deliberations

regarding asset purchases at this meeting and see no need to alter the policy communications regarding purchases in the November postmeeting statement.

In light of the unusually high level of uncertainty regarding the near-term course of the pandemic and the path of the economy, the Committee might judge that a further reason to avoid changes to its communications regarding asset purchases is to retain flexibility and wait for new information. Policymakers might anticipate that significant new information—regarding political uncertainty, fiscal policy, or measures taken to address the pandemic—might be available in the near future.

As discussed in the box “Monetary Policy Expectations and Uncertainty,” market prices along with responses to the Desk’s latest surveys of primary dealers and market participants indicate that investors expect the target range for the federal funds rate to remain at the effective lower bound at least through 2023. The Desk’s surveys also suggest that dealers expect the Committee to continue to increase holdings of Treasury securities at a pace of \$80 billion a month and to continue to increase holdings of agency MBS at a pace of \$40 billion a month for some time. Most respondents do not expect the November postmeeting statement to make any material change to the policy stance. Thus, Alternative B would seem generally in line with market participants’ expectations for the postmeeting statement.

## IMPLEMENTATION NOTE

A draft implementation note that is associated with all of the alternatives appears on the following pages. Struck-out text indicates language deleted from, and bold red underlined text indicates language added to, the previously issued note. Blue underlined text indicates text that links to websites.

## Implementation Note for November 2020, All Alternatives

*Release Date: November 5, 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 ~~September 16~~ **November 5**, 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 ~~September 17~~ **November 6**, 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 ~~September 17~~ **November 6**, 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 and agency mortgage-backed securities (MBS) at the current pace. Increase holdings of Treasury securities and agency MBS by additional amounts and purchase agency commercial mortgage-backed securities (CMBS) as needed to sustain smooth functioning of markets for these securities.
  - 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.
  - 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](#).

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## Monetary Policy Expectations and Uncertainty

Market- and survey-based measures of federal funds rate expectations were little changed since the time of the September FOMC meeting. The expected path of the federal funds rate, as implied by OIS quotes and unadjusted for term premiums, remains below 0.25 percent until the first quarter of 2024 (the blue lines in figure 1). The expected paths implied by a staff term structure model (the purple line) and a macro-finance model (the green line) that adjust for term premiums remain below 0.25 percent until the first quarter of 2023. That said, these staff estimates are surrounded by considerable uncertainty.<sup>1</sup>

The median respondent to the Desk's November surveys views the most likely path of the federal funds rate as remaining in its current range until the first half of 2024 (the black crosses in figure 1 show the path through the end of 2023).<sup>2</sup> Figure 1 also shows that the averages of respondents' mean expectations (the gold diamonds) increase gradually after the end of 2022, consistent with uncertainty about the federal funds rate that is tilted to the upside at the effective lower bound. This tilt is evident in figure 2, which shows the average probability distribution for the federal funds rate at year-end 2023 implied by the Desk's surveys. In particular, while the modal expected outcome is in the current target range, respondents attached some probability to an increase in the target range by year-end 2023 and a negligible probability to decreases below zero.

The Desk surveys also asked respondents for their estimates of the values of various macroeconomic variables at their expected time of the first increase in the target range of the federal funds rate. The median response for the unemployment rate (as shown in figure 3) was 4 percent, for the labor force participation rate was 63 percent, for headline 12-month PCE inflation (as shown in figure 4) was 2.3 percent, and for the total change in the level of real GDP relative to the fourth quarter of 2019 was 7 percent. These median responses were very little changed from the September surveys. Figures 3 and 4 also show a wide dispersion across survey respondents in the expected timing of liftoff, and considerable dispersion of the unemployment rate and PCE inflation rate at the time of liftoff. Figure 3 shows that respondents who expect a later increase in the federal funds rate expect that the unemployment rate will be

<sup>1</sup> Estimates of the expected path of the federal rates implied by the staff term structure model (the purple lines in figure 1), which is obtained using OIS quotes, can be quite sensitive to small changes in the data when OIS rates are close to zero over the next several years. Hence, the upward revision since the September FOMC to the expected path for the federal funds rate from this model should be interpreted with caution.

<sup>2</sup> The Desk surveys asked respondents to provide their views about the most likely path of the federal funds rate through the end of 2023. However, if a respondent did not indicate a rate increase by year-end 2023, they were asked a separate question about the earliest half-year period during which their modal expectation for the federal funds rate is above the current target range. This additional information can be used to infer the most likely path of the federal funds rate beyond 2023.

lower at that time, while figure 4 suggests that the vast majority of respondents expect inflation to be at or above 2 percent regardless of their expected time of the first increase in the federal funds rate.

Figure 5 shows measures of the longer-run expected federal funds rate. A straight read of forward rates implied by the prices of Treasury securities (the blue line) suggests that investors' current expectation for the average federal funds rate 5 to 10 years ahead is 1.23 percent. This measure has increased 17 basis points since the September meeting, but remains near its lowest level since the beginning of the series in 1971. Adjusting for term premiums using various staff term structure models (with the light-red-shaded region showing a range of four such model estimates) suggests that 5-to-10-year-ahead expectations remain significantly above the unadjusted forward rates, at between 1.93 and 3.31 percent.<sup>3</sup> The median long-run forecast from the latest Desk surveys (the green diamonds) was 2 percent, close to the lower end of the model-implied range.

The Desk surveys also asked respondents to report their probability distribution for the 10-year Treasury yield at the end of 2021. The average probability distribution, shown in figure 6, suggests that investors place the highest odds on the 10-year Treasury yield being in the 1-to-1½ percent range at the end of 2021. However, respondents assigned about equal probability to the 0.5-to-1 percent range, which includes the current level of the 10-year Treasury yield (about 0.8 percent). Of note, similar to the time of the April surveys, when this question was last asked (the dashed bars), respondents assigned a very low probability to the 10-year yield being above 2 percent by the end of 2021 (about 5 percent odds) and only around 10 percent odds to the 10-year yield being below ½ percent.

