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.

Report to the FOMC on Economic Conditions and Monetary Policy

Book B

Monetary Policy Alternatives

September 10, 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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This Tealbook B is dedicated to the memory of

Heinrich T. (Thomas) Laubach

1965 - 2020

Our hearts are heavy at the untimely passing of a great leader, colleague, and friend. His legacy will live on in the Division of Monetary Affairs, throughout the Board and Federal Reserve System, and across the global economics and central banking communities.

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Monetary Policy Alternatives

Economic activity in recent months has rebounded to a greater degree than had been previously expected. Nonetheless, the economy remains far away from the Committee's maximum employment and price stability goals, and the outlook remains highly uncertain amid the ongoing COVID-19 pandemic. Accordingly, all three of the alternative policy statements presented below maintain the target range for the federal funds rate at 0 to ¼ percent, continue to increase securities holdings at the current pace, and reiterate the Committee's commitment to use its full range of tools to support the U.S. economy. The three alternatives vary, however, in their guidance regarding the likely future path of monetary policy.

Each of the alternatives revises the Committee's policy communications to incorporate elements of the Committee's Statement on Longer-Run Goals and Monetary Policy Strategy (henceforth, the consensus statement). In particular, all alternatives state the Committee's goals of "maximum employment and inflation at the rate of 2 percent over the longer run." Consistent with the revised consensus statement, and in light of inflation running persistently below 2 percent, each of the alternatives go on to state that "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 alternatives differ regarding the guidance they provide for the future course of monetary policy. Alternative B states that the Committee "expects to maintain an accommodative stance of monetary policy" until the Committee's desired outcomes are achieved. Regarding forward guidance for the federal funds rate, this alternative conveys that the Committee "expects it will be appropriate" to keep the federal funds rate at the effective lower bound "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."

Alternative A conveys a more accommodative stance of monetary policy than Alternative B by providing a more stringent criterion for inflation in the forward guidance. In particular, it states that the Committee anticipates keeping the federal funds rate at the effective lower bound "until shortfalls of employment from assessments of its maximum level have been eliminated and inflation on a 12-month basis has moderately exceeded 2 percent for some time." Hence, the federal funds rate under Alternative A would likely remain at the effective lower bound for a longer time than under Alternative B.

Alternative C retains the forward guidance that the Committee included in its July postmeeting statement, but places this guidance in the context of the goals articulated in the revised consensus statement. In particular, under Alternative C the Committee would repeat its previously stated intention to maintain the policy rate at the effective lower bound "until it is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals."

All three alternatives streamline the language on asset purchases and now note that these purchases will "help foster accommodative financial conditions," in addition to sustaining smooth market functioning. The alternatives continue to note that these purchases will also support the flow of credit to households and businesses. This adjustment to the rationale for asset purchases is in line with other Federal Reserve communications provided in recent months.

Alternatives B and C state that "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." This language, which draws on the revised consensus statement, emphasizes that the Committee's policy guidance is not an unconditional commitment because the stance of policy could change in the future if adjustments become appropriate for achieving the Committee's goals.

With regard to other elements of Alternatives A, B, and C:

- The three alternatives contain the same characterization of the incoming data with respect to the labor market, economic activity, and inflation. All alternatives provide a somewhat more upbeat depiction of the labor market and economic activity than was given in the July statement, while retaining the July statement's assessment of inflation developments.
- With respect to the outlook for economic activity and inflation, each of the alternatives repeats the Committee's judgment from July that the outlook "will depend significantly on the course of the virus." They state that the pandemic will continue to weigh on economic activity, employment, and inflation in the near term;

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to reflect the more favorable outlook than in July, the statements no longer state that the pandemic will weigh "heavily" on the economy.

- All three statements continue to convey the key point that the ongoing public health crisis poses considerable risks to the economic outlook over the medium term.
- As noted above, under each of the alternatives, the target range for the federal funds rate remains at 0 to ¼ percent.
- The organization of some elements of the alternatives has been modified somewhat from the July statement. In particular, the language regarding asset purchases has been moved into the same paragraph discussing the federal funds rate, thereby consolidating the material on the Committee's policy tools and settings.
- With no demand at repurchase agreement operations over the past couple of months, the sentence on repo operations has been omitted. Additionally, the explicit reference to agency commercial mortgage-backed securities has been dropped, in line with the revised draft directive to the Desk, which puts purchases of these securities on a backstop status.
- Under all three alternatives, the Committee would reiterate that, in assessing the stance of monetary policy, it will continue to monitor the implications of incoming information for the economic outlook. As noted above, Alternatives B and C also note that "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."

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July 2020 FOMC Statement

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

2. The coronavirus outbreak is causing tremendous human and economic hardship across the United States and around the world. Following sharp declines, economic activity and employment have picked up somewhat 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 weigh heavily on economic activity, employment, and inflation in the near term, and poses considerable risks to the economic outlook over the medium term. In light of these developments, the Committee decided to maintain the target range for the federal funds rate at 0 to 1/4 percent. The Committee expects to maintain this target range until it is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals.

4. The Committee will continue to monitor the implications of incoming information for the economic outlook, including information related to public health, as well as global developments and muted inflation pressures, and will use its tools and act as appropriate to support the economy. In determining the timing and size of future adjustments to the stance of monetary policy, the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

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

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ALTERNATIVE A FOR SEPTEMBER 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 ~~coronavirus outbreak~~ **COVID-19 pandemic** is causing tremendous human and economic hardship across the United States and around the world. ~~Following sharp declines,~~ Economic activity and employment have picked up ~~somewhat~~ 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 ~~heavily~~ on economic activity, employment, and inflation in the near term, and poses considerable risks to the economic outlook over the medium term. ~~In light of these developments, the Committee decided to maintain the target range for the federal funds rate at 0 to 1/4 percent. The Committee expects to maintain this target range until it is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals.~~

4. **The Committee 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. In support of these goals, the Committee decided to keep the target range for the federal funds rate at 0 to 1/4 percent and anticipates that this target range will remain appropriate until shortfalls of employment from assessments of its maximum level have been eliminated and inflation on a 12-month basis has moderately exceeded 2 percent for some time.** ~~To support the flow of credit to households and businesses~~ **In addition**, over coming months the Federal Reserve will increase its holdings of Treasury securities and agency ~~residential and commercial~~ mortgage-backed securities at least at the current pace to sustain smooth market functioning~~, thereby fostering effective transmission of monetary policy to broader~~ **and help foster accommodative** financial conditions**, thereby supporting the flow of credit to households and businesses**. ~~In addition, the Open Market Desk will continue to offer large-scale overnight and term repurchase agreement operations. The Committee will closely monitor developments and is prepared to adjust its plans as appropriate.~~

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5. **In assessing the appropriate stance of monetary policy,** 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~~ **The Committee's** assessment**s** will take into account a wide range of information, including ~~measures of~~ **readings on public health,** labor market conditions, ~~indicators of~~ inflation pressures and inflation expectations, and ~~readings on~~ financial and international developments.

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ALTERNATIVE B FOR SEPTEMBER 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 ~~coronavirus outbreak~~ **COVID-19 pandemic** is causing tremendous human and economic hardship across the United States and around the world. ~~Following sharp declines,~~ Economic activity and employment have picked up ~~somewhat~~ 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 ~~heavily~~ on economic activity, employment, and inflation in the near term, and poses considerable risks to the economic outlook over the medium term. ~~In light of these developments, the Committee decided to maintain the target range for the federal funds rate at 0 to 1/4 percent. The Committee expects to maintain this target range until it is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals.~~

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

5. **In assessing the appropriate stance of monetary policy,** 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~~

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~~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~~ **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** assessment**s** will take into account a wide range of information, including ~~measures of~~ **readings on public health,** labor market conditions, ~~indicators of~~ inflation pressures and inflation expectations, and ~~readings on~~ financial and international developments.

ALTERNATIVE C FOR SEPTEMBER 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 ~~coronavirus outbreak~~ **COVID-19 pandemic** is causing tremendous human and economic hardship across the United States and around the world. ~~Following sharp declines,~~ Economic activity and employment have picked up ~~somewhat~~ 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 ~~heavily~~ 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.** In ~~light of these developments~~ **support of these goals**, the Committee decided to maintain the target range for the federal funds rate at 0 to 1/4 percent. The Committee expects to maintain this target range until it is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals. ~~To support the flow of credit to households and businesses~~ **In addition**, over coming months the Federal Reserve will increase its holdings of Treasury securities and agency ~~residential and commercial~~ mortgage-backed securities at least at the current pace to sustain smooth market functioning~~, thereby fostering effective transmission of monetary policy to broader~~ **and help foster accommodative** financial conditions**, thereby supporting the flow of credit to households and businesses**. ~~In addition, the Open Market Desk will continue to offer large-scale overnight and term repurchase agreement operations. The Committee will closely monitor developments and is prepared to adjust its plans as appropriate~~.

