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.

Content last modified 1/12/2024.

Report to the FOMC on Economic Conditions and Monetary Policy

Book B

Monetary Policy Alternatives

November 1, 2018

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

(This page is intentionally blank.)

Alternatives

Monetary Policy Alternatives

Information received since the Committee met in September indicates that the labor market has continued to strengthen, with the unemployment rate falling to 3.7 percent in September and payrolls continuing to expand strongly. Real GDP is estimated to have grown by about 3 percent over the past four quarters. The staff projects above-trend real GDP growth through 2019 and high levels of resource utilization over the medium term. The 12-month changes in headline and core PCE prices were each 2 percent in September. The staff forecasts both headline and core PCE inflation to remain close to 2 percent through 2021.

Against this backdrop, the alternative policy statements presented below offer a range of policy options and assessments about the outlook for policy. Alternative B is based on the view that the economy has been evolving broadly in line with expectations and, as a result, that the outlook for policy implied by recent FOMC communications remains appropriate. Under this alternative, the Committee would maintain the target range for the federal funds rate and reiterate the expectation that further gradual increases in the target range will be consistent with achieving its goals.

Alternative C is written from the perspective that the incoming data continue to be stronger than is sustainable and that, in order to contain eventual inflation risks, the FOMC should signal that the federal funds rate will likely need to rise to a higher level than has been implied by previous communications. Under this alternative, the Committee would raise the target range for the federal funds rate at this meeting and signal that further gradual increases are likely to continue "for some time" in order to contain inflation risks resulting from high levels of resource utilization. While the Committee might judge that the adoption of Alternative C is not warranted at this meeting, the statement could be viewed as a draft template for a contingency in which the Committee becomes concerned about inflation rising appreciably above 2 percent.

Alternative A is motivated by the belief that the current stance of monetary policy is appropriately at, or very close to, neutral—a state in which policy is neither expansionary nor contractionary—and that further increases in the target range for the federal funds rate at this stage could unduly slow the economic expansion and forestall the sustained return of inflation to the Committee's 2 percent objective. Under this alternative, the Committee would maintain the current target range for the federal funds rate and would signal a pause in—or the end of—the current tightening cycle.

While the Committee might view the language in Alternative A as premature in present circumstances, it might nonetheless consider such language for possible future use once the Committee judges that further increases in the target range for the federal funds rate are no longer warranted. In the period leading up to such a judgment, a communications challenge is when and how to transition away from the guidance that the FOMC expects "further gradual increases" in the target range for the federal funds rate. As background, a box titled "The 'Measured Pace' Language and Subsequent Communications" recounts the FOMC's transition away from the "measured pace" language in 2005 and 2006.

With regard to the specifics of the language in Alternatives A, B, and C:

- The assessment of the incoming data:
    - Alternatives A and B have identical characterizations of the incoming data. This characterization is similar to that in the September FOMC statement, but notes that "growth of business fixed investment has moderated from its rapid pace earlier in the year" and also that the unemployment rate has "declined."[1]
    - Alternative C emphasizes that the labor market "continued to tighten," citing "robust" job gains and noting that "the unemployment rate has reached multi-decade lows." Like Alternatives A and B, Alternative C points out that "growth of business fixed investment has moderated from its rapid pace earlier in the year."
- The outlook for economic activity and inflation, the associated risks, and the monetary policy path upon which the outlook is conditioned:
    - Alternative B projects "sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective over the medium term," and notes that risks to this outlook are "roughly balanced." These outcomes are achieved with "further gradual increases" in the target range for the federal funds rate.

[1] The language in the draft alternative statements related to the labor market may need to be adjusted in light of the employment report for October, which is scheduled to be released on Friday, November 2, 2018.

  - Alternative C offers essentially the same outlook for economic activity, the labor market, and inflation as Alternative B, but conditions this outlook on "further gradual increases" continuing "for some time." Alternative C states that risks are "roughly balanced" only for the outlook for economic activity and adds a cautionary note that "The Committee is monitoring inflation developments closely."
  - Alternative A offers the same outlook for economic activity and inflation as Alternative B. However, under Alternative A, the Committee no longer conditions the economic outlook on "further gradual increases" in the target range for the federal funds rate, and instead conveys the expectation that "the current target range for the federal funds rate will, for a time, be consistent with" sustained economic expansion and inflation near the Committee's symmetric 2 percent objective.
- The current policy decision and the outlook for policy:
  - Alternative B maintains the target range for the federal funds rate at 2 to 2¼ percent. With the outlook conditioned on "further gradual increases" in the target range for the federal funds rate, such a statement would signal little change in the Committee's outlook for policy.
  - Alternative C raises the target range for the federal funds rate to 2¼ to 2½ percent, and notes that "This decision should help guard against the risk that excessive inflation pressures will emerge amid increasingly high levels of resource utilization."[2] With "further gradual increases" in the target range for the federal funds rate expected "for some time," such a statement would signal that the Committee judges that it will eventually need to raise the federal funds rate to a higher level than has been implied by previous communications.
  - Alternative A maintains the target range for the federal funds rate at 2 to 2¼ percent. By removing the reference to "further gradual increases" and indicating that the target range for the federal funds rate is expected to stay at its current level "for a time," such a statement would signal that the Committee judges the existing stance of policy to be close enough to neutral

[2] The implementation note associated with Alternative C embeds the assumption that, along with the increase in the target range for the federal funds rate, the Federal Reserve would make a technical realignment of the interest rate paid on required and excess reserve balances relative to the top of the target range for the federal funds rate.

The "Measured Pace" Language and Subsequent Communications

A key communications challenge the FOMC is likely to face before too long is when and how to transition away from guidance in the postmeeting statement that the Committee expects "further gradual increases" in the target range for the federal funds rate. The Committee faced a similar decision in late 2005 and early 2006 as it transitioned away from guidance characterizing the pace at which policy accommodation could be removed. This box reviews the Committee's discussions at FOMC meetings over the period that preceded the removal of the "measured pace" language from the postmeeting statement and the later removal of guidance regarding additional policy "firming."

Between June 2004 and June 2006, the Committee raised the federal funds rate target at 17 consecutive meetings (figure 1). Beginning with the May 2004 FOMC postmeeting statement, and in each postmeeting statement through November 2005, the Committee communicated its judgment that "policy accommodation" could be "removed at a pace that is likely to be measured." In the latter half of 2005, the FOMC's discussions about whether to continue including the "measured pace" language in the postmeeting statement intensified.

The discussions at the December 2005 FOMC meeting reveal that a number of participants believed that the "measured pace" language had come to imply an increase in the federal funds rate target by 25 basis points at the next meeting and had outlived its usefulness. Half of respondents to the Desk's December 2005 Survey of Primary Dealers expected the "measured pace" language to be modified or removed. In the December 2005 postmeeting statement, the Committee modified its usage of "measured," and indicated that "some further measured policy firming is likely to be needed."[1] Retaining the word was generally seen as providing continuity with previous statements and indicating that the federal funds rate target was unlikely to rise by more than 25 basis points at the next meeting. In January 2006, the Committee removed the word "measured" from the postmeeting statement altogether.