The Desk surveys again asked respondents to report their expectations for the Desk's purchases of U.S. Treasury securities and agency mortgage-backed securities (MBS), net of reinvestment, for the remaining months of the year, and for the years 2021 through 2023. Figures 7 and 8 show the medians and interquartile ranges of the individual responses. The median survey respondent expected monthly net U.S. Treasury and agency MBS purchases of \$80 and \$40 billion, respectively, through the second half of 2021, equivalent to the current purchase amounts. Respondents generally continued to expect purchases of both U.S. Treasury securities and agency MBS to slow over the remainder of the forecast period. Overall, the median

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<sup>3</sup> The widening of the model-based estimates over the past few months is explained by a large increase in the estimates from a staff term structure model that uses OIS rates to estimate the expected path of the federal funds rate. With OIS rates close to zero, estimates from this model are particularly uncertain and can be quite sensitive to small changes in the data. Accordingly, the large increase in the long-run estimates for the federal funds rate since the September meeting implied by this model should be interpreted with caution. Omitting this model's estimate, expectations for the federal funds rate 5-to-10-year-ahead are between 1.93 and 2.27 percent.

respondent's expected total purchases of U.S. Treasury securities and agency MBS between November and the end of 2023 were about \$1,840 billion and \$890 billion, respectively, about \$60 billion and \$150 billion higher than at the time of the September surveys.<sup>4</sup>

Figure 1: Federal Funds Rate Projections

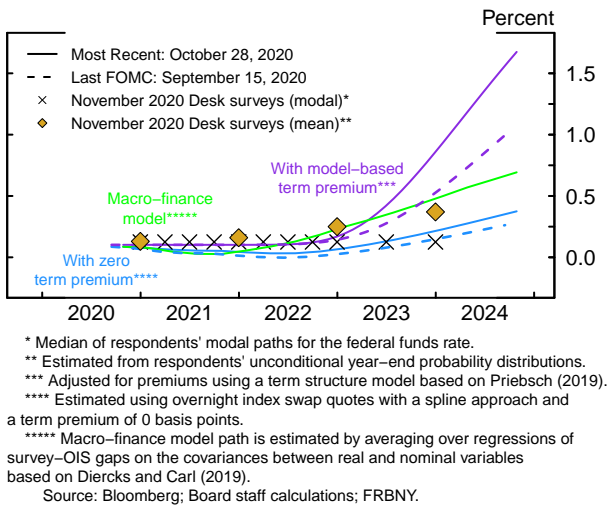


Figure 2: Desk Surveys Probability Distribution of the Federal Funds Rate, Year-End 2023

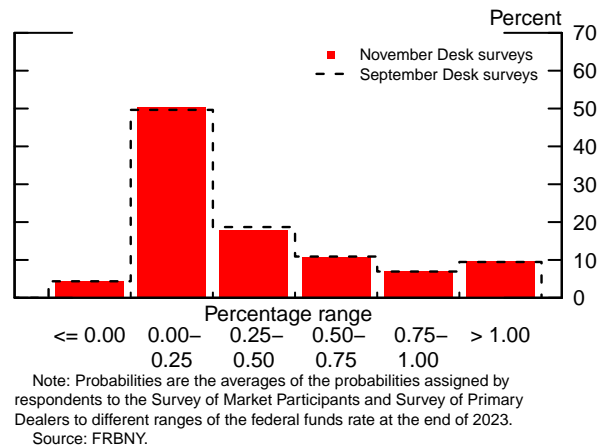


Figure 3: Unemployment Rate at and Most Likely Timing of First Rate Increase

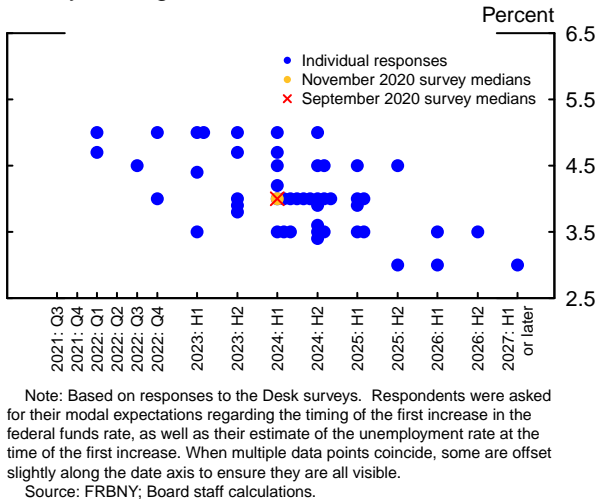
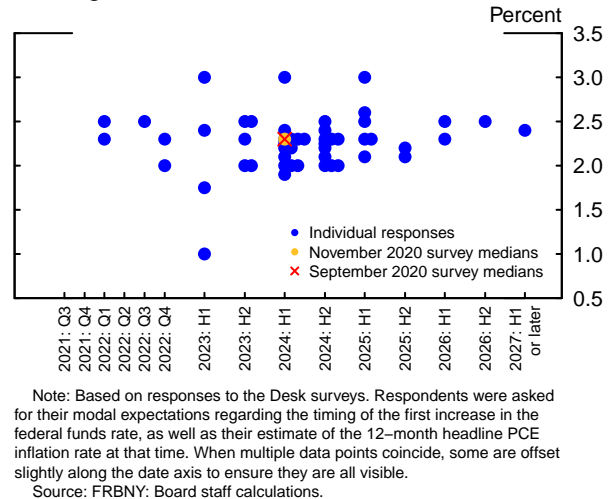
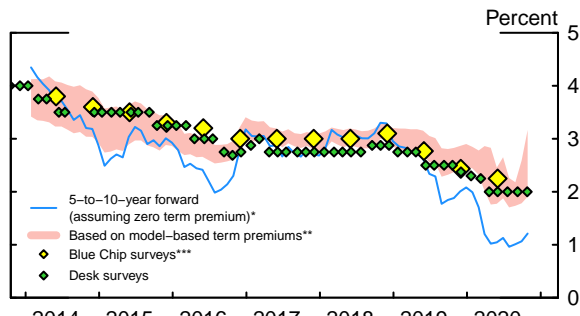


Figure 4: Inflation Rate at and Most Likely Timing of First Rate Increase



<sup>4</sup> Over the second half of 2023, the median respondent to the November surveys expected total net U.S. Treasury purchases of \$60 billion and no net purchases of agency MBS. At the time of the September surveys, the median respondent expected no net purchases of both Treasury securities and agency MBS over the same period.

Figure 5: Measures of Longer-Run Federal Funds Rate Expectations



\* Monthly average 5-to-10-year forward rate derived from prices of Treasury securities.

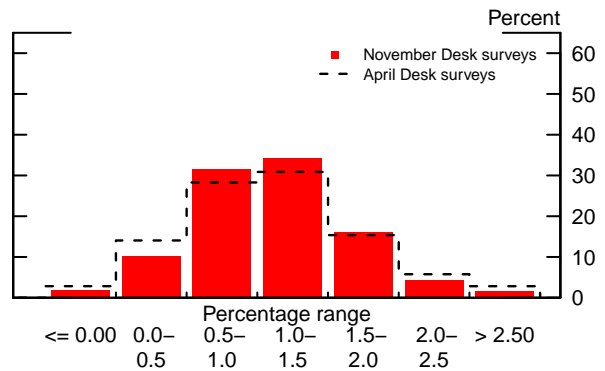
\*\* Monthly average 5-to-10-year forward rate adjusted for four alternative model-based term premium estimates using Kim and Wright (2005), D'Amico, Kim, and Wei (2018), Kim and Priebsch (2019), and Aronovich and Meldrum (2020).