5. **In assessing the appropriate stance of monetary policy,** 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~~ **The Committee would be prepared to adjust the stance of monetary policy as appropriate if risks**

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emerge that could impede the attainment of the Committee's goals. The Committee's assessment**s** will take into account a wide range of information, including ~~measures of~~ **readings on public health,** labor market conditions, ~~indicators of~~ inflation pressures and inflation expectations, and ~~readings on~~ financial and international developments.

Alternatives

ECONOMIC CONDITIONS AND OUTLOOK

- The data released during the intermeeting period indicate that economic activity is recovering faster than the staff projected in the July Tealbook.
    - The staff now projects real GDP to rise at annual rates of nearly 30 percent in the third quarter and 4.5 percent in the fourth quarter. For the year as a whole, the staff expects real GDP to register a decline of 3.2 percent, compared with a 5.6 percent decline in the previous forecast.
    - As of July, consumer spending had recovered about three-fourths of its March–April decline, led by a stronger- and earlier-than-projected rebound in spending on both goods and services. On a quarterly basis, the staff expects consumption expenditures to increase at a 31 percent annual rate in the third quarter and 4.1 percent in the fourth quarter.
    - The rebound in both residential construction and new home sales, supported to some extent by low interest rates, has been surprisingly robust. The staff projects residential investment to increase 46 percent at an annual rate in the third quarter and to post a solid increase for 2020 as a whole.
    - After plummeting at an annual rate of about 25 percent in the second quarter, business fixed investment is now projected to post a 4.2 percent gain in the third quarter, compared with the 11.5 percent decline projected in the July Tealbook; investment is expected to increase another 3.2 percent at an annual rate in the fourth quarter.
- The July and August employment reports indicated greater improvement in the labor market than the staff had projected in the July Tealbook.
    - Currently published data indicate that nonfarm payroll employment rose 1.4 million in August. Despite the continued improvement, nonfarm payrolls have so far retraced only about half of the decline that occurred in March and April.
    - The reported unemployment rate dropped to 8.4 percent in August, as businesses continued to recall workers from temporary layoffs. With solid job gains expected over the rest of the year, the staff anticipates that the unemployment rate will fall to 7 percent by December.

- The labor force participation rate (LFPR) was little changed, on net, over the past two months and has recovered slightly more than half of its March–April plunge. Although the staff expects the LFPR to tick up in coming months as labor demand improves, the shift to virtual learning in the fall semester at most schools is expected to weigh on the labor supply of parents of school-aged children, holding down both actual and trend LFPR.

- Over the 12 months ending in July, headline PCE price inflation was 1 percent and core PCE price inflation was 1.3 percent.
    - Following sharp declines in March and April, monthly core PCE prices moved up in May and rose more appreciably in June and July. The staff projects this measure of inflation to be 1.3 percent in 2020, 0.2 percentage point higher than in the previous Tealbook.
    - With energy prices recovering only partially from their earlier collapse, the staff projects total PCE prices to rise 1.1 percent this year.
    - Over the medium term, with both economic slack and COVID-19-related effects diminishing, the staff expects both total and core inflation to move up to 1.7 percent in 2021. Thereafter, further improvements in the labor market push up inflation to 1.8 percent in 2022 and 1.9 percent in 2023.
    - Survey measures of longer-term inflation expectations have changed little, on balance, this year, with professional forecasters lowering their forecasts and households raising them slightly.

- Sentiment in financial markets improved over the intermeeting period in response to better-than-expected data on domestic economic activity and corporate earnings, and the decline in new COVID-19 cases in the United States.
    - Since the July FOMC meeting, broad equity prices increased notably, even as option-based measures of downside risks in equity markets remained elevated.
    - Inflation compensation also rose notably, reaching pre-pandemic levels. Nonetheless, inflation compensation stands at the lower end of its typical range in recent years.

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- Yields on 2-year nominal Treasury securities were little changed since the July FOMC meeting, while yields on 10- and 30-year Treasury securities increased somewhat.
- Liquidity conditions continued to normalize and, while they have not returned to their pre-pandemic levels in several markets, functioning has been orderly.
- Financing conditions in capital markets remained broadly accommodative over the intermeeting period, while bank lending conditions continued to be relatively tight.

- The staff continues to judge that the future course of the COVID-19 pandemic and its consequences for the economy remain the key risks to its outlook for the U.S. economy, and that uncertainty is highly elevated with risks skewed to the downside.
    - The "Risks and Uncertainty" section of Tealbook A, again considers a "Second Waves" scenario, in which the infection rate surges in the fourth quarter, so that another round of intense social distancing becomes necessary, and more substantial and protracted impairment of economic activity occurs. The staff now considers this scenario as less likely than the baseline, as measures taken in response to the June-July upturn in cases appear to have been effective at reducing caseloads without materially damping the recovery.
    - In light of the downside risks, the staff also includes a new "Slower Recovery" scenario, in which the better-than-expected data might be obscuring some persistent damage induced by the pandemic.

THE CASE FOR ALTERNATIVE B

The Committee may view the information received during the intermeeting period as confirming that, while economic activity is recovering more quickly than expected from the sharp second-quarter slump caused by the disruptions associated with the COVID-19 pandemic, a full recovery is still far away. Indeed, policymakers, like the staff, may judge that it may take several years for employment to reach estimates of its maximum level and for inflation to reach 2 percent. Consequently, policymakers might continue to assess that, in order to promote ongoing improvement in the labor market and a sustained return of inflation to 2 percent, highly accommodative monetary policy will be warranted for an extended period.

In light of the completion of the monetary policy framework review and the release of the revised consensus statement, policymakers may also deem it appropriate to incorporate elements of the revised consensus statement into the Committee's policy communications at the upcoming meeting. If so, they may wish to issue a statement like Alternative B, which would maintain the current target range for the federal funds rate and provide greater clarity about the Committee's outlook for monetary policy.

With inflation running persistently below the Committee's 2 percent objective, several survey-based measures of inflation expectations at or near the lower end of their historical ranges, and market-based measures of inflation compensation below their typical range in recent years, policymakers may be concerned that longer-term expected inflation could drift below 2 percent, thus making it more difficult for the Committee to achieve its employment and inflation goals in the years ahead. Accordingly, they may consider it appropriate to invoke the language of the revised consensus statement that following periods when inflation has been running persistently below the Committee's longer-run inflation objective, in order to ensure that inflation averages 2 percent and longer-term inflation expectations are well anchored at 2 percent, appropriate monetary policy "will aim to achieve inflation moderately above 2 percent for some time." To reinforce the public's confidence in the Committee's commitment to achieve these goals, policymakers may also deem it important to communicate that it will maintain an accommodative policy stance until these outcomes are achieved.

The outcome-based forward guidance in Alternative B offers greater clarity than the Committee's previous statements regarding the likely path of the target range for the federal funds rate by providing information on the economic conditions that the

Committee judges would warrant raising the target range for the federal funds rate. In particular, the new language indicates that the Committee "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." Such a formulation makes it likely that the public's expectations regarding the path of the federal funds rate would automatically adjust as the economic outlook evolves. For example, if an unexpected improvement in the pace of recovery in the labor market occurred, the expected period over which the federal funds rate was likely to remain at the effective lower bound would shorten. In addition, by better fixing expectations about the economic conditions that may warrant a future increase in the target range for the federal funds rate, the guidance may help prevent medium- and longer-term interest rates from rising too quickly as the recovery progresses. Policymakers may also see this form of outcome-based forward guidance as conveying the Committee's strong commitment to achieve both maximum employment and 2 percent inflation over the longer run.

The outcome-based forward guidance in Alternative B is expressed as an expectation rather than a promise. To reinforce that following through with the guidance may not be appropriate in all future states of the world, policymakers may consider emphasizing that "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 addition of this sentence would help clarify that the Committee retains flexibility to adjust policy as appropriate to support achievement of its goals in response to unexpected economic developments, including signs of unmoored long-run inflation expectations.

In a similar vein, policymakers may also be concerned about the potential build-up of financial vulnerabilities, including increased borrowing and financial leverage as well as asset price pressures, arising from a lengthy period of near-zero short-term interest rates or muted financial market volatility resulting from low uncertainty about monetary policy. In the current environment, policymakers may generally see macroprudential and supervisory tools rather than monetary policy as the primary means to address financial stability risks. Nonetheless, some policymakers may judge that, in circumstances in which financial stability risks threatened the achievement of the Committee's dual mandate goals and macroprudential tools had been or were likely to be ineffective at mitigating those risks, the Committee may deem it appropriate to adjust the stance of monetary policy. The language in paragraph 5 of Alternative B would apply to such circumstances in judging the appropriate stance of monetary policy.

Policymakers may further believe that the ongoing asset purchases to sustain smooth market functioning are also putting appropriate downward pressure on longer-term interest rates. In light of the improvement in financial market functioning, policymakers may judge it appropriate to signal that, in addition to sustaining smooth market functioning, the Committee assesses that increases in its securities holdings will "help foster accommodative financial conditions" and support the flow of credit to households and businesses.