Over the first half of 2006, FOMC meeting participants saw the policy outlook as becoming less certain and increasingly dependent on incoming data. In the January 2006 and March 2006 postmeeting statements, the Committee no longer indicated that further increases in the federal funds rate were "likely." Instead, it provided guidance that "the Committee judges that some further policy firming may be needed," indicating less certainty that the period of successive rate increases would continue. In May 2006, the FOMC further modified the guidance to say that "some further policy firming may yet be needed," and emphasized that "the extent and timing of any such firming" would depend on economic developments and the outlook. In their discussions at the June 2006 FOMC meeting, participants expressed a range of views about the risks to the outlook, though all were

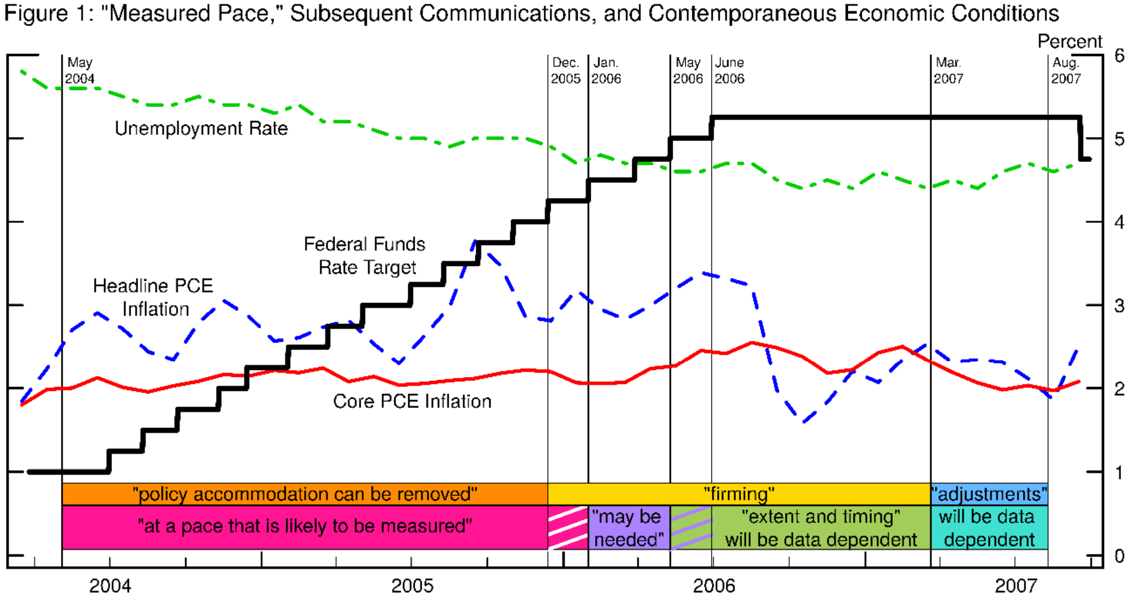
[1] In the December 2005 postmeeting statement, the Committee also removed reference to the stance of monetary policy being "accommodative." This matter was discussed in the box titled "The Removal of the 'Remains Accommodative' Language in 2005" in Tealbook B of July 2018.

concerned about elevated readings on core inflation. At that meeting, the FOMC decided to raise the federal funds rate target and, reflecting the risk that inflation would not moderate, to offer guidance that "the extent and timing of any additional firming that may be needed" would depend on the incoming information.

Responses to the Desk's dealer survey and contemporaneous media reports suggest that FOMC communications in late 2005 and early 2006 were reasonably successful in aligning the public's interpretation of the transition away from the "measured pace" language with the Committee's intentions. Near-term expectations for policy were mostly unchanged after the usage of "measured" was modified in December 2005. Additionally, market commentaries reported that the change in statement language in January 2006 that was associated with the removal of the word "measured" underscored the fact that any future increases in the federal funds rate would depend on incoming data.

In late 2006 and early 2007, as the FOMC kept the federal funds rate target unchanged at 5.25 percent, the Committee considered removing the "additional firming" language. The March 2007 FOMC meeting transcript indicates two broad views among FOMC participants with regard to removing this language. One view was that retaining the reference to "additional firming" would lean against the perception that the Committee would be satisfied with inflation continuing at its current level. The other view was that incoming data on economic activity had been mixed, that inflation was projected to moderate, and that a shift to "future policy adjustments" better reflected downside risks to economic activity that had become more apparent. In the March 2007 postmeeting statement, the Committee decided to drop its reference to "additional firming" and instead state that "future policy adjustments" would depend on incoming data.

Figure 1: "Measured Pace," Subsequent Communications, and Contemporaneous Economic Conditions



Note: Headline and core PCE inflation are computed on a 12-month basis using latest vintage data. The hatched region between the December 2005 and January 2006 FOMC meeting dates indicates the period in which the postmeeting statement included the word "measured," but in different usage than in the earlier period. The hatched region between the May 2006 and June 2006 FOMC meeting dates indicates the period in which the postmeeting statement said that additional policy firming "may yet be needed," but that its "extent and timing" would be data dependent. Vertical lines indicate FOMC meeting dates in the labeled months. The line labeled "Aug. 2007," is at the date of the first unscheduled FOMC meeting in that month, after which the FOMC released a statement. No subsequent statement reiterated the language related to "future policy adjustments."

and that no further tightening is expected to be necessary, or that a meaningful pause in raising rates is appropriate to guard against the risk of overtightening. With no reference to the direction of future changes in the target range, such a statement would also highlight the Committee's continued guidance that "the timing and size of future adjustments to the target range for the federal funds rate" will need to be evaluated in light of incoming information.

SEPTEMBER 2018 FOMC STATEMENT

1. Information received since the Federal Open Market Committee met in August indicates that the labor market has continued to strengthen and that economic activity has been rising at a strong rate. Job gains have been strong, on average, in recent months, and the unemployment rate has stayed low. Household spending and business fixed investment have grown strongly. On a 12-month basis, both overall inflation and inflation for items other than food and energy remain near 2 percent. Indicators of longer-term inflation expectations are little changed, on balance.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that further gradual increases in the target range for the federal funds rate will be consistent with sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective over the medium term. Risks to the economic outlook appear roughly balanced.

3. In view of realized and expected labor market conditions and inflation, the Committee decided to raise the target range for the federal funds rate to 2 to 2-1/4 percent.

4. In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

PRELIMINARY DRAFT OF ALTERNATIVE A FOR NOVEMBER 2018

1. Information received since the Federal Open Market Committee met in ~~August~~ **September** indicates that the labor market has continued to strengthen and that economic activity has been rising at a strong rate. Job gains have been strong, on average, in recent months, and the unemployment rate has ~~stayed low~~ **declined**. Household spending ~~and~~ **has continued to grow strongly, while growth of** business fixed investment ~~have grown strongly~~ **has moderated from its rapid pace earlier in the year**. On a 12-month basis, both overall inflation and inflation for items other than food and energy remain near 2 percent. Indicators of longer-term inflation expectations are little changed, on balance.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that ~~further gradual increases in~~ the **current** target range for the federal funds rate will**, for a time,** be consistent with sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective over the medium term. Risks to the economic outlook appear roughly balanced.

3. In view of realized and expected labor market conditions and inflation, the Committee decided to ~~raise~~ **maintain** the target range for the federal funds rate ~~to~~ **at** 2 to 2-1/4 percent.

4. In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

Alternatives

PRELIMINARY DRAFT OF ALTERNATIVE B FOR NOVEMBER 2018

1. Information received since the Federal Open Market Committee met in ~~August~~ **September** indicates that the labor market has continued to strengthen and that economic activity has been rising at a strong rate. Job gains have been strong, on average, in recent months, and the unemployment rate has ~~stayed low~~ **declined**. Household spending ~~and~~ **has continued to grow strongly, while growth of** business fixed investment ~~have grown strongly~~ **has moderated from its rapid pace earlier in the year**. On a 12-month basis, both overall inflation and inflation for items other than food and energy remain near 2 percent. Indicators of longer-term inflation expectations are little changed, on balance.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that further gradual increases in the target range for the federal funds rate will be consistent with sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective over the medium term. Risks to the economic outlook appear roughly balanced.

3. In view of realized and expected labor market conditions and inflation, the Committee decided to ~~raise~~ **maintain** the target range for the federal funds rate ~~to~~ **at** 2 to 2-1/4 percent.