\*\*\* Most recent longer-run survey value is from the June 2020 Blue Chip survey.

Note: Forward rates and term structure model estimates for October 2020 are based on values through October 28.

Source: Blue Chip; FRBNY; Board staff calculations.

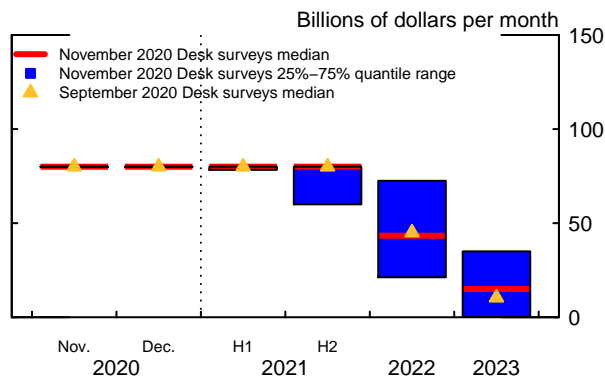
Figure 6: Desk Surveys Probability Distribution of the 10-Year Treasury Yield, Year-End 2021



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 2021.

Source: FRBNY.

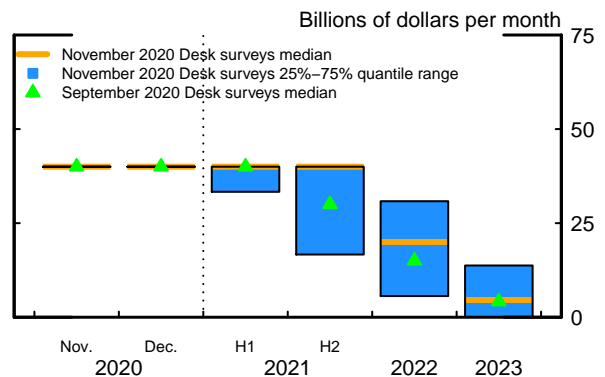
Figure 7: Expected Purchases of Treasury Securities Net of Reinvestments



Note: Values for H1-2021, H2-2021, 2022, and 2023 are monthly averages calculated from respondents' expectations for total purchases in those periods.

Source: FRBNY.

Figure 8: Expected Purchases of Agency MBS Net of Reinvestments



Note: Values for H1-2021, H2-2021, 2022, and 2023 are monthly averages calculated from respondents' expectations for total purchases in those periods.

Source: FRBNY.

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## Balance Sheet and Income Projections

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The staff has prepared projections of the Federal Reserve's balance sheet and the associated income statement, taking as given the economic and financial projections in Tealbook A. In comparison to the September Tealbook, and as a placeholder pending any further decisions by the Committee, the projections incorporate asset purchases for an additional year at the current pace. This assumption, along with reinvestment continuing until the policy rate reaches 1.25 percent, results in a substantial increase in the projected size of the balance sheet. The balance sheet is now projected to peak at a new high in early 2022 and to remain elevated through 2027, which results in a significantly more negative total term premium effect. As always, projections for the size and composition of the balance sheet are highly uncertain because of their dependence on the future course of the economy and policy actions.

**Total Assets.** Total assets were approximately \$7.1 trillion at the end of September 2020 and are projected to increase to a peak of roughly \$8.9 trillion in January 2022 (see the top-left panel in the exhibit titled "Total Assets and Selected Balance Sheet Items").<sup>1</sup> Compared with the September Tealbook, the projected peak is significantly higher, reflecting the extension of the assumed Treasury and agency MBS purchases by one year. Subsequently, total assets are projected to decline slightly over the next several years, with securities holdings remaining constant while balances in the credit and liquidity facilities decline. Thereafter, as the economy continues to improve and the policy rate reaches 1.25 percent, the decline in assets accelerates as maturing Treasury securities and agency MBS are assumed to roll off the balance sheet until reserve balances fall to a minimum level consistent with ample supply.

Total assets as a share of nominal GDP at the end of September 2020 stood at approximately 33 percent, and that ratio is projected to rise to 39 percent at the end of 2021, an all-time high (see the bottom-left panel of the exhibit). Thereafter, the ratio of total assets to nominal GDP declines for several years before leveling off at about 22 percent in 2029.

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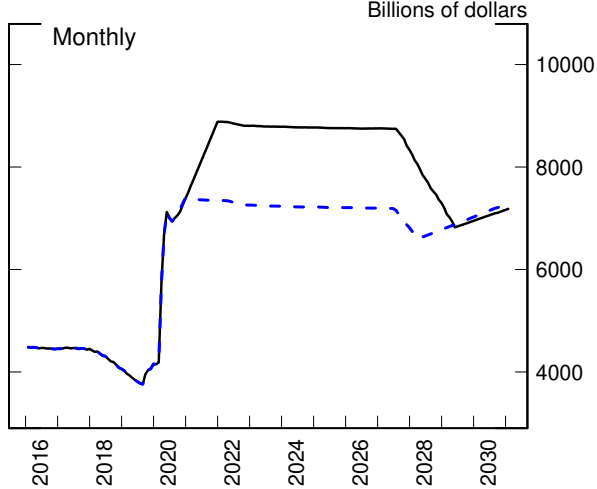
<sup>1</sup> For reference, the size of the Federal Reserve's balance sheet was \$4.2 trillion at the beginning of 2020.



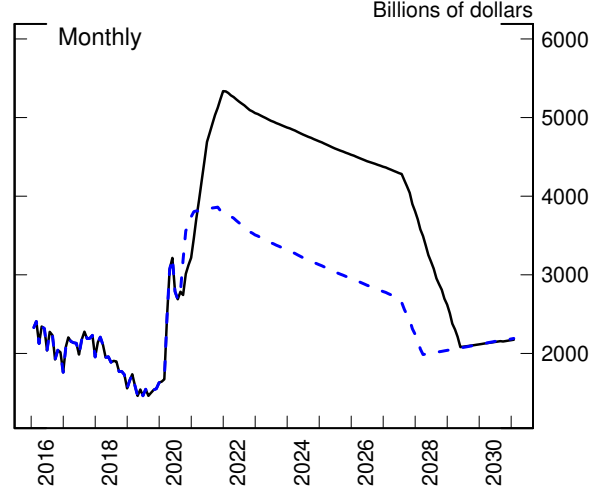
# Total Assets and Selected Balance Sheet Items