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 through 2023. The Desk's surveys also suggests 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. The surveys indicate that most respondents expect the Committee to adopt a more explicit outcome-based forward guidance. While most respondents expect this change to forward guidance to occur by the end of the year, they are roughly split on the timing of the change, with slightly more expecting a change later in the year than at the September meeting. Although the expected timing of a change in forward guidance is somewhat uncertain, a statement like Alternative B would seem generally in line with expectations for how the Committee may revise its forward guidance. The market reactions to a statement like Alternative B is, however, highly uncertain.

Alternatives

THE CASE FOR ALTERNATIVE A

In light of the unprecedented depth of the recent economic downturn, along with high uncertainty about the path of the COVID-19 pandemic and its implications for the economic outlook, and with inflation likely to remain below 2 percent for several years, policymakers may wish to provide greater assurance that a highly accommodative stance of monetary policy will be maintained for a lengthy period of time. Alternative A signals a more accommodative path for the federal funds rate than in Alternative B by specifying a more stringent condition for inflation in the forward guidance for the federal funds rate. In particular, under Alternative A, the Committee anticipates keeping the target range of the federal funds rate at the effective lower bound "until shortfalls of employment from assessments of its maximum level have been eliminated and inflation on a 12-month basis has moderately exceeded 2 percent for some time." In addition, the draft statement under Alternative A does not include the language in Alternative B regarding the Committee's preparedness to adjust policy if risks emerge that could impede the attainment of the Committee's goals. Policymakers may judge that the stronger guidance in Alternative A would appropriately emphasize the Committee's commitment to the objectives and strategic approach articulated in the revised consensus statement.

Policymakers may also be concerned that, without aggressive policy action, inflation will remain below the Committee's 2 percent objective over the medium term. They may also judge that longer-term inflation expectations are already below levels consistent with the Committee's goals and that raising these expectations will require inflation to run above 2 percent for some time. Accordingly, under Alternative A, the Committee would require that inflation has "moderately exceeded" 2 percent and has done so "for some time" before increasing the federal funds rate.

A statement such as Alternative A could be seen by market participants as implying a more accommodative path for the policy rate than had been anticipated. If market participants interpret Alternative A as expressing the Committee's desire to provide additional accommodation so as to raise inflation to 2 percent or above, then medium-term interest rates may decline, and equity prices and longer-term inflation compensation would likely rise. As noted above, market reactions are particularly difficult to gauge in the current environment.

THE CASE FOR ALTERNATIVE C

Policymakers may judge that with the extraordinary actions taken by the Federal Reserve—including setting the federal funds rate at the effective lower bound, providing forward guidance about the future path of the federal funds rate, conducting substantial asset purchases, and implementing a range of credit and liquidity programs—to support the economy, there is not an immediate need to adjust the stance of policy, including the Committee's forward guidance. In light of the stronger-than-anticipated domestic data releases, some policymakers might expect a faster economic recovery than had been the case in July. These policymakers may nonetheless judge that the economy remains far away from the Committee's goals and conclude that the current stance of policy continues to be appropriate. They may also judge that the Committee's forward guidance so far has given market participants confidence that this accommodative stance will be maintained for the next few years. Some policymakers might judge that the historically low levels of long-term interest rates, at least to some extent, reflect the Committee's prior communications regarding extended periods of policy accommodation and thus regard continuity in those communications as desirable.

Policymakers may also continue to see uncertainty about the course of the COVID-19 pandemic and its implications for the economy as highly elevated and judge that the Committee can adapt and refine its monetary policy actions and communications in the future as the contours of the economic recovery come into sharper focus. Given the accumulation of strong data in recent months, policymakers might wish to ensure that the Committee has sufficient flexibility to modify its policy communications should it become necessary to do so. Until then, the Committee may want to maintain its previous forward guidance while signaling its readiness to adjust policy in the future.

Most of the respondents to Desk's September surveys of primary dealers and market participants expect a change in forward guidance to occur either at the September or December meetings. Against this backdrop, an announcement along the lines of Alternative C may not have much of an immediate market impact if expectations for a change in forward guidance simply shifted to later in the year. In contrast, if maintaining the previous forward guidance is perceived as a signal that the Committee is less willing to provide policy accommodation, then interest rates would likely rise, and equity prices and inflation compensation would likely decline.

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.

Alternatives

Implementation Note for September 2020, All Alternatives

Release Date: September 16, 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 ~~July 29~~ **September 16**, 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 ~~July 30~~ **September 17**, 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 ~~July 30~~ **September 17**, 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)~~, and agency commercial mortgage-backed securities (CMBS) at least~~ 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~~, thereby fostering effective transmission of monetary policy to broader financial conditions~~.
  - Conduct term and overnight repurchase agreement operations to support effective policy implementation and the smooth functioning of short-term U.S. dollar funding markets.
  - Conduct overnight reverse repurchase agreement operations at an offering rate of 0.00 percent and with a per-counterparty limit of $30 billion per day; the per-counterparty limit can be temporarily increased at the discretion of the Chair.
  - Roll over at auction all principal payments from the Federal Reserve's holdings of Treasury securities and reinvest all principal payments from the Federal Reserve's holdings of agency debt and agency MBS in agency MBS ~~and all principal payments from holdings of agency CMBS in agency CMBS~~.
  - Allow modest deviations from stated amounts for purchases and reinvestments, if needed for operational reasons.
  - Engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency MBS transactions."

- In a related action, the Board of Governors of the Federal Reserve System voted [unanimously] to approve the establishment of the primary credit rate at the existing level of 0.25 percent.

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

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

Monetary Policy Expectations and Uncertainty

Market-based measures of federal funds rate expectations were little changed on net over the intermeeting period, and suggested that the federal funds rate was expected to remain below 0.25 percent at least through the end of 2022. Similarly, the median respondent to the Desk's September surveys of primary dealers and market participants assigns the highest odds to the first increase in the federal funds rate coming in the first half of 2024. Communications about monetary policy during the intermeeting period, including the revised Statement on Longer-Run Goals and Monetary Policy Strategy, generally seemed to have limited effect on market-based measures of expectations.

The probability distribution of the federal funds rate at the end of 2020, based on option quotes and unadjusted for risk premiums, changed little since the July FOMC meeting (figure 1). It assigns the highest probability, about 40 percent, to the target range remaining at its current level at year-end. The same distribution assigns about 30 percent and 10 percent probability to the −0.25 to 0 percent range and to outcomes below −0.25 percent, respectively. In contrast with the relatively dispersed option-implied distribution, the average probability across respondents to the Desk's September surveys suggests that market participants are almost certain that the federal funds rate will end 2020 in the current target range (figure 2).[1]

Many respondents to the September Desk surveys expect revisions to the FOMC statement at the September meeting to align it with the changes to the Statement on Longer-Run Goals and Monetary Policy Strategy. In addition, most respondents continued to expect the Committee to adopt more explicit outcome-based forward guidance. About three quarters of the 50 respondents saw the change in forward guidance as most likely to occur by the end of 2020. However, respondents were more evenly split between the September (20 respondents) and December (13 respondents) meetings than in the July surveys, when a majority of respondents expected a change at the September meeting.

Looking further ahead, the expected path of the federal funds rate, as implied by OIS quotes and unadjusted for term premiums, was little changed (the blue lines in figure 3), and remains below 0.25 percent until the first half of 2024. The expected paths implied by two staff term structure models that adjust for term premiums (the purple and green lines) remain below 0.25 percent until at least the end of 2022. That said, these staff estimates are surrounded by considerable uncertainty.

[1] The difference between the option- and survey-based distributions continues to suggest that market-implied probabilities of negative rate outcomes reflect investors' willingness to pay a premium for options that provide a payoff in adverse scenarios associated with negative rates.

The median respondent to the Desk's September surveys views the most likely path of the federal funds rate as remaining in its current range through 2023 (the black crosses in figure 3). The averages of respondents' mean expectations (the gold diamonds) increase gradually over that period, consistent with uncertainty about the federal funds rate that, at the effective lower bound, is tilted to the upside. This tilt is evident in figure 4, which shows the distribution of expectations for the federal funds rate at year-end of 2023. In particular, while the modal expected outcome is in the current target range, the distribution is skewed toward higher outcomes.[2]

Although the net moves in the measures of federal funds rate expectations over the next few years were small over the intermeeting period, respondents to the September Desk surveys generally expected the economy to have recovered more and inflation to be higher at the time of the first increase in the federal funds rate, as compared with the July surveys. At the time of the first increase in the federal funds rate, the median respondent to the September surveys expected the unemployment rate to be 4.0 percent, down from 4.5 percent in July; and headline 12-month PCE inflation to be 2.3 percent, up from 2.1 percent in July. However, as shown in figures 5 and 6, histograms of respondents' estimates of the unemployment and inflation rates at the time of the first increase in the federal funds rate continue to indicate a wide dispersion in beliefs among respondents.