4. In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

Alternatives

PRELIMINARY DRAFT OF ALTERNATIVE C FOR NOVEMBER 2018

1. Information received since the Federal Open Market Committee met in ~~August~~ **September** indicates that the labor market has continued to ~~strengthen~~ **tighten** and that economic activity has been rising at a strong rate. Job gains have been ~~strong, on average,~~ **robust** in recent months, and the unemployment rate has ~~stayed low~~ **reached multi-decade lows**. Household spending ~~and~~ **has continued to grow strongly, while growth of** business fixed investment ~~have grown strongly~~ **has moderated from its rapid pace earlier in the year**. On a 12-month basis, both overall inflation and inflation for items other than food and energy remain near 2 percent. Indicators of longer-term inflation expectations are little changed, on balance.

2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that further gradual increases in the target range for the federal funds rate will be ~~consistent with sustained expansion of economic activity, strong labor market conditions, and~~ **warranted for some time to keep** inflation near the Committee's symmetric 2 percent objective **and to sustain the economic expansion and maximum employment** over the medium term. Risks to the ~~economic~~ outlook **for economic activity** appear roughly balanced. **The Committee is monitoring inflation developments closely.**

3. In view of realized and expected labor market conditions and inflation, the Committee decided to raise the target range for the federal funds rate to ~~2 to~~ 2-1/4 **to 2-1/2** percent. **This decision should help guard against the risk that excessive inflation pressures will emerge amid increasingly high levels of resource utilization.**

4. In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its maximum employment objective and its symmetric 2 percent inflation objective. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments.

THE CASE FOR ALTERNATIVE B

Economic Conditions and Outlook

- Available data indicate that the labor market has continued to strengthen.
    - Nonfarm payroll gains averaged about 190,000 in the three months ending in September, well above the pace that the staff projects is consistent with no change in resource utilization.
    - The unemployment rate edged down to 3.7 percent in September, down 0.4 percentage point since the end of 2017, and below all participants' estimates of the longer-run normal rate of unemployment in the September Summary of Economic Projections.
    - Average hourly earnings rose 2.8 percent over the year ending in September and the Employment Cost Index rose 2.9 percent over the same period, consistent with a tight labor market amid muted productivity growth.
- Inflation remains close to the Committee's symmetric 2 percent goal.
    - The 12-month change in both headline and core PCE prices was 2 percent in September.
    - The staff projects headline and core PCE inflation to remain close to 2 percent over the medium term.
    - Both market- and survey-based indicators of longer-term inflation expectations continue to be consistent with the view that these expectations remain stable.
- Financial conditions have recently tightened but remain supportive of the economic expansion. Although equity prices have declined and house prices have been weaker than expected, these market developments have not materially altered the outlook.
- The staff estimates that output currently stands about 2½ percent above its potential level, and anticipates that the output gap will widen to around 3 percent in 2020 before narrowing.
- Risks to the outlook appear roughly balanced. Although weaker foreign growth and potential trade policy developments could pose downside risks for economic activity, it is also possible that fiscal policy will provide a stronger-than-expected boost to GDP growth.

Policy Strategy

- Policymakers may see economic conditions as continuing to evolve in line with their expectations. With Alternative B, policymakers would continue to signal that the economic outlook calls for further gradual increases in the target range for the federal funds rate, but, in light of the three increases earlier this year, not for an adjustment to the stance of monetary policy at the November meeting.
    - Policymakers may judge that gradual removal of monetary policy accommodation will continue to be appropriate in order to balance risks associated with overly tight resource utilization against the risk of unduly slowing the economy, potentially leading to below-target inflation.
- Policymakers may expect that inflation will continue to run close to the Committee's symmetric 2 percent inflation goal as further gradual tightening of monetary policy is carried out.
    - Policymakers may see the removal of accommodation that has taken place over the past few years, and future gradual increases in the federal funds rate together with ongoing balance-sheet reductions, as containing the risk that inflation will rise appreciably above 2 percent.
    - Policymakers may also view longer-term inflation expectations as consistent with achieving the Committee's inflation objective.
- A statement along the lines of Alternative B seems unlikely to generate appreciable changes in asset prices. As discussed in the "Monetary Policy Expectations and Uncertainty" box, financial market quotes indicate that investors regard the odds of a rate hike at the upcoming meeting as negligible; the next rate hike is viewed as very likely to occur in December. The assessment of respondents to the Desk's latest surveys of primary dealers and market participants is similar.

Alternatives

Monetary Policy Expectations and Uncertainty

Measures of monetary policy expectations were mostly little changed since the September FOMC meeting. Investors continue to assign a high probability to a 25-basis-point rate increase at the December meeting, and expectations for the federal funds rate for 2019 and beyond were about unchanged on net.

A straight read of quotes on federal funds futures suggests that investors continue to attach a near-zero probability of a 25-basis-point rate hike at the November meeting, while the probability of a rate increase in December remains close to 75 percent (the blue bars in figure 1). The calculation of these probabilities does not take into account a potential technical adjustment to the interest rate paid on excess reserve balances (IOER). Using the alternative assumption of a 5-basis-point adjustment at the December meeting, these quotes would instead imply that investors are near certain of a rate hike in December (the red bar). Results from the November Desk surveys showed that most respondents expected the spread between the top of the target range for the federal funds rate and the IOER rate to widen from the current 5 basis points to 10 basis points following the December meeting. Just four respondents expected a widening following the November meeting.

Figure 2 shows the expected path of the federal funds rate through January 2020, derived from quotes on federal funds futures contracts, assuming zero term premiums and no rate changes between meetings. The path, which was little changed on net over the intermeeting period, suggests that the announcement of press conferences being held after every FOMC meeting starting in 2019 has not changed market expectations of the timing of rate changes.

Figure 3 shows that the average probability distribution for the level of the federal funds rate at the end of 2019, based on Eurodollar options quotes and assuming zero term premiums, has changed only slightly. It implies that investors place the highest odds on the federal funds rate being in the 2¾-to-3-percent range at the end of 2019—which corresponds to a total of three 25-basis-point rate hikes between now and the end of 2019—followed closely by the 2½-to-2¾ percent range. The corresponding average probability distribution from the latest Desk surveys (not shown) shows roughly comparable probabilities.

Looking further ahead, figure 4 shows various measures of the expected federal funds rate over the next few years. A straight read of the market-based path derived from overnight index swaps (OIS) quotes (the black line) suggests that investors expect the federal funds rate to increase through the end of 2019, and to decline slightly afterwards. Adjusting for term premiums using a staff term structure model (the light blue line) suggests that investors expect a faster pace of tightening over the medium term, with about four 25-basis-point rate hikes expected between now and the end of 2019. This model-based path also suggests that the federal funds rate will continue to rise gradually in 2020, similar to the median from the September SEP projections (the blue dots). At horizons up to early 2020, the model-based path is similar to the modal projection reported by the median respondent to the Desk's latest surveys (the brown line). However, at longer horizons, the modal path from the surveys lies below the model-based path, and falls slightly in the second half of 2021. The survey-implied mean path (the golden squares) continues to lie noticeably below the survey-implied modal path beyond 2019.[1] This reflects in part the fact that the average probability that respondents assign to returning to the effective lower bound by the end of 2021 is about 25 percent. The average survey-implied mean estimate for the federal funds rate for the end of 2019 increased by about 50 basis points relative to the September Desk surveys. This increase is likely attributable, at least in part, to changes in the phrasing of the survey questions between the September and November surveys.