— October Tealbook baseline      - - - September Tealbook baseline

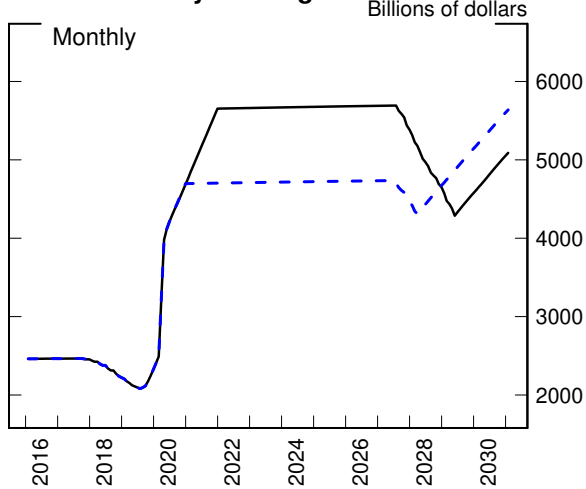
**Total Assets**



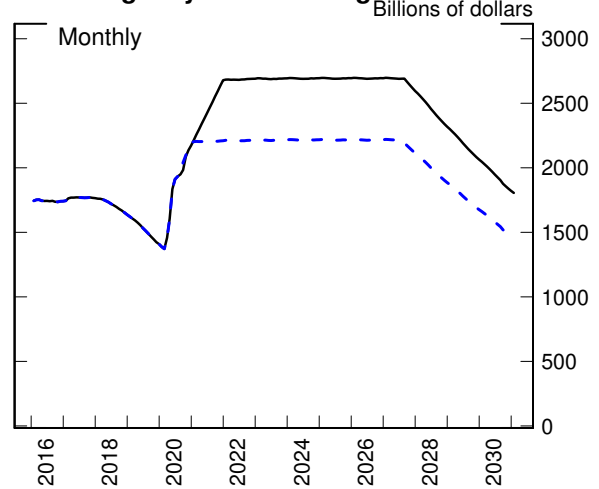
**Reserve Balances**



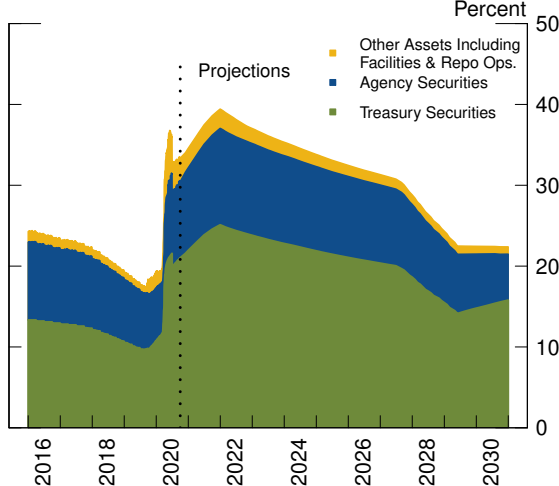
**SOMA Treasury Holdings**



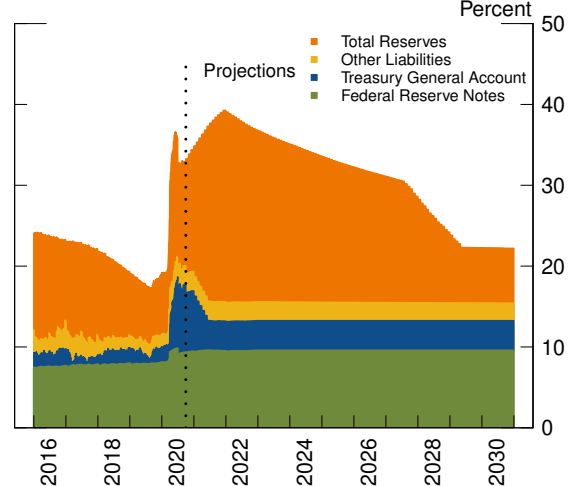
**SOMA Agency MBS Holdings**



**Assets as a Percent of GDP**



**Liabilities as a Percent of GDP**



Balance Sheet & Income

***SOMA Portfolio.*** At the end of September 2020, \$6.4 trillion of securities were held outright in the SOMA portfolio, consisting of \$4.4 trillion of Treasury securities and \$2.0 trillion of agency securities (see the exhibit titled “Federal Reserve Balance Sheet Month-end Projections—October Tealbook”). Current projections incorporate monthly increases in holdings of Treasury securities and agency MBS of \$80 billion and \$40 billion, respectively, through December 2021, and no increases thereafter.<sup>2,3,4</sup> As a comparison, the median respondent to the Desk’s November 2020 surveys of primary dealers and market participants forecasted net monthly increases of \$80 billion of Treasury securities and \$40 billion of agency MBS through December 2021 and continued increases but at a diminishing pace until 2023.<sup>5</sup>

The staff continues to assume that maturing Treasury securities will be reinvested at auction and that principal payments received on agency MBS will be fully reinvested into agency MBS until the federal funds rate reaches 1.25 percent, which is projected to occur in 2027:Q3, as in the previous Tealbook. Subsequently, Treasury securities and agency MBS are assumed to roll off the balance sheet as they mature or prepay. The roll-off period is assumed to conclude when the ratio of reserve balances to nominal GDP falls to 7 percent, which is projected to occur in 2029:Q2, five quarters later than in the previous Tealbook.<sup>6</sup> This later date reflects the larger size of the balance sheet at the beginning of roll-off. Thereafter, maturing Treasury securities are reinvested at auction,

<sup>2</sup> Unless otherwise noted, all numerical figures here and henceforth for “MBS” refer to agency residential MBS. Agency CMBS purchases have been small to date, and the staff assumes that the holdings of these securities will remain at their end-of-September level of \$9.5 billion before rolling off the balance sheet completely in 2030.

<sup>3</sup> The staff assumes that the maturity distribution of the Treasury purchases will be broadly the same as that of the purchases that have occurred since March 15, which are distributed across the curve and exclude bills.

<sup>4</sup> To better align our model assumption with market practice, MBS are now assumed to be purchased at a relatively higher coupon than the assumed par coupon. As a reminder, the MBS purchases and reinvestments are conducted in the to-be-announced (TBA) market. The FRBNY Desk targets purchases of newly issued MBS in the TBA market that are the most liquid and readily available, which are usually premium coupon securities. This change in assumption has minor implications for the size of the balance sheet and the portfolio income.

<sup>5</sup> For Treasuries, the median respondent to the Desk’s November 2020 surveys implied monthly purchases of \$45 billion on average in 2022 and \$15 billion on average in 2023. For agency MBS, the median respondent to the Desk’s November 2020 surveys implied monthly purchases of \$21 billion on average in 2022 and \$8 billion in the first half of 2023.