Figure 7 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 about 1.1 percent. This measure has increased about 10 basis points since the July meeting, but remains near the 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 are significantly above the unadjusted forward rates, at between 2.15 and 2.36 percent. The average longer-run forecast from the June Blue Chip survey (the yellow diamonds) and the median forecast from the latest Desk surveys (the green diamonds) were 2.25 percent and 2.0 percent, respectively, close to the model-implied range.

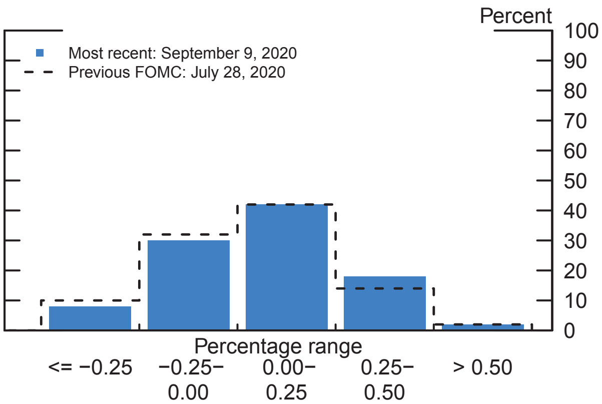
Figures 8 and 9 show the medians and interquartile ranges across individual survey respondents' expectations for the Desk's purchases of U.S. Treasury securities and agency mortgage-backed securities (MBS), net of reinvestments, for the remaining months of the year, and the monthly average for each year from 2021 to 2023. The median survey respondent expected monthly net U.S. Treasury and agency MBS purchases of $80 and $40 billion, respectively, through year-end, similar to the corresponding values in the July surveys, and equivalent to the current purchase amounts. Respondents generally expected the pace of purchases of both U.S.

[2] Respondents were not asked to report their distribution for end-2023 in the July surveys.

Alternatives

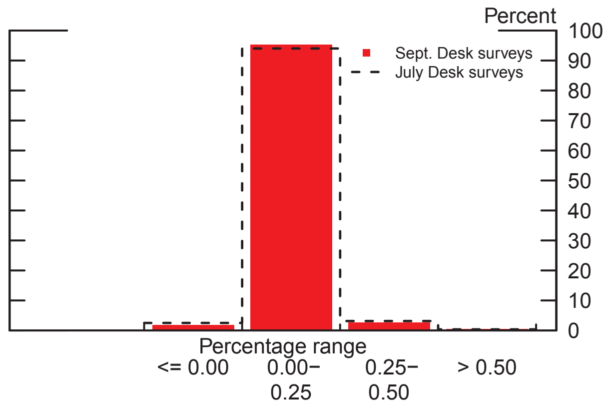
Treasury securities and agency MBS to slow through 2021 to 2023, although the median expectations for 2021 and 2022 are now somewhat higher than at the time of the July surveys.[3] The dispersion of expectations within the September surveys increases substantially for next year and beyond, but compared with the July surveys the dispersion narrowed for 2021 (not shown). A few respondents expected the Committee's characterization of asset purchases to eventually focus more on their role in providing policy accommodation, rather than supporting market functioning, but were generally unspecific on the timing of any change.

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



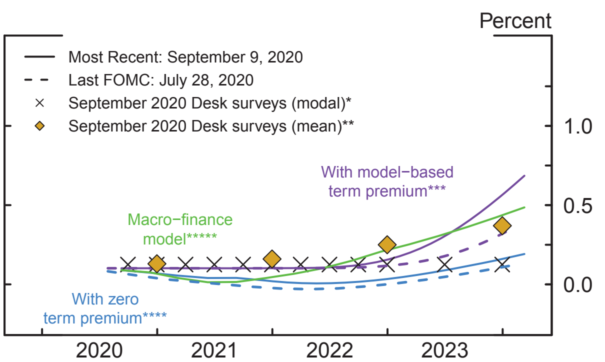
Note: Estimated from federal funds futures options, not adjusted for risk premiums. The distribution for January 2021 is used to provide a read on the distribution at the end of 2020.
Source: CME Group; Board staff calculations.

Figure 2: Desk Surveys Probability Distribution of the Federal Funds Rate, Year−End 2020



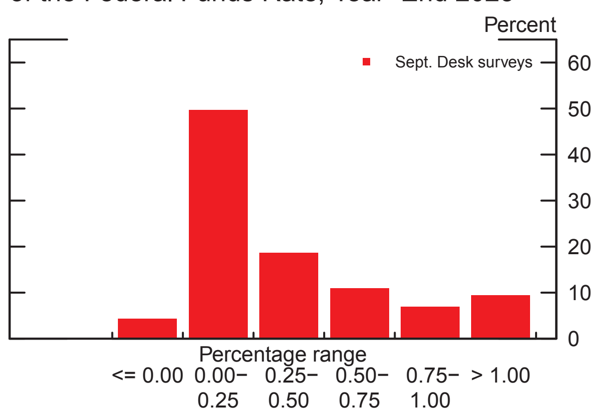
Note: Probabilities are the averages of the probabilities assigned by respondents to the Survey of Market Participants and Survey of Primary Dealers to different ranges of the federal funds rate at the end of 2020.
Source: FRBNY.

Figure 3: 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 based on Priebsch (2019).
**** Estimated using overnight index swap quotes with a spline approach and a term premium of 0 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.

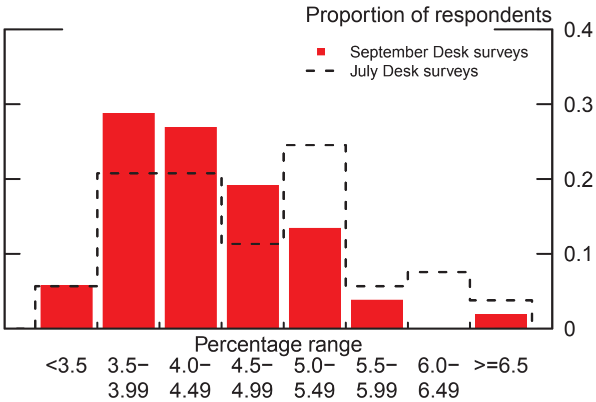
Figure 4: Desk Surveys Probability Distribution of the Federal Funds Rate, Year−End 2023



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 2023.
Source: FRBNY.

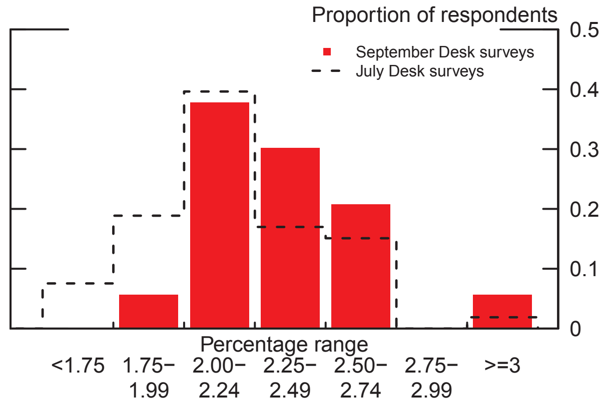
[3] The September surveys asked respondents for the first time to report their expectations for 2023.

Figure 5: Histogram of Respondents' Estimates of the Unemployment Rate at First Rate Increase



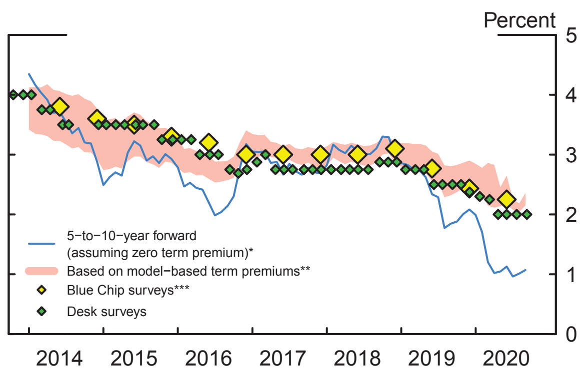
Note: Based on responses to the Desk surveys. Respondents were asked for their estimates of the unemployment rate at the time of the first federal funds rate increase.
Source: FRBNY; Board staff calculations.

Figure 6: Histogram of Respondents' Estimates of Inflation at First Rate Increase



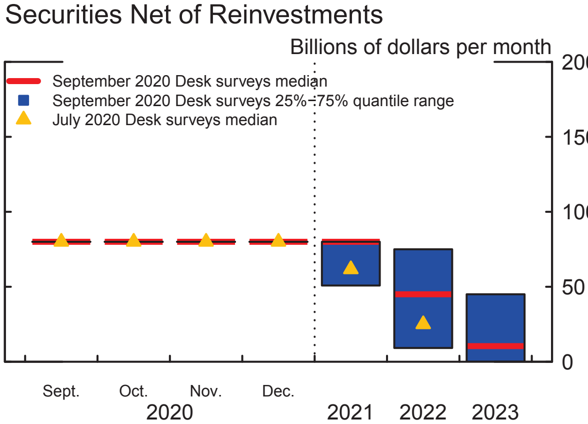
Note: Based on responses to the Desk surveys. Respondents were asked for their estimates of the 12−month headline PCE inflation rate at the time of the first federal funds rate increase.
Source: FRBNY; Board staff calculations.