Figure 5 shows time-series measures of the longer-run expected federal funds rate. A straight read of long-term forward rates implied by Treasury securities (the red line) suggests that investors' current expectations for the average federal funds rate from 5 to 10 years ahead are about 3.2 percent, little changed from the September FOMC meeting. Adjusting for term premiums using various staff term structure models (with the blue region showing a range of three such model estimates) continues to suggest that 5-to-10-year-ahead expectations are above the unadjusted forward rates, at between 3.3 and 3.9 percent. In contrast, surveys of professional forecasters suggest that longer-run expectations lie at or below the unadjusted forward rates; 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 3.0 and 2.9 percent, respectively.

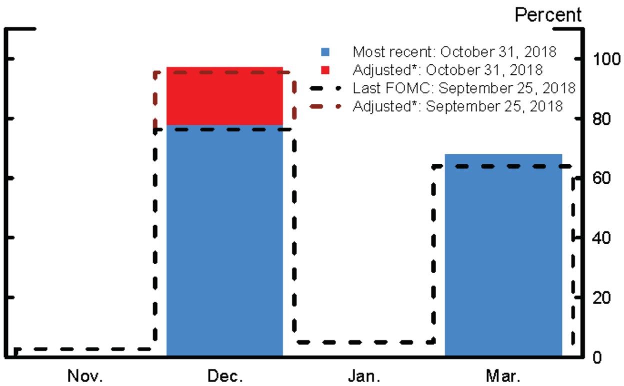
Figure 6 shows responses to a question in the Desk surveys that asks respondents for their projections for the most likely spread between the IOER rate and the effective federal funds rate (EFFR), conditional on a range of possible levels of reserve balances.[2] Relative to the August Desk surveys, the current estimates reflect the recent decline in the IOER-EFFR spread to zero. In addition, the median respondent expects that the EFFR will lie 5 basis points above the IOER when reserve balances reach a level of $1 trillion.

---

[1] The modal path reflects the median of the respondents' modal projections for the federal funds rate through the end of 2021. The survey-implied mean path is calculated by averaging over individual respondents' probability distributions for the end of 2019, 2020 and 2021.

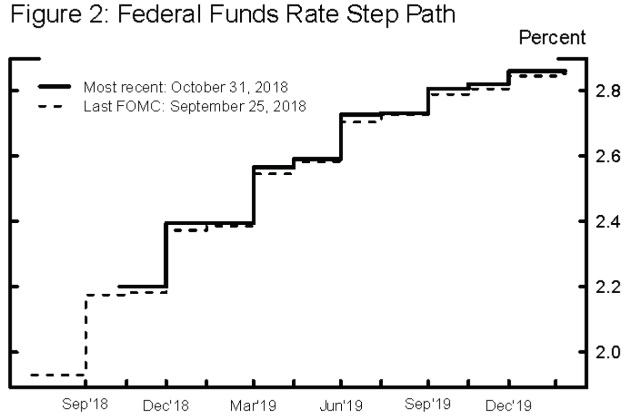
[2] Respondents were also asked to rate the importance of various factors in influencing changes in the IOER-EFFR spread between now and end-March 2019, and between end-March and end-December 2019. Respondents assigned the highest importance to "Treasury securities supply dynamics" for the first period and to "change in the level of reserve balances", and "Treasury securities supply dynamics" as a close second, for the second period.

Figure 1: Market−Implied Probability of a Rate Increase at Each of the Next Four FOMC Meetings



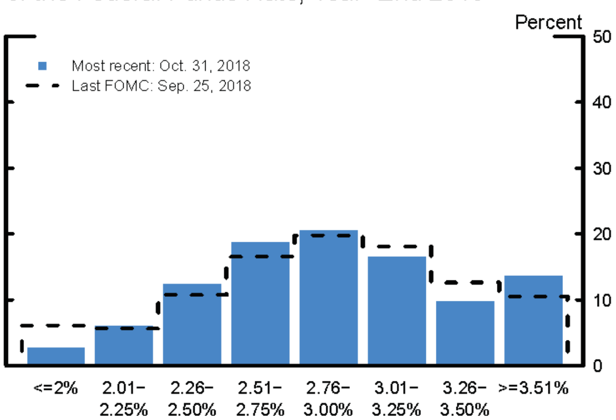
Note: Probabilities implied by a binomial tree fitted to settlement prices on federal funds futures contracts, assuming the policy action at each meeting is either no change or a 25−basis point increase in rates and no intermeeting moves.
*Adjusted under the assumption that the policy action for the December 2018 meeting is either no change or a 20−basis point increase in rates.
Source: CME Group; Federal Reserve Board staff estimates.

Figure 2: Federal Funds Rate Step Path



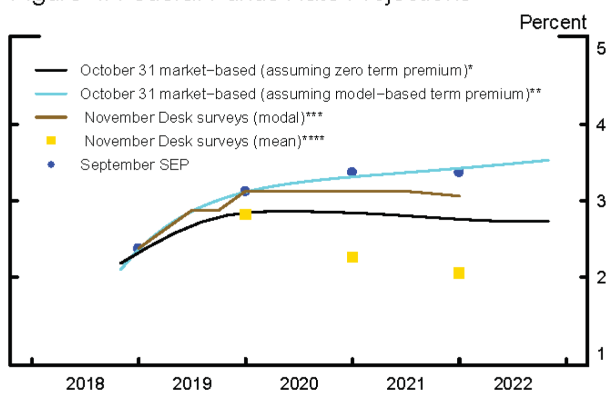
Note: Estimated from settlement prices on federal funds futures contracts, without adjusting for risk premiums, and assuming no intermeeting moves.
Source: CME Group; Federal Reserve Board staff estimates.

Figure 3: Market−Implied Probability Distribution of the Federal Funds Rate, Year−End 2019



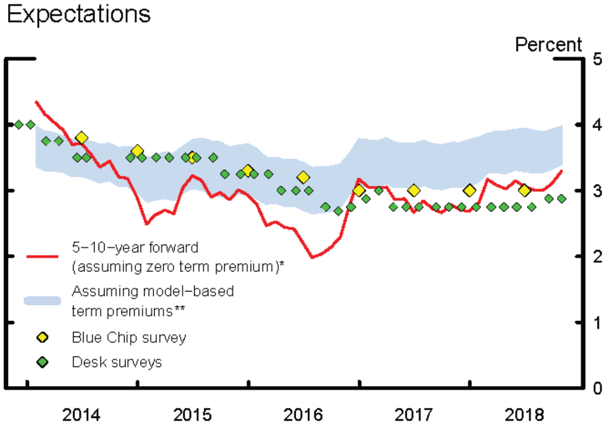
Note: Estimated from Eurodollar futures options, accounting for the differences in the levels and option−implied volatilities of LIBOR and the federal funds rate, but not adjusted for risk premiums.
Source: CME Group; Federal Reserve Board staff estimates.

Figure 4: Federal Funds Rate Projections



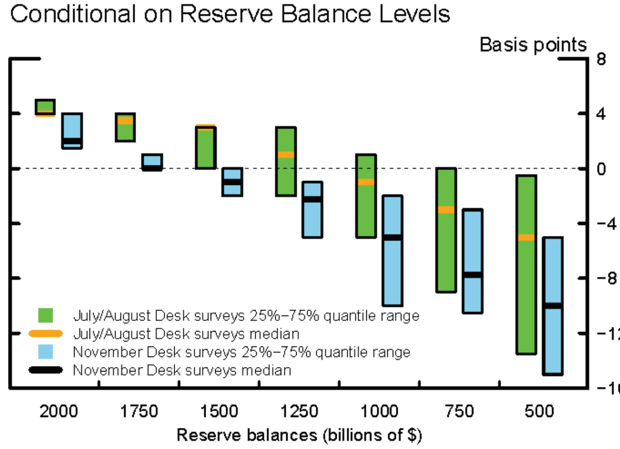
* Estimated using overnight index swap quotes with a spline approach and without adjusting for term premiums.
** Adjusting for premiums using a term structure model maintained by Board staff.
*** Median of respondents' modal paths for the federal funds rate.
**** Calculated from averaging over individual respondents' year−end probability distributions.
Source: Bloomberg; Federal Reserve Board staff estimates; FRBNY; Summary of Economic Projections.