<sup>6</sup> The reserves to nominal GDP ratio of 7 percent is the ratio that was assumed to be consistent with an ample supply of reserves in the January 2020 Tealbook (see the box “Money Market Developments and Monetary Policy Implementation” in the February 2020 Monetary Policy Report). Given the considerable uncertainty regarding policy actions affecting the size of the balance sheet and the duration over which the balance sheet will remain elevated, the date at which reserves will reach 7 percent of nominal GDP and the corresponding level of reserves is highly uncertain.

**Federal Reserve Balance Sheet**  
**Month-end Projections - October Tealbook**  
(Billions of dollars)

	Historical*			Projected				
	Sep 2017	Feb 2020	Sep 2020	Dec 2020	Dec 2021	Dec 2022	Dec 2025	Dec 2030
Total assets	4,460	4,158	7,056	7,387	8,882	8,804	8,758	7,163
Selected assets								
Securities held outright	4,240	3,863	6,431	6,862	8,335	8,354	8,380	6,875
U.S. Treasury securities	2,465	2,489	4,445	4,686	5,654	5,661	5,683	5,051
Agency securities	1,775	1,374	1,985	2,175	2,681	2,693	2,697	1,824
Loans and other credit extensions	2	0	106	92	84	14	0	0
Facilities	2	0	103	92	84	14	0	0
Discount window	0	0	3	1	0	0	0	0
Central bank liquidity swaps	4	0	24	7	0	0	0	0
Repurchase agreements	0	126	1	0	0	0	0	0
Total liabilities	4,419	4,119	7,017	7,348	8,842	8,763	8,710	7,104
Selected liabilities								
Federal Reserve notes	1,532	1,753	1,984	2,017	2,142	2,274	2,579	3,059
Reverse repurchase agreements	557	229	205	206	217	229	260	308
Deposits	2,323	2,131	4,704	5,116	6,474	6,250	5,861	3,723
Reserve balances held by depository institutions	2,073	1,691	2,743	3,217	5,336	5,057	4,527	2,169
U.S. Treasury, General Account	159	357	1,782	1,600	831	877	995	1,181
Other deposits	91	83	179	299	307	316	339	374
Total capital**	41	39	39	39	40	41	47	60

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 following the onset of the COVID-19 pandemic.

\*\*Total capital includes capital paid-in and capital surplus accounts.

while principal payments received on agency MBS are reinvested into Treasury securities.<sup>7</sup> In addition, reserve management purchases of Treasury securities are assumed to expand the SOMA portfolio in line with trend increases in the demand for reserves and in other Federal Reserve liabilities.

***Facilities and Operations.*** As was the case in the September Tealbook, the staff assumes that the outstanding amounts under the discount window, central bank liquidity swaps, the Primary Dealer Credit Facility (PDCF), and the Money Market Mutual Fund Liquidity Facility (MMLF) continue gradually tapering off (see the exhibit titled “Outstanding Balances in Facilities and Operations”). For the Term Asset-Backed Securities Loan Facility (TALF), Paycheck Protection Program Liquidity Facility (PPPLF), Secondary Market Corporate Credit Facility (SMCCF), Municipal Liquidity Facility (MLF), and Main Street Lending Program (MSLP), the staff assumes that credit outstanding peaked in September 2020 and will remain constant at that level for several years before gradually tapering off. Finally, the outstanding amounts of repurchase agreements, the Commercial Paper Funding Facility (CPFF), and the Primary Market Corporate Credit Facility (PMCCF) are assumed to remain at zero for the forecast horizon.<sup>8</sup>

***Reserve Balances.*** At the end of September 2020, the level of reserve balances stood at about \$2.7 trillion. The staff projects reserve balances to reach nearly \$5.3 trillion in late 2021, reflecting the assumption of further increases in securities holdings until the end of next year and projected reductions in balances maintained in the Treasury General Account (TGA) (see the upper-right panel in the exhibit titled “Total Assets and Selected Balance Sheet Items”).<sup>9,10</sup> Over the following five years or so, reserve balances

<sup>7</sup> The staff assumes that reinvestments 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 reinvestment.

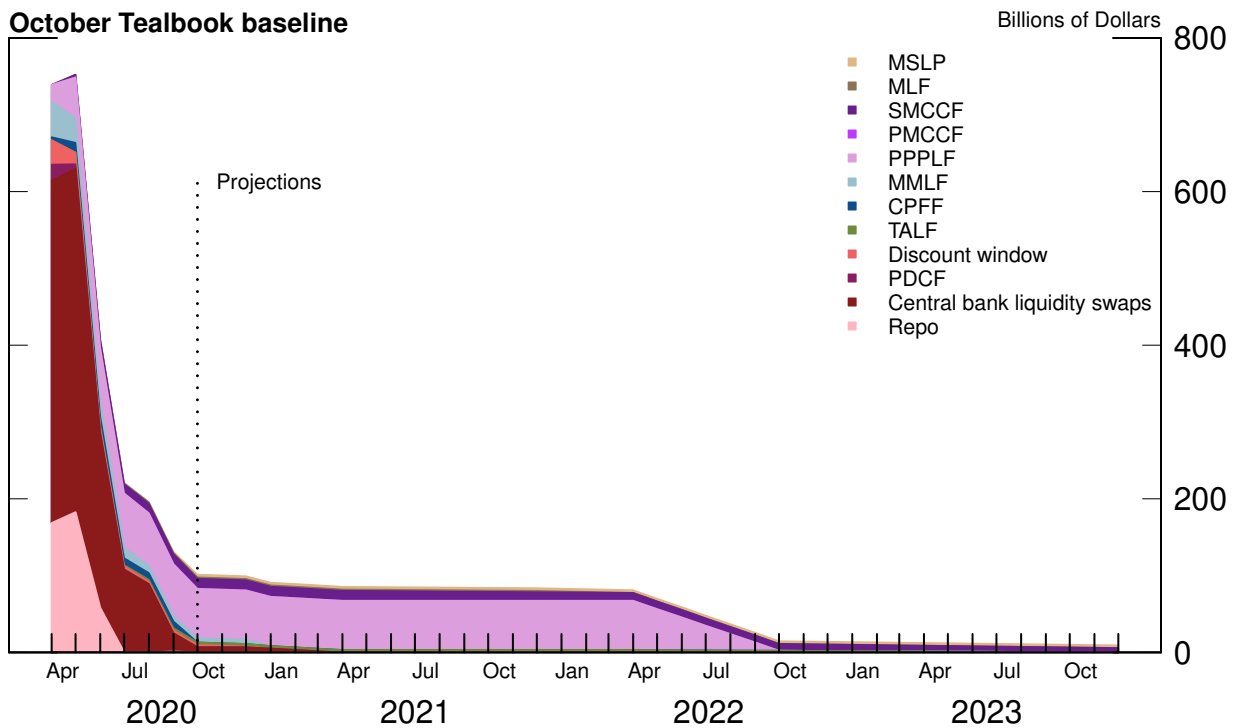
<sup>8</sup> The median respondent to the Desk’s November 2020 surveys of primary dealers and market participants forecasted total outstanding balances across all facilities and operations of \$215 billion on December 30, 2020.