Figure 7: Measures of Longer−Run Federal Funds Rate Expectations



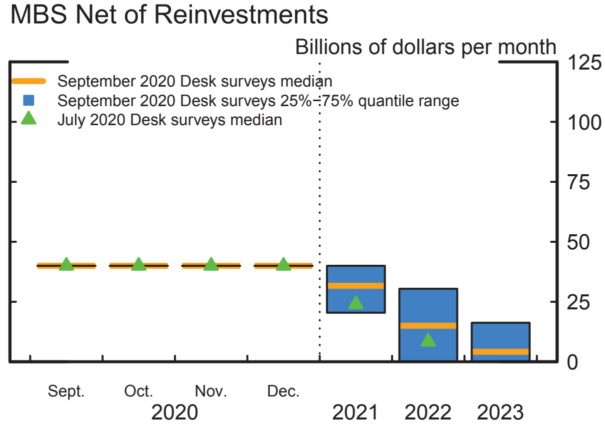
* Monthly average 5−to−10−year forward rate derived from prices of Treasury securities.
** Monthly average 5−to−10−year forward rate adjusted for four alternative model−based term premium estimates using Kim and Wright (2005), D'Amico, Kim, and Wei (2018), Kim and Priebsch (2019), and Aronovich and Meldrum (2020).
*** Most recent longer−run survey value is from the June 2020 Blue Chip survey.
Note: Forward rates and term structure model estimates for September 2020 are based on values through September 9.
Source: Blue Chip; FRBNY; Board staff calculations.

Figure 8: Expected Purchases of Treasury Securities Net of Reinvestments



Note: Values for 2021, 2022, and 2023 are monthly averages calculated from respondents' expectations for total purchases in those years.
Source: FRBNY.

Figure 9: Expected Purchases of Agency MBS Net of Reinvestments



Note: Values for 2021, 2022, and 2023 are monthly averages calculated from respondents' expectations for total purchases in those years.
Source: FRBNY.

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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, taking as given the economic and interest rate projections in Tealbook A. The size of the Federal Reserve's balance sheet is projected to remain elevated for a number of years, reflecting the lasting effects of the recent policy actions taken in response to the COVID-19 pandemic. Because of the significantly more accommodative path of the federal funds rate in the staff forecast, the date at which securities in the SOMA portfolio are assumed to begin to roll off is pushed back and, as a result, the balance sheet is now projected to remain near peak levels for longer than in the July Tealbook. At the same time, nominal GDP is projected to be larger and grow more rapidly than in the July Tealbook. This difference in the path of nominal GDP partially offsets the estimated effects of the prolonged large size of the balance sheet on the level of term premiums and longer-term interest rates. Projections for the size and composition of the balance sheet and its macroeconomic effects are highly uncertain because they depend on the future course of the economy, Federal Reserve policy actions, and take-up at various liquidity and credit facilities.

Total Assets. Total assets were approximately $7 trillion at the end of August 2020 and are projected to increase to a peak of roughly $7.4 trillion later this year, an all-time high (see the top-left panel in the exhibit titled "Total Assets and Selected Balance Sheet Items").[1] Compared with the July Tealbook, the projected peak is somewhat lower, reflecting lower than previously expected usage of the liquidity and credit facilities. Subsequently, total assets are projected to decline gradually over the next several years, with securities holdings held constant while balances in the facilities decline. Thereafter, the decline 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, as discussed in more detail below.

Total assets as a share of nominal GDP at the end of August 2020 stood at approximately 33 percent and that ratio is projected to rise to 35 percent at year-end (see the bottom-left panel of the exhibit). Thereafter, the ratio of total assets to nominal GDP

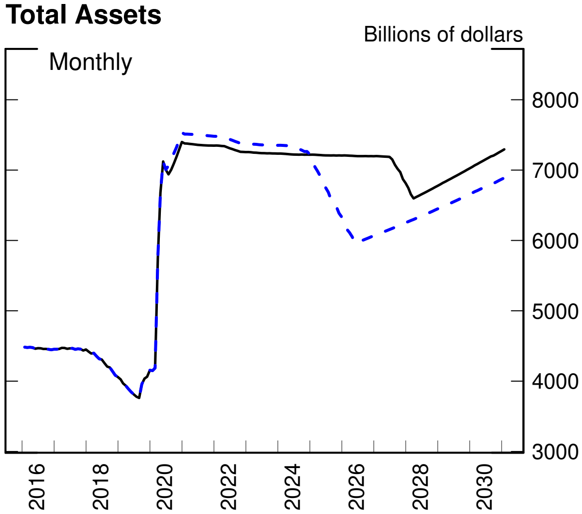
[1] For reference, the size of the Federal Reserve's balance sheet was $4.2 trillion at the beginning of 2020.

Balance Sheet & Income

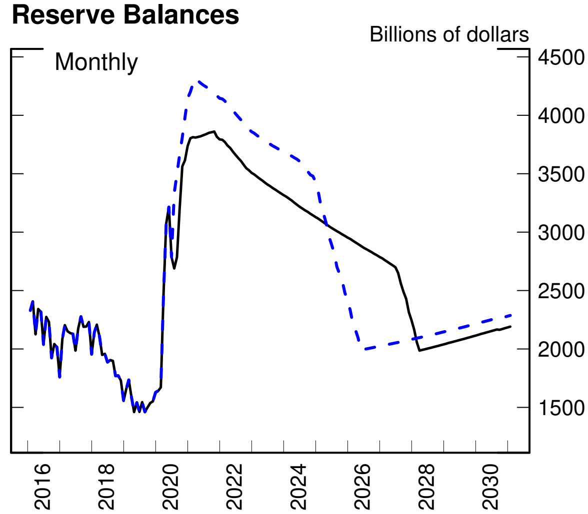
Total Assets and Selected Balance Sheet Items