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



* Monthly average 5−10−year forward rate derived from prices of Treasury securities.
** Monthly average 5−10−year forward rate adjusted for three alternative model−based term premium estimates using Kim and Wright (2005), D'Amico, Kim, and Wei (2018), and Priebsch (2017).
Source: Blue Chip; FRBNY; Board staff estimates.

Figure 6: Estimate of the IOER−EFFR Spread Conditional on Reserve Balance Levels



Source: FRBNY.

THE CASE FOR ALTERNATIVE C

Economic Conditions and Outlook

- Policymakers may judge that the labor market is operating appreciably beyond full employment and that economic activity—which is expanding at a faster-than-sustainable rate—will continue to be spurred by expansionary fiscal policy.
    - The unemployment rate is at its lowest level since the 1960s, is below all estimates of the longer-run normal level of unemployment reported in the September Summary of Economic Projections, and is projected to decline further. Other indicators also point to an already-tight labor market; these include a high rate of job openings, continued reports of firms having difficulty hiring workers, and low levels of initial claims for unemployment insurance.
- Policymakers may predict that unwanted upward pressure on inflation is likely to emerge amid a prolonged period of significant labor market tightness. Policymakers may point to the fact that average hourly earnings and the Employment Cost Index rose 2.8 and 2.9 percent, respectively, over the year ending in September, among the highest 12-month increases since 2009, as evidence of incipient pressures on wage and price inflation. They may also point to reports that rising input prices have been bolstered by strong demand or import tariffs as further evidence that inflation may rise above the Committee's 2 percent objective for a sustained period.
- Policymakers may judge that the economy is stronger than previously expected. Payroll gains continue to indicate a tightening of the labor market, and the output gap is expected to further widen this year. These developments may suggest that the neutral federal funds rate is higher, and the current monetary policy stance is more accommodative, than previously estimated.
- Despite eight increases in the target range for the federal funds rate between December 2015 and September 2018 and a net appreciation of the dollar, financial conditions have, by some measures, eased on balance since December 2015. The spreads between rates on certain investment- and speculative-grade corporate bonds and rates on equivalent-maturity Treasury securities remain substantially lower than in December 2015, even though the use of leverage by speculative grade and unrated firms has increased over the period and equity prices have recently declined. While the federal funds rate and key interest rates for household and business borrowers have increased over the past year, borrowing conditions have not exhibited a

commensurate tightening, in part because of an easing in nonprice credit terms and standards.

Policy Strategy

- To keep inflation near 2 percent and sustain the economic expansion over the medium term, policymakers may judge that the target range for the federal funds rate will likely need to be raised to a higher level than has been suggested by previous FOMC communications.
  - Policymakers may be concerned that ongoing above-trend economic growth and an already-strong labor market that continues to tighten could soon result in more notable upward pressure on inflation.
  - They may also judge that the federal funds rate needs to be raised to prevent the unemployment rate from declining significantly further below its normal longer-run value; such a further decline could make it increasingly challenging to engineer a soft landing as inflation picks up.
  - Additionally, amid still-elevated asset valuations and high levels of debt at risky firms, in order to avoid a significant buildup of financial imbalances, policymakers may see the need to signal that gradual rate increases will take the federal funds rate to a higher level than has been previously communicated by the Committee.
- Some policymakers may see it as likely that the target range for the federal funds rate will need to rise to levels that will restrict economic growth in order to reduce the risk that inflation will rise persistently above the Committee's 2 percent objective or to reduce the risk of a build-up in financial imbalances. They may want to communicate this outlook well in advance of policy becoming modestly restrictive.
- For the above reasons, policymakers may opt to increase the target range for the federal funds rate to 2¼ to 2½ percent at this meeting and indicate that "further gradual increase" are expected "for some time."
- Policymakers may also wish to communicate in paragraph 2 that "The Committee is monitoring inflation developments closely," signaling concern about the inflation risks associated with high resource utilization.
- Because financial market participants appear to regard the odds of a rate hike at the upcoming meeting as negligible, the adoption of Alternative C would surely come as a surprise. The unexpected increase in the target range for the federal funds rate and

the new language regarding the outlook for policy would likely cause policy expectations to ratchet up both in the near term and farther out. If, however, a statement along the lines of Alternative C were issued after a meeting during which financial market participants had come to anticipate an increase in the target range for the federal funds rate, near-term policy expectations might not change much, while those farther ahead would likely rise. In either case, in response to a statement like Alternative C, medium- and longer-term real interest rates could rise, equity prices and inflation compensation could fall, and the dollar could appreciate.

THE CASE FOR ALTERNATIVE A

Economic Conditions and Outlook

- Policymakers may see that inflation has moved close to 2 percent and that it is projected to remain close to that level on a sustained basis.
- Moreover, policymakers may see little evidence of labor market overheating.
  - Even as the unemployment rate has ticked down since the beginning of the year, policymakers may see wage pressures as subdued. While the 12-month growth rates of average hourly earnings and the employment cost index have edged up, so has productivity growth, keeping unit labor cost growth contained and indicating that the low level of the unemployment rate is not likely to cause inflation to rise appreciably above 2 percent.
- Policymakers may note that the high growth rate of real GDP in the first three quarters of 2018 was associated with a number of upside surprises, and that real GDP growth is projected to decline steadily over the next few years, in part reflecting waning fiscal impetus.
  - Policymakers may judge that rising mortgage interest rates have contributed to recent weaker-than-expected indicators of housing demand.
  - Additionally, policymakers may see recent declines in equity prices as supporting their view that GDP growth is likely to slow further.
- Policymakers could judge that the current level of the federal funds rate lies within the confidence bands of a range of estimates of the neutral level for the federal funds rate. Furthermore, they may see developments in Treasury markets—particularly the flattening yield curve—as supporting the view that current policy is close to neutral.

Policy Strategy

- Policymakers may judge that both objectives of the dual mandate are nearly fulfilled. They may determine it prudent to leave the target range for the federal funds rate unchanged for a while as they assess incoming information so as not to undermine the expansion of economic activity and the sustained return of inflation to 2 percent.
  - Policymakers may note that, while the expansion has been robust, the economy has shown few signs of overheating. The labor market has improved at a steady pace over the past few years without generating a large

increase in either unit labor costs or inflation. Moreover, inflation expectations have remained stable over this period.

- Policymakers may also view substantial risks associated with tightening too quickly or too much. Such policy actions could undermine the expansion or cause inflation to run persistently below the Committee's 2 percent objective. An overly restrictive policy stance could be reflected in an inversion of the yield curve, something that has in the past been associated with recessions. Furthermore, a slowdown in growth abroad or trade policy developments could also restrain the economy over the near term.
- Policymakers might note that monetary policy affects economic activity with a lag, and that the removal of accommodation that has taken place over the past few years will continue to act as a restraint on economic growth for some time, mitigating the need for more increases in the target range for the federal funds rate at this stage. They may see soft readings on housing demand as evidence that previous increases in the federal funds rate are already affecting the housing market. Additionally, policymakers may note that, as the Federal Reserve's asset holdings continue to decline, the downward pressure on longer-term yields those holdings induce will diminish.

- Policymakers may continue to view the current state of the financial system as sound and the potential for a buildup of risks to financial stability as limited, or they may judge that interest rate policy is not an effective means of addressing any significant financial stability concerns that may emerge.
- A statement along the lines of Alternative A would reduce expectations of rate hikes in the near future. Such a statement could cause medium and longer-term interest rates to fall, while also leading to a depreciation of the dollar. Equity prices and inflation compensation could rise.