<sup>9</sup> For an analysis of how growing reserve levels may influence the banking sector and money markets, see the October 21, 2020 memo to the FOMC titled “Assessing Risks Related to Adding High Levels of Reserves to the Banking System”.

<sup>10</sup> As in recent Tealbooks, the TGA balance remains elevated and the path going forward is highly uncertain. In light of this uncertainty and the precautionary approach taken by the Treasury, the staff projects a continuing elevated TGA balance in the near term. Specifically, the TGA is projected to be \$1.6 trillion at the end of 2020:Q4. Thereafter, the staff assumes that the TGA balance gradually declines to \$800 billion over the following six months and stays flat for the following three months. After this point, the TGA resumes growth in line with nominal GDP, as in previous projections. The uncertain

# Outstanding Balances in Facilities and Operations

October Tealbook baseline



Balance Sheet & Income

Note: 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).

are projected to fall at a moderate pace with the growth in non-reserve liabilities and the decline in facilities usage.<sup>11</sup> The pace of decline in reserves steps up in 2027:Q3 as maturing Treasury securities and agency MBS begin to roll off the balance sheet. This more rapid pace of runoff continues until 2029:Q2, when reserves reach their assumed share of nominal GDP of 7 percent, which corresponds to a level of just over \$2 trillion at that point. Thereafter, reserves are projected to grow in line with nominal GDP.

***Duration.*** As shown in the exhibit titled “Projections for the Characteristics of SOMA Treasury Securities Holdings,” relative to the September Tealbook, the path for the weighted-average duration of the SOMA Treasury portfolio is largely unchanged over the medium term but shows some divergence starting in 2028. The weighted-average duration is projected to initially increase to 6.5 years in 2023 and then slightly decrease during the full reinvestment period. Subsequently, during the portfolio roll-off phase, which starts in mid-2027, the portfolio shrinks fairly quickly because of the sizable share of securities with shorter maturities. As a result of the rapid roll-off, the weighted-average duration increases again and reaches a peak of 6.5 years in 2029. Afterwards, the weighted-average duration resumes declining at a rapid pace as Treasury bills are purchased to accommodate trend growth in liabilities.<sup>12</sup> The SOMA Treasury portfolio attains its assumed longer-run composition, consisting of one-third Treasury bills, in 2036:Q4, five quarters 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) of the SOMA Portfolio,” the securities held in the SOMA portfolio are estimated to push the term premium embedded in the 10-year Treasury yield down by 279 basis points in the current quarter. In comparison with the

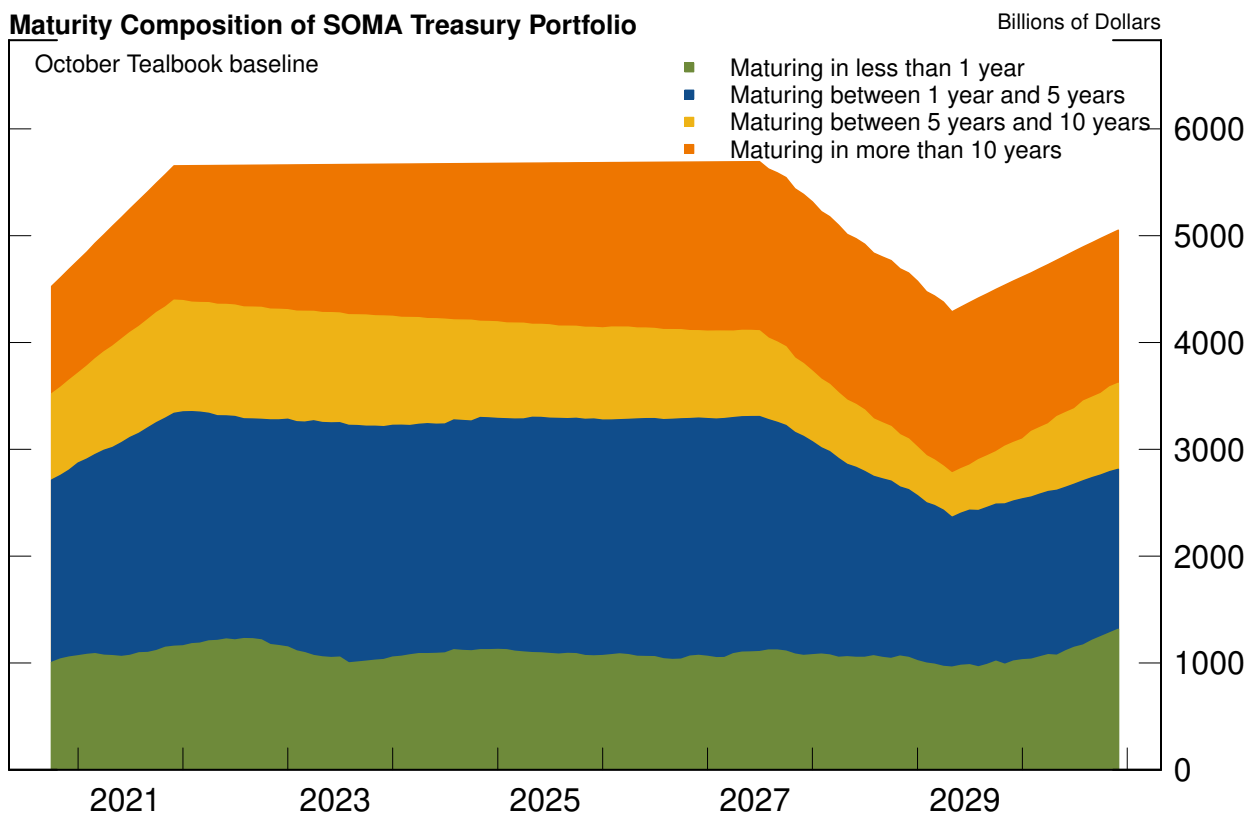
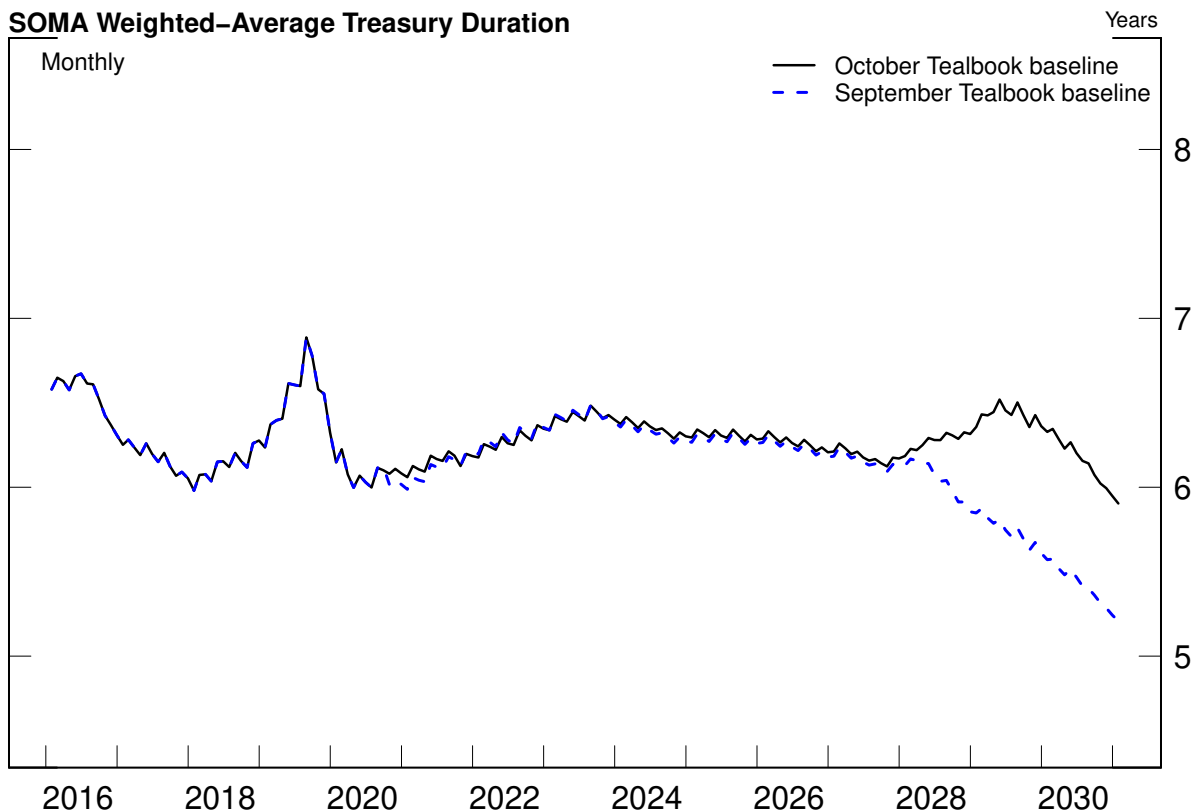
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outlook for the TGA reflects uncertainty about a number of factors including the timing of outlays, the enactment of another fiscal stimulus bill, and the termination of the suspension of the debt limit next summer.