September Tealbook baseline — July Tealbook baseline

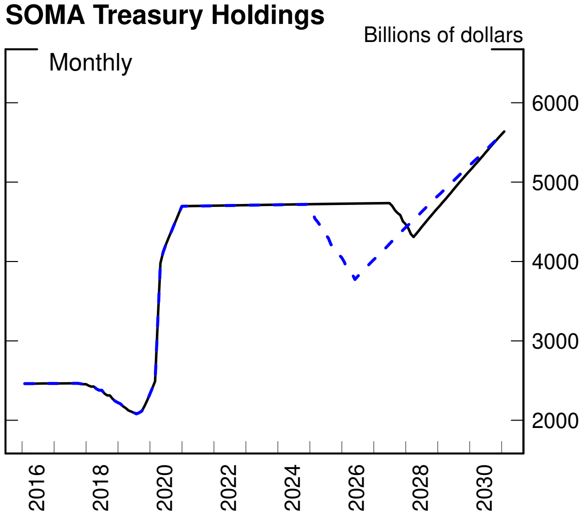
Total Assets



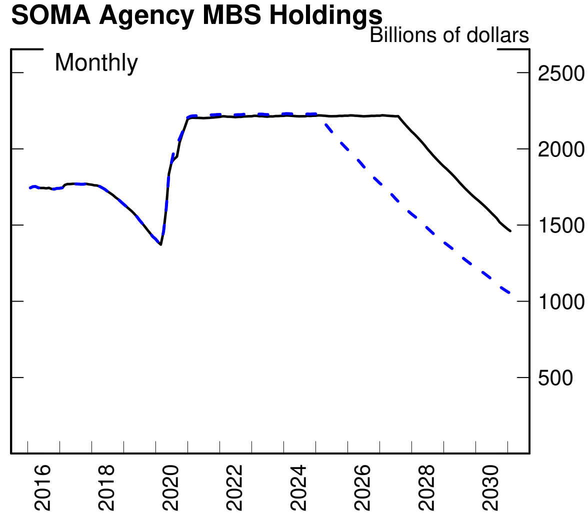
Reserve Balances



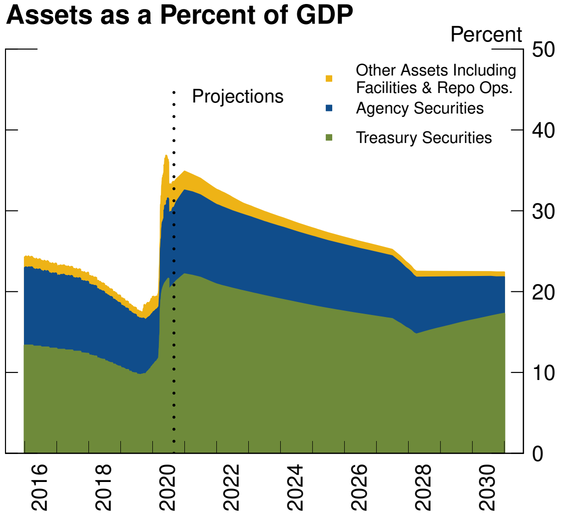
SOMA Treasury Holdings



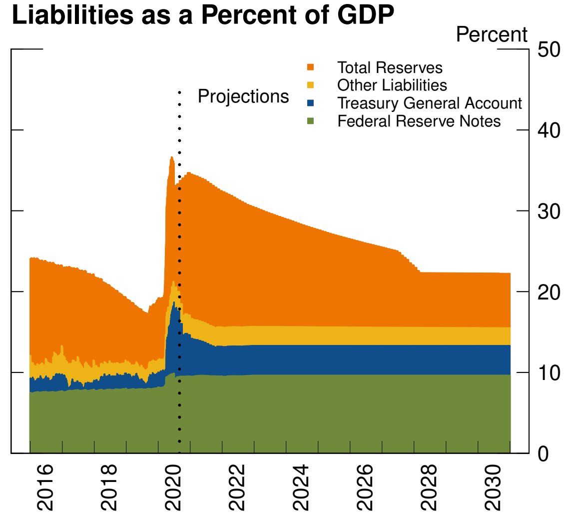
SOMA Agency MBS Holdings



Assets as a Percent of GDP



Liabilities as a Percent of GDP



declines for several years before leveling off at about 23 percent of nominal GDP beginning in late 2027.

SOMA Portfolio. At the end of August 2020, $6.3 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—September Tealbook"). As in the July Tealbook, the staff assumes that increases in holdings of Treasury securities and agency MBS continue at the current pace through December 2020. Specifically, the staff assumes monthly increases in holdings of Treasury securities and agency MBS of $80 billion and $40 billion, respectively, through December, and no increases thereafter.[2,3,4]

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, eleven quarters later than in the previous Tealbook. Subsequently, Treasury securities and agency MBS 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 reaches 7 percent.[5] This occurs in 2028:Q1, seven quarters later than in the previous Tealbook. Thereafter, maturing Treasury securities are reinvested at auction,

[2] 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.

[3] 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-July level of $9 billion before rolling off the balance sheet completely in 2030.

[4] The median respondent to the Desk's September 2020 surveys of primary dealers and market participants forecasted net monthly purchases of $80 billion of Treasury securities and $40 billion of agency MBS for the remainder of the year. The median respondent forecasted that purchases of Treasury securities and agency MBS will continue until mid-2023, though at a diminished pace.

[5] The staff assumes that reserves will decline until their ratio to nominal GDP falls to 7 percent. This is the ratio that pertained when reserve management was projected to begin in the January 2020 Tealbook, and, as discussed in the box "Money Market Developments and Monetary Policy Implementation" in the February 2020 Monetary Policy Report, is consistent with an ample level of reserves. Given the path of nominal GDP in the September Tealbook, reserves decline to 7 percent of nominal GDP in late 2027 and at that time, they are at the level of $2 trillion. This level coincides with the minimum level assumed in the July Tealbook. 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.

Balance Sheet & Income

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

	Historical*			Projected				
	Sep 2017	Feb 2020	Aug 2020	Dec 2020	Dec 2021	Dec 2022	Dec 2025	Dec 2030
Total assets	4,460	4,158	7,006	7,400	7,348	7,256	7,207	7,272
Selected assets								
Securities held outright	4,240	3,863	6,328	6,894	6,915	6,926	6,947	7,078
U.S. Treasury securities	2,465	2,489	4,376	4,697	4,703	4,710	4,728	5,601
Agency securities	1,775	1,374	1,952	2,197	2,212	2,216	2,220	1,476
Loans and other credit extensions	2	0	107	88	82	10	0	0
Facilities	2	0	104	88	82	10	0	0
Discount window	0	0	3	0	0	0	0	0
Central bank liquidity swaps	4	0	89	22	0	0	0	0
Repurchase agreements	0	126	0	0	0	0	0	0
Total liabilities	4,419	4,119	6,967	7,361	7,309	7,215	7,161	7,213
Selected liabilities								
Federal Reserve notes	1,532	1,753	1,968	2,015	2,140	2,271	2,590	3,114
Reverse repurchase agreements	557	229	221	217	230	242	276	332
Deposits	2,323	2,131	4,654	5,121	4,931	4,694	4,286	3,756
Reserve balances held by depository institutions	2,073	1,691	2,785	3,737	3,794	3,507	2,953	2,184
U.S. Treasury, General Account	159	357	1,706	1,092	836	878	1,001	1,203
Other deposits	91	83	162	293	302	309	332	368
Total capital**	41	39	39	39	39	41	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.

while principal payments received on agency MBS are reinvested into Treasury securities.[6] 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 Repo Operations. Consistent with the July Tealbook, the staff assumes that the outstanding amounts under the discount window, central bank liquidity swaps, the Primary Dealer Credit Facility (PDCF), the Money Market Mutual Fund Liquidity Facility (MMLF), and the Commercial Paper Funding Facility (CPFF) continue to gradually taper 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), Primary Market Corporate Credit Facility (PMCCF), Secondary Market Corporate Credit Facility (SMCCF), Municipal Liquidity Facility (MLF), and Main Street Lending Program (MSLP), the staff assumes that credit outstanding peaks in September 2020 and remains constant at that level for several years before gradually tapering off.[7] Finally, the amount of outstanding repurchase agreements is assumed to remain at zero for the forecast horizon. Under these assumptions, the total balances across all facilities and temporary operations peaked at around $752 billion in May 2020, declined to roughly $196 billion in August 2020, and are projected to decline to about $110 billion in December 2020.[8]

Reserve Balances. At the end of August 2020, the level of reserve balances stood at about $2.8 trillion. The staff projects reserve balances to reach nearly $3.9 trillion in late 2021, reflecting the assumptions of further increases in securities holdings this year and 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").[9]

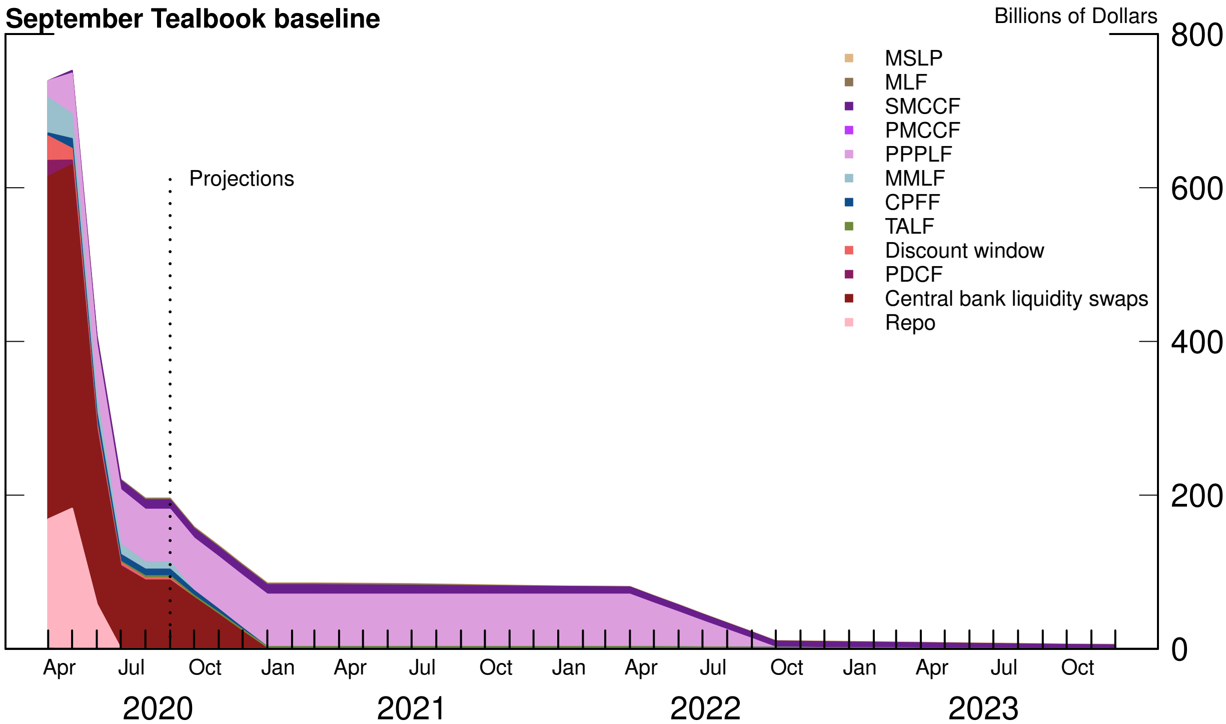
[6] The staff assumes that reinvestments of maturing Treasury securities will continue to be directed toward newly issued securities at Treasury auctions in proportion to the maturity distribution of Treasury debt issued at the time of reinvestment.