IMPLEMENTATION NOTE

If the Committee decides to maintain the current target range for the federal funds rate, an implementation note that indicates no change to the Federal Reserve's administered rates—the interest rate on required and excess reserve balances, the offering rate on overnight reverse repurchase agreements, and the primary credit rate—would be issued. If the Committee decides to raise the target range for the federal funds rate, an implementation note that communicates the changes the Federal Reserve decided to make in these three policy tools would be issued. Draft implementation notes that correspond to these two cases appear on the following pages; the implementation note for the latter case assumes that a technical adjustment to the setting of the interest rate on required and excess reserve balances would be made at this meeting. Struck-out text indicates language deleted from the September directive and implementation note, bold red underlined text indicates added language, and blue underlined text indicates text that links to websites.

Alternatives

Implementation Note for November 2018 Alternatives A and B

Release Date: November 8, 2018

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 26~~ **November 8**, 2018:

- The Board of Governors of the Federal Reserve System voted [unanimously] to ~~raise~~ **maintain** the interest rate paid on required and excess reserve balances ~~to~~ **at** 2.20 percent, effective ~~September 27~~ **November 9**, 2018.
- 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 27~~ **November 9**, 2018, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of 2 to 2-1/4 percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of 2.00 percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
>
> The Committee directs the Desk to continue rolling over at auction ~~the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during September that exceeds $24 billion, and to continue reinvesting in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during September that exceeds $16 billion. Effective in October, the Committee directs the Desk to roll over at auction~~ the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $30 billion, and to **continue** reinvest**ing** in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month that exceeds $20 billion. Small deviations from these amounts for operational reasons are acceptable.

The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

- In a related action, the Board of Governors of the Federal Reserve System voted **[** unanimously **]** to approve ~~a 1/4 percentage point increase in~~ **the establishment of** the primary credit rate ~~to~~ **at the existing level of** 2.75 percent.~~, effective September 27, 2018. In taking this action, the Board approved requests to establish that rate submitted by the Boards of Directors of the Federal Reserve Banks of …~~

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

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

Alternatives

Implementation Note for November 2018 Alternative C

Release Date: November 8, 2018

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 26~~ **November 8**, 2018:

- The Board of Governors of the Federal Reserve System voted **[** unanimously **]** to raise the interest rate paid on required and excess reserve balances to ~~2.20~~ **2.40** percent, effective ~~September 27~~ **November 9**, 2018. **Setting the interest rate paid on required and excess reserve balances 10 basis points below the top of the target range for the federal funds rate is intended to foster trading in the federal funds market at rates well within the FOMC's target range.**

- 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 27~~ **November 9**, 2018, the Federal Open Market Committee directs the Desk to undertake open market operations as necessary to maintain the federal funds rate in a target range of ~~2 to~~ 2-1/4 **to 2-1/2** percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of ~~2.00~~ **2.25** percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.

  The Committee directs the Desk to continue rolling over at auction ~~the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during September that exceeds $24 billion, and to continue reinvesting in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during September that exceeds $16 billion. Effective in October, the Committee directs the Desk to roll over at auction~~ the amount of principal payments from the Federal Reserve's holdings of Treasury securities maturing during each calendar month that exceeds $30 billion, and to **continue** reinvest**ing** in agency mortgage-backed securities the amount of principal payments from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities received during each calendar month that

Alternatives

exceeds $20 billion. Small deviations from these amounts for operational reasons are acceptable.

The Committee also directs the Desk to engage in dollar roll and coupon swap transactions as necessary to facilitate settlement of the Federal Reserve's agency mortgage-backed securities transactions."

- In a related action, the Board of Governors of the Federal Reserve System voted **[** unanimously **]** to approve a 1/4 percentage point increase in the primary credit rate to ~~2.75~~ **3.00** percent, effective ~~September 27~~ **November 9**, 2018. In taking this action, the Board approved requests to establish that rate submitted by the Boards of Directors of the Federal Reserve Banks of . . .

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

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

Alternatives

(This page is intentionally blank.)

Balance Sheet and Income Projections

The staff has prepared projections of the Federal Reserve's balance sheet and elements of the associated income statement that are consistent with the baseline economic outlook presented in Tealbook A. Key features of these projections are described below.

SOMA redemptions and reinvestments. As reported in the exhibit titled "Redemptions and Reinvestments of SOMA Principal Payments," the staff projects that the balance sheet normalization program initiated in October 2017 will lead to the redemption of $229 billion of Treasury securities and about $152 billion of agency securities over 2018. During this same period, reinvestments of principal payments on Treasury and agency securities are projected to be $197 billion and $88 billion, respectively. Under the staff's current baseline forecast, no further reinvestments of agency securities are projected to occur given the October 2018 increase in the cap on monthly redemptions of agency securities to $20 billion.[1] However, the projections for agency securities are subject to considerable uncertainty because unscheduled prepayments depend on factors that are difficult to predict, including the realized path of mortgage rates.[2]

Evolution of the size of the balance sheet. One key assumption behind the balance sheet projection is that the longer-run level of reserve balances will be $500 billion.[3] Under the baseline assumptions, the staff currently projects that this level

[1] Future reinvestments of principal from maturing Treasury securities will take place primarily in the middle month of each quarter.

[2] If principal payments of agency securities received were to breach the $20 billion monthly redemption cap before the size of the balance sheet is normalized, then the Desk would reinvest in agency MBS the amount by which the principal payments received during any month exceed the $20 billion redemption cap. For further details, see the FOMC memo titled "Operational Readiness for MBS Reinvestments" (June 2018).

[3] Other noteworthy assumptions about liability items underlying the projections are as follows: The Treasury General Account is assumed to increase in line with nominal GDP; Federal Reserve notes in circulation are assumed to increase at an average annual pace of about 6 percent through 2020 and at the same pace as nominal GDP thereafter; the foreign repo pool and balances in the accounts of designated financial market utilities remain at their average September 2018 levels of approximately $230 billion and $65 billion, respectively; and take-up at the overnight RRP facility is assumed to maintain its September 2018 average of about $10 billion until reserve balances reach $1 trillion, at which point take-up declines to zero over the subsequent year.

Redemptions and Reinvestments of SOMA Principal Payments

Projections for Treasury Securities
(Billions of dollars)

	Redemptions		Reinvestments	
	Period	Since Oct. 2017	Period	Since Oct. 2017
2018: Q4	72.1	247.1	29.3	224.3
2018	229.1	247.1	197.2	224.3
2019	270.8	517.9	114.2	338.5
2020	210.5	728.3	82.1	420.6
2021*	106.4	834.7	56.3	476.9

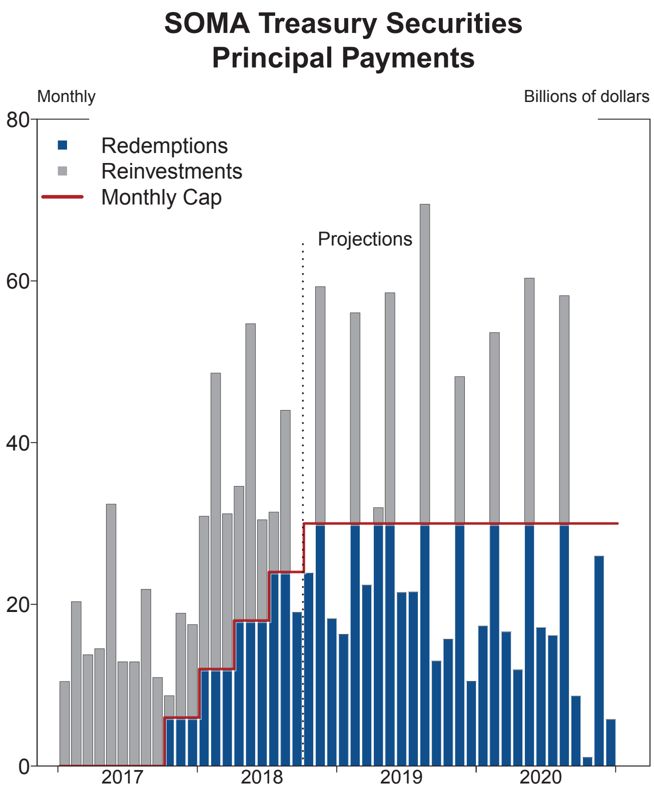
*Until projected normalization in August 2021.