<sup>11</sup> The staff assumes that the foreign repo pool and overnight reverse repo operations grow in line with nominal 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.

<sup>12</sup> The share of bills is projected to increase to 15 percent of the SOMA Treasury portfolio by 2030, up from the realized value of 7 percent at the end of September 2020. In comparison to the September Tealbook, the projected share of bills in 2030 is 5 percent lower. Furthermore, the staff continues 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



**Projections for the 10-Year Treasury  
Total Term Premium Effect (TTPE) of the SOMA Portfolio**  
(Basis points)

Date	October Tealbook	September Tealbook
2020: Q4	-279	-239
2021: Q1	-278	-236
Q2	-276	-234
Q3	-274	-231
Q4	-271	-229
2022: Q4	-258	-218
2023: Q4	-243	-207
2024: Q4	-227	-195
2025: Q4	-212	-184
2026: Q4	-196	-173
2027: Q4	-181	-163
2028: Q4	-169	-156
2029: Q4	-160	-149
2030: Q4	-153	-142

Note: Values shown are quarterly averages.



previous Tealbook, on average, the TTPE path is expected to be about 27 basis points more negative through 2030 reflecting the larger size of the SOMA portfolio over this period. Over the projection horizon, the magnitude of the downward pressure exerted on the term premium embedded in the 10-year Treasury yield is projected to diminish gradually, at an average pace of about 13 basis points per year. At the end of the projection horizon in 2030, the TTPE of the SOMA portfolio on the 10-year Treasury yield is estimated to be negative 153 basis points.<sup>13</sup>

As always, 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 MBS held in the SOMA portfolio.<sup>14</sup> Other factors, notably the current and projected size and composition of Treasury debt outstanding, have important effects on the level of term premiums. While the effects of factors other than SOMA holdings are not captured in the TTPE values reported here, other staff analysis provided estimates for the effects of increases in the projected size and maturity of Treasury securities outstanding on term premiums.<sup>15</sup>

***Unrealized Gains or Losses.*** The SOMA portfolio was in a net unrealized gain position of \$404 billion at the end of September 2020. With longer-term interest rates projected to rise, the unrealized gain position is expected to decline over the next several years (see the top panels of the exhibit titled “Market Value and Income Projections”). The unrealized gain becomes an unrealized loss position in early 2023, and the unrealized loss position bottoms out at around \$325 billion in 2028.<sup>16</sup> Reflecting the relatively

<sup>13</sup> As a comparison, if we assume the purchase path based on the median respondent to the Desk’s November 2020 surveys of primary dealers and market participants, the TTPE path is expected to be more negative than the October Tealbook baseline through 2030. In the current quarter, the magnitude of the downward pressure exerted on the term premium embedded in the 10-year Treasury yield is about 20 basis points more negative than in the baseline, and the difference diminishes over the projection horizon to only 4 basis points more negative by 2030.

<sup>14</sup> While other Federal Reserve assets, including facilities and agency CMBS, are not incorporated into the TTPE model, any potential effects of these policy actions on credit spreads are embedded in the financial projections presented in Tealbook A.

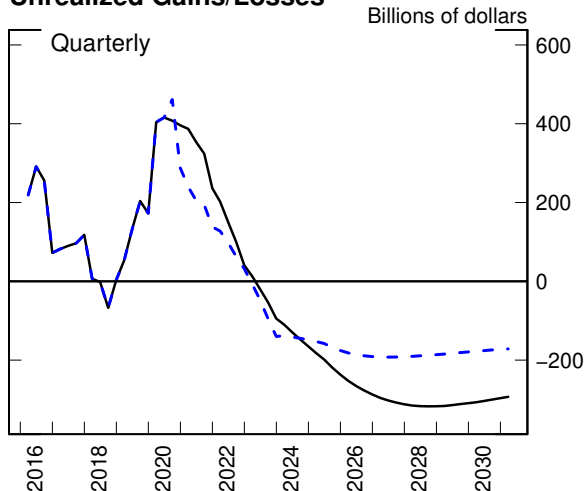
<sup>15</sup> In particular, the analysis in the October 16, 2020 memo to the FOMC titled “Considerations for Asset Purchases” suggests that the increases in the projected size and maturity of Treasury securities outstanding are projected to boost the path of the term premium by nearly 150 basis points over the next few years relative to its pre-pandemic level. For earlier analysis of the effects of Treasury’s debt management on term premiums, 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” and the July 2020 memo titled “Treasury Issuance Following Covid-19: Implications for Interest Rates”.