[7] There is considerable uncertainty about the take-up in the facilities, and our assumptions influence both the peak size of the balance sheet and, potentially, the subsequent timing of normalization. If the economy were to deteriorate, take-up at these facilities could be materially larger than currently assumed.

[8] The median respondent to the Desk's September 2020 surveys of primary dealers and market participants forecasted total outstanding balances across all facilities and operations of $324 billion on December 30, 2020.

[9] 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

Outstanding Balances in Facilities and Operations



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).

Over the following five years or so, reserve balances are projected to fall gradually with the growth in non-reserve liabilities and the decline in facilities usage.[10] The pace of decline in reserves steps up in mid-2027 as maturing Treasury securities and agency MBS begin to roll off the balance sheet. This more rapid pace of runoff continues until early 2028, when reserves reach their assumed minimum share of nominal GDP of 7 percent, which corresponds to a level of $2 trillion at that point. This minimum share is reached seven quarters later than in the July Tealbook, reflecting the revised path for the federal funds rate and the staff's assumption that assets will be fully reinvested until the federal funds rate reaches 1.25 percent. 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," the path for the weighted-average duration of the SOMA Treasury portfolio is a bit flatter over the medium term relative to the July Tealbook. The shift in the contour reflects the prolonged period of reinvestment under the new federal funds rate path as well as the staff's new projections for Treasury rates. The weighted average duration is projected to increase to a maximum of 6.5 years in 2023.[11] Subsequently, the average duration declines—gradually at first but then more quickly—to about 5.2 years by 2030.[12] The SOMA Treasury portfolio attains its assumed longer-run composition, consisting of one-third Treasury bills, in 2035:Q3, seven quarters later than in the previous Tealbook.

$1.2 trillion and $1.0 trillion at the end of 2020:Q3 and Q4, respectively, which is in line with the modal dealer's forecast. Thereafter, the staff assumes a gradual taper phase where the TGA balance declines to $800 billion over the following nine months. After this point, the TGA resumes growth in line with nominal GDP, as in previous projections. The uncertain 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.

[10] The staff assumes that the foreign repo pool, overnight reverse repo operations, and other deposits 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.

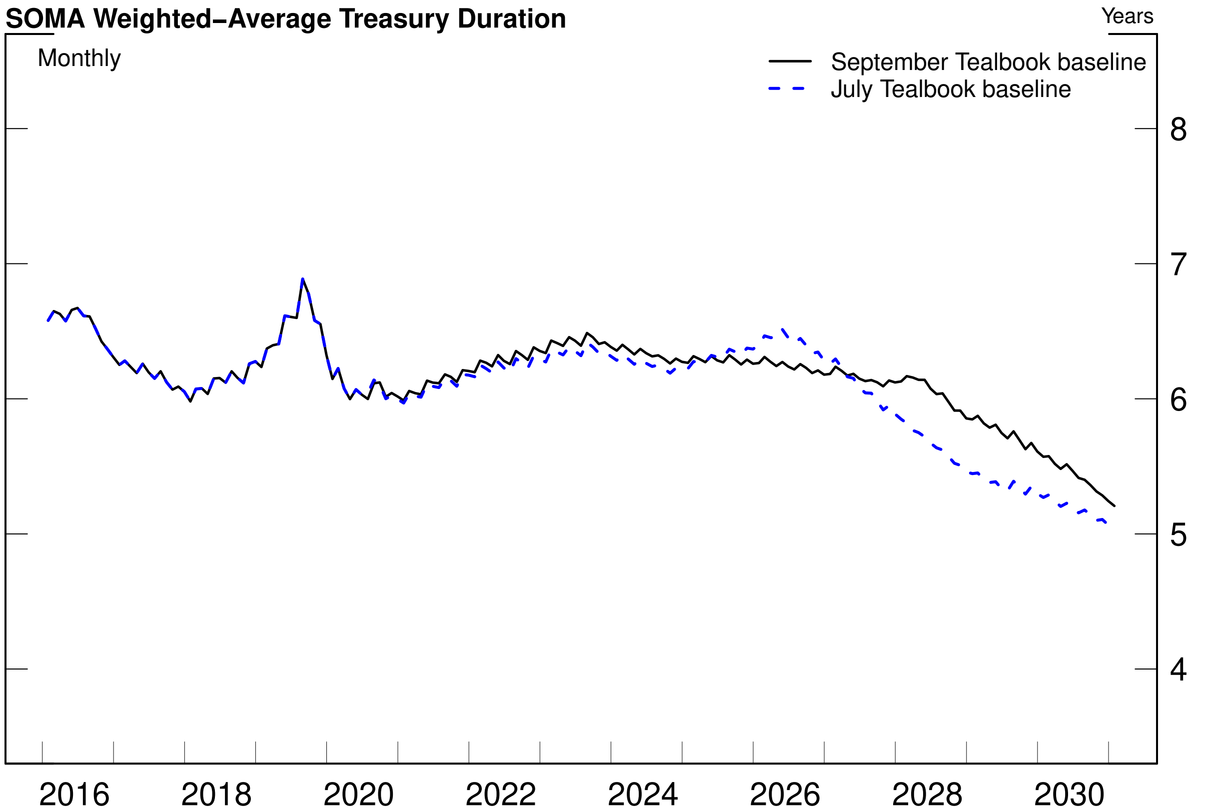
[11] For reference, the average duration of SOMA Treasury securities holdings after the Global Financial Crisis reached a maximum of around 8 years in December 2012.

[12] The share of bills is projected to increase to 25 percent of the SOMA Treasury portfolio by 2030, up from 8 percent at the end of July 2020. 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.

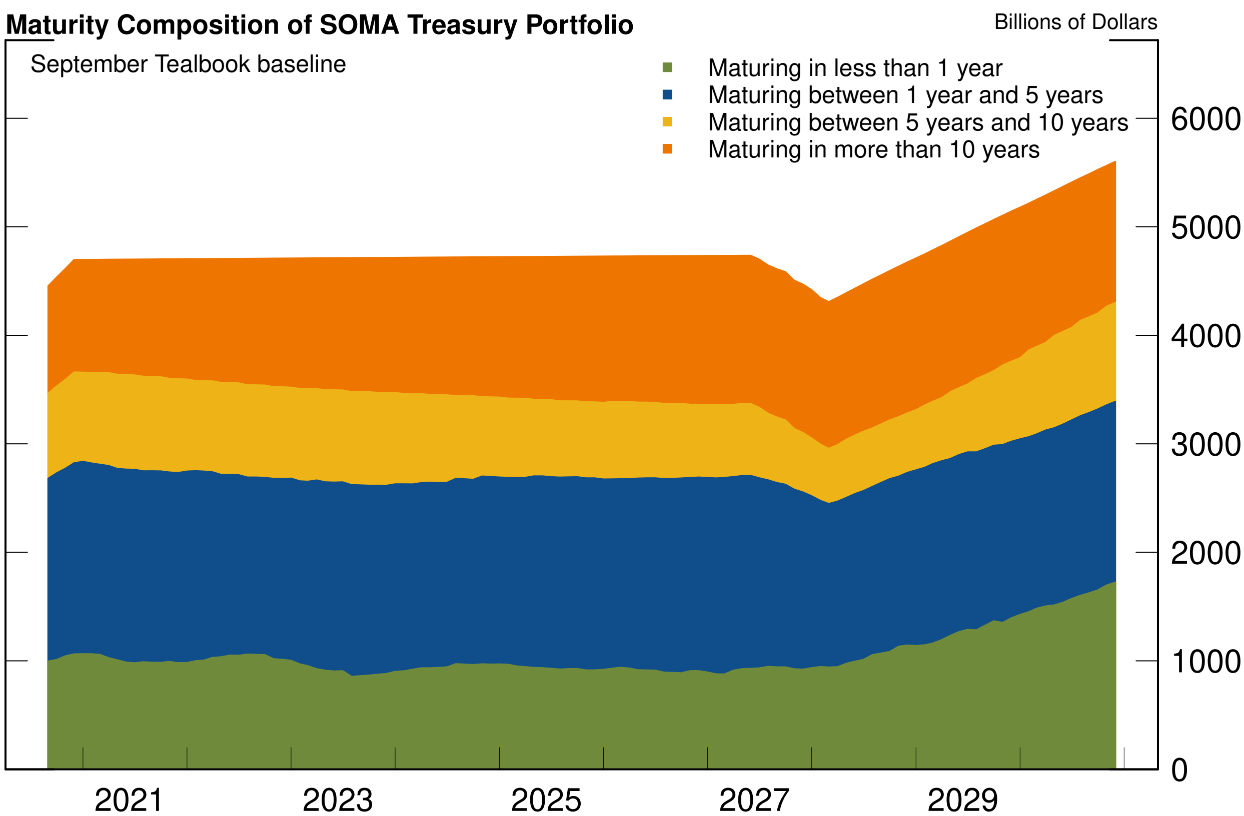
Balance Sheet & Income

Projections for the Characteristics of SOMA Treasury Securities Holdings

SOMA Weighted–Average Treasury Duration



Maturity Composition of SOMA Treasury Portfolio



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 240 basis points in the current quarter. In comparison with the previous Tealbook, the TTPE path is expected to be only slightly more negative through 2030. In the staff model, the TTPE is, in part, a forward-looking function of the ratio of the nominal value of the size of SOMA portfolio to nominal GDP. Relative to the July Tealbook, the federal funds rate remains below 1.25 percent for longer, resulting in a prolonged elevated size of the nominal SOMA portfolio; however, the staff's upward revision to the projection for nominal GDP partially offsets the increase in the SOMA portfolio. 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 initial average pace of about 10 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 nominal GDP over the projection horizon. 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 about 142 basis points.