Projections for Agency Securities
(Billions of dollars)

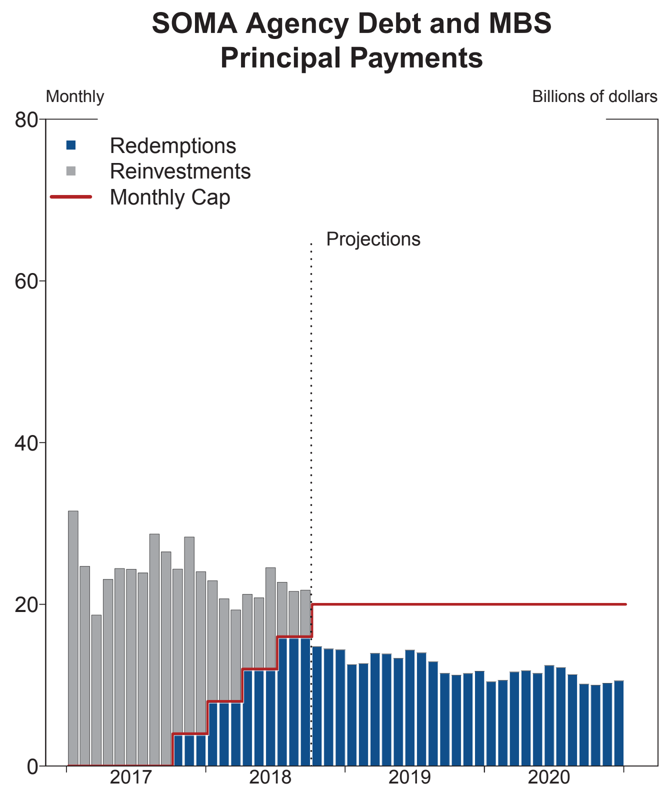
	Redemptions		Reinvestments	
	Period	Since Oct. 2017	Period	Since Oct. 2017
2018: Q4	43.6	163.6	0.0	152.0
2018	151.6	163.6	87.6	152.0
2019	153.4	317.0	0.0	152.0
2020	132.7	449.7	0.0	152.0
2021*	73.5	523.3	0.0	152.0

*Until projected normalization in August 2021.

Balance Sheet & Income



Note: Projection dependent on assumed distribution of future Treasury issuance.



Note: Projection dependent on future interest rates and housing market developments.

of reserve balances will be reached in the third quarter of 2021, about one quarter later than in the September Tealbook projection.[4] As of the end of September, reserve balances have declined by about $300 billion since the normalization program began, and by about $1 trillion since the month-end peak of reserve balances was reached in August 2014 (see the exhibit titled "Total Assets and Selected Balance Sheet Items" and the table that follows the exhibit).

From the start of the balance sheet reduction program in October 2017 to its projected conclusion at the time of normalization in 2021, the Federal Reserve's securities holdings are predicted to decline about $1.3 trillion, with holdings of Treasury and agency securities shrinking about $800 billion and $500 billion, respectively. When the size of the balance sheet is normalized, the SOMA portfolio is projected to be a touch less than $3 trillion, consisting of about $1.7 trillion in Treasury securities and $1.3 trillion in agency securities.

Once the declines in asset holdings associated with normalization have taken place, the size of the balance sheet is projected to stand at roughly 13 percent of nominal GDP, compared with a peak of about 25 percent in 2014 and a pre-crisis average of about 6 percent. After the size of the balance sheet is normalized, SOMA holdings will begin to rise, keeping pace with the increases in Federal Reserve liabilities—including Federal Reserve notes in circulation and the Treasury General Account (TGA)—as well as Federal Reserve Bank capital. Expressed as shares of nominal GDP, Federal Reserve assets and liabilities are expected to edge down.

Federal Reserve remittances. Remittances to the Treasury are projected to decline to $63 billion this year from $80 billion in 2017 (see the "Income Projections" exhibit).[5] This decline primarily reflects the realized and expected increases in the interest rate paid on reserve balances in 2018; total interest expense is projected to rise by

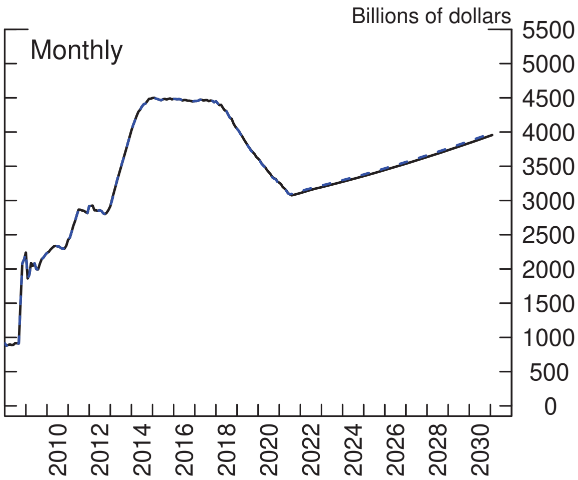
[4] Generally speaking, the size of the balance sheet is considered to be normalized when the resumption of purchases of Treasury securities is required to satisfy the demand for reserve balances and accommodate the expansion of key non-reserve liability items.

[5] This estimate includes two mandated transfers to the Treasury due to reductions to the statutory limit on aggregate Reserve Bank surplus. First, $2.5 billion was transferred in February following an amendment to Section 7 of the Federal Reserve Act by the Bipartisan Budget Act of 2018, enacted in February 2018. Second, $675 million was transferred in June, reflecting another amendment to Section 7 by the Economic Growth, Regulatory Relief, and Consumer Protection Act, enacted in May 2018.

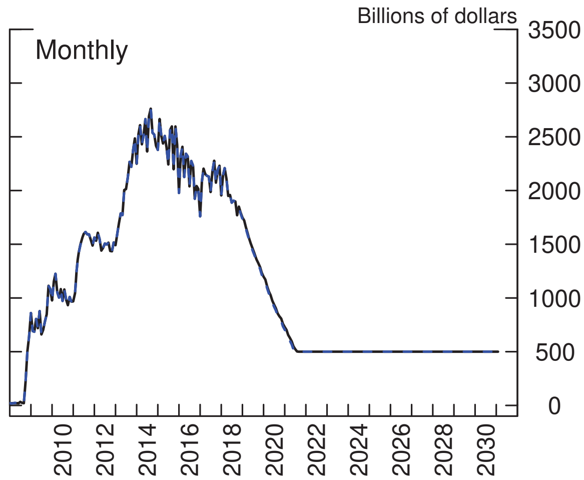
Total Assets and Selected Balance Sheet Items