<sup>16</sup> 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.

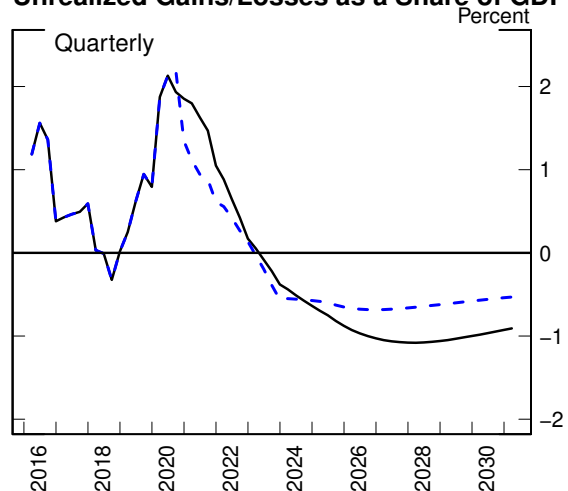
## Market Value and Income Projections

— October Tealbook baseline      - - - September Tealbook baseline

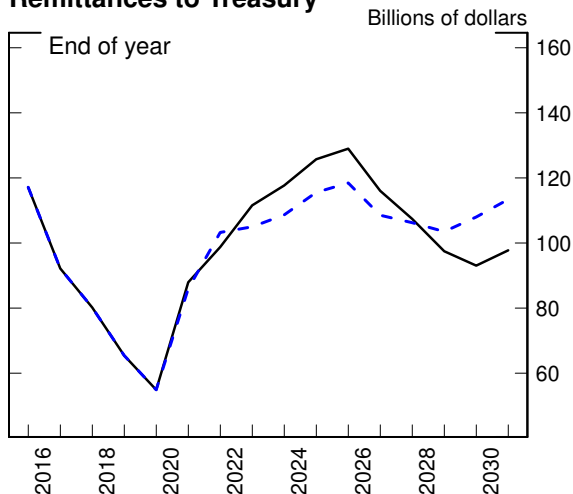
### Unrealized Gains/Losses



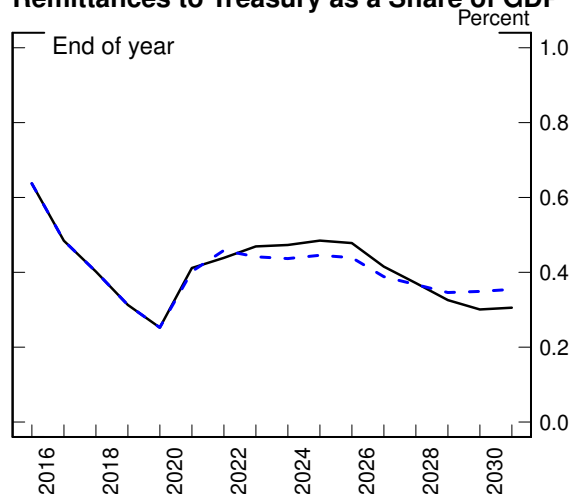
### Unrealized Gains/Losses as a Share of GDP



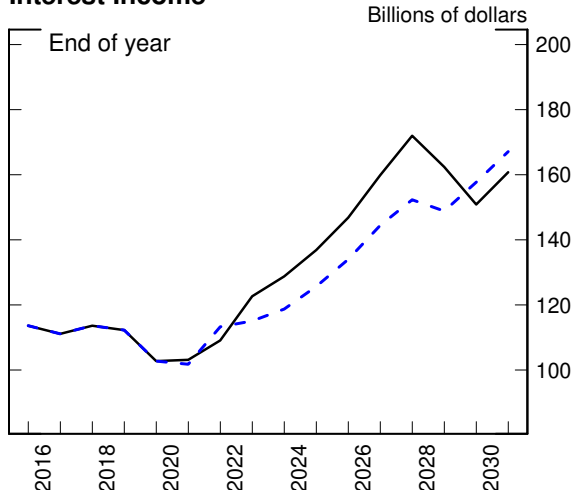
### Remittances to Treasury



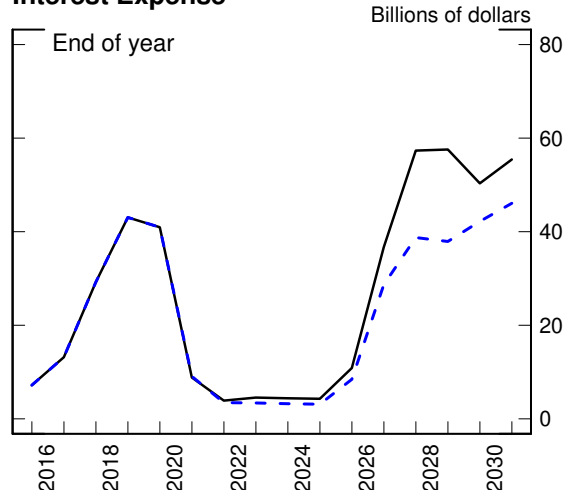
### Remittances to Treasury as a Share of GDP



### Interest Income



### Interest Expense



lower projected path of longer-term interest rates in the staff's economic projection, the path for the unrealized gain position of the SOMA portfolio is higher than the path in the September Tealbook during the first several years. Further out in the projection period, with the additional asset purchases made in 2021 when the interest rates are expected to be low, the unrealized gain position of the SOMA portfolio becomes more negative than the path in the September Tealbook.

***Remittances.*** Overall, when compared with the September Tealbook, remittances are projected to be higher over the next several years and lower thereafter (see the middle panels of the exhibit titled "Market Value and Income Projections"). Given the elevated size of the SOMA portfolio, interest income is projected to be higher for the next several years (see the bottom-left panel of the exhibit). Similarly, interest expense is also higher with a larger SOMA portfolio (see the bottom-right panel of the exhibit).

## Abbreviations

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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
G-SIBs	global systemically important banking organizations

HQLA	high-quality liquid assets
IOER	interest on excess reserves
ISM	Institute for Supply Management
LFPR	labor force participation rate
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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