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.[13] Other factors, notably the size and composition of Treasury issuance, can also have important effects on the level of term premiums.[14] However, the effects of factors other than SOMA holdings are not captured in the TTPE values reported here.

Unrealized Gains or Losses. The path for the unrealized gain position of the SOMA portfolio is higher compared with the path in the July Tealbook, reflecting the lower projected path of longer-term interest rates in the staff's economic projection (see the top panels in the exhibit titled "Market Value and Income Projections"). The SOMA

[13] 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.

[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" and the June 2020 memo titled "Treasury Issuance Following Covid-19: Implications for Interest Rates." In particular, the memo presents an alternative scenario that takes into account the effect of both the size and maturity composition of Treasury issuance, in addition to SOMA holdings, on the 10-year term premium. The results suggest that the term premium effect of SOMA holdings will be offset by Treasury's debt management in the coming years as Treasury is expected to increase the tenor of its issuance.

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

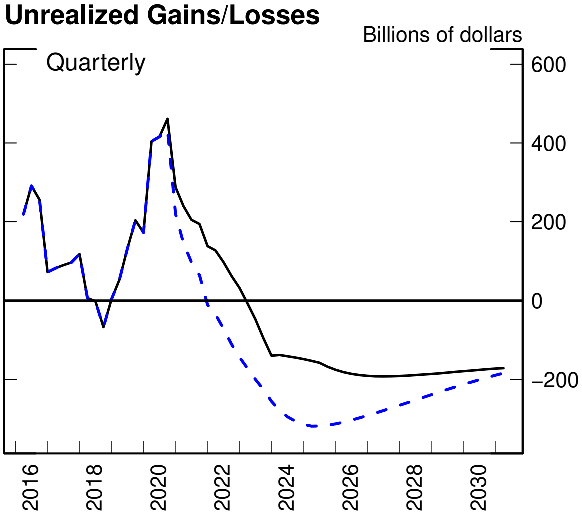
Date	September Tealbook	July Tealbook
2020: Q3	-240	-240
Q4	-239	-237
2021: Q4	-229	-225
2022: Q4	-218	-212
2023: Q4	-207	-197
2024: Q4	-195	-183
2025: Q4	-184	-171
2026: Q4	-173	-163
2027: Q4	-163	-156
2028: Q4	-156	-149
2029: Q4	-149	-144
2030: Q4	-142	-138

*Quarterly averages

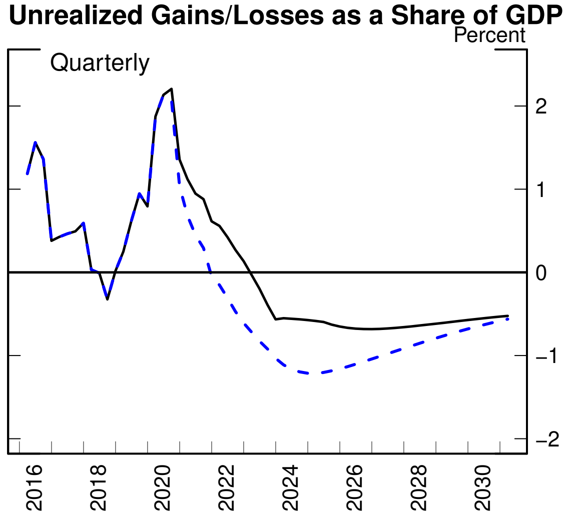
Market Value and Income Projections

September Tealbook baseline   July Tealbook baseline

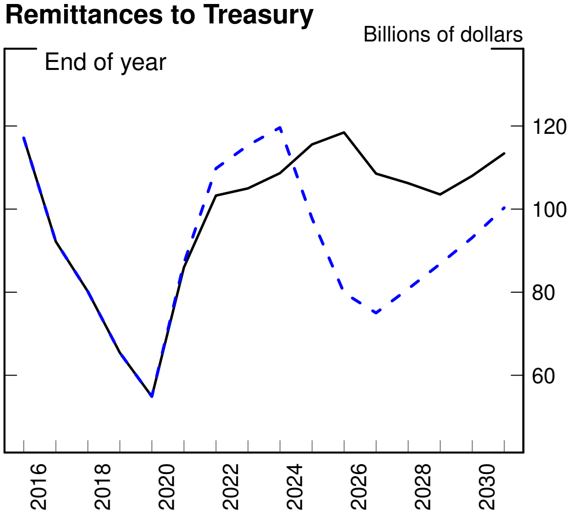
Unrealized Gains/Losses



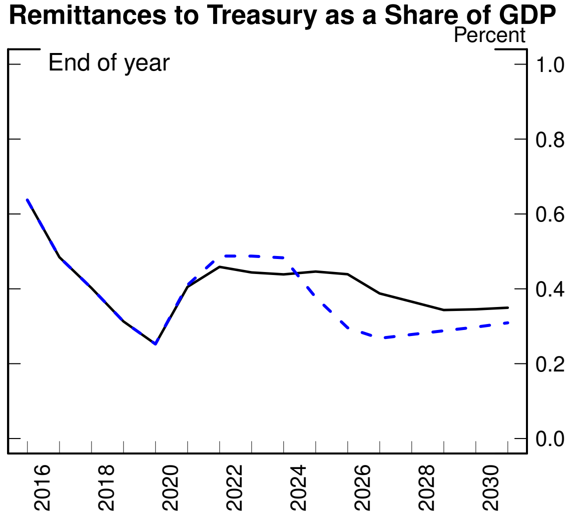
Unrealized Gains/Losses as a Share of GDP



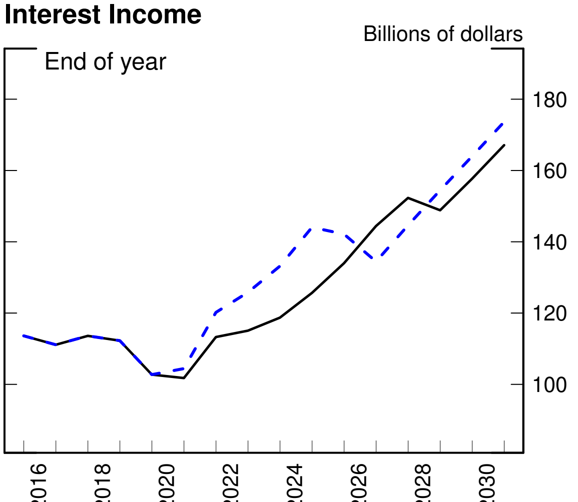
Remittances to Treasury



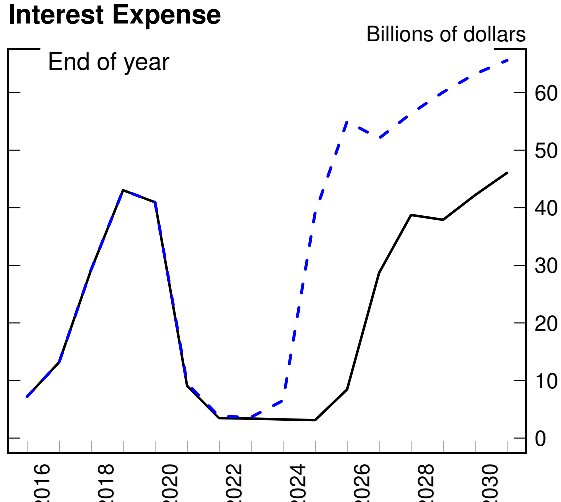
Remittances to Treasury as a Share of GDP



Interest Income



Interest Expense



portfolio was in a net unrealized gain position of about $405 billion at the end of August 2020. With longer-term interest rates projected to rise, the unrealized gain position is expected to decline over the next several years. The unrealized gain becomes an unrealized loss position around the beginning of 2023, and the unrealized loss position bottoms out at around $200 billion in early 2027.[15]

Remittances. Remittances are projected to be lower over the next few years than in the previous Tealbook and higher thereafter (see the middle panels of the exhibit titled "Market Value and Income Projections"). Overall, interest income (see the bottom-left panel of the exhibit) is projected to be lower on average, since the larger size of the SOMA portfolio is offset by lower rates. Meanwhile, the lower federal funds rate path and the corresponding assumed path of the interest on excess reserves rate result in lower interest expense (see the bottom-right panel of the exhibit).

[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.

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
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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