— November Tealbook baseline — — September Tealbook baseline

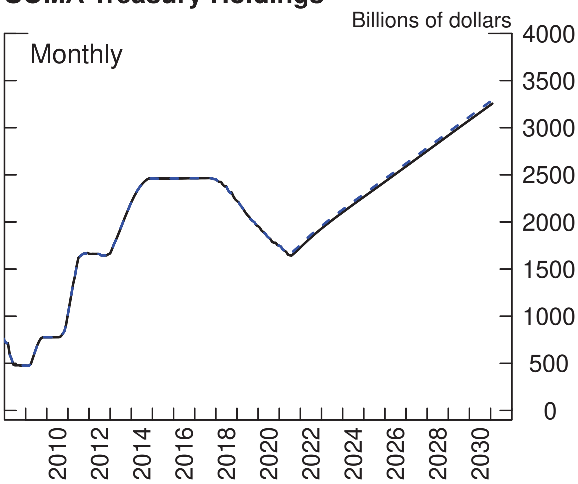
Total Assets



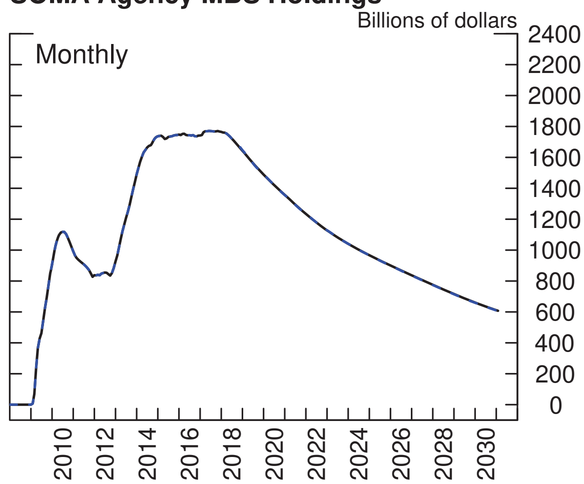
Reserve Balances



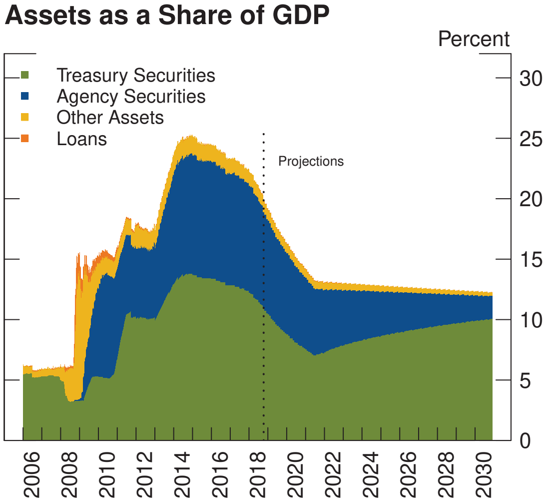
SOMA Treasury Holdings



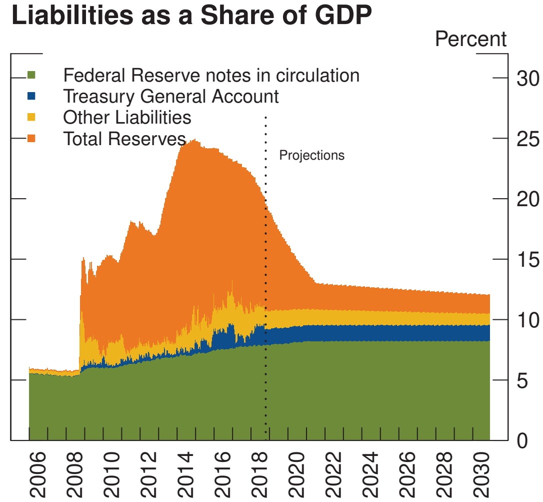
SOMA Agency MBS Holdings



Assets as a Share of GDP



Liabilities as a Share of GDP

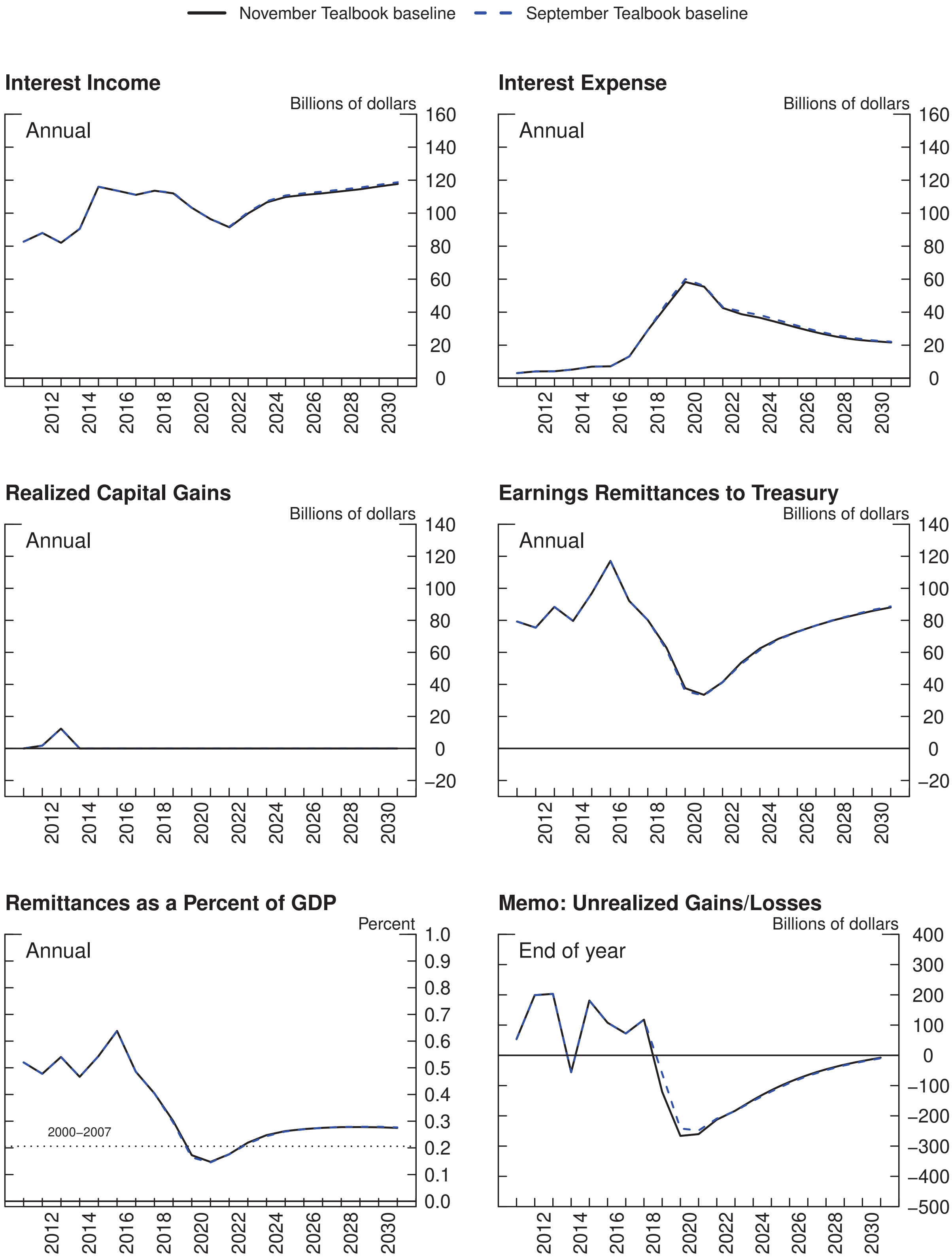


Federal Reserve Balance Sheet
Month-end Projections -- November Tealbook
(Billions of dollars)

	Historical*			Projections				
	Aug 2014	Sep 2017	Sep 2018	Dec 2018	Dec 2020	Dec 2022	Dec 2025	Dec 2030
Total assets	4,416	4,460	4,194	4,048	3,260	3,194	3,445	3,947
Selected assets								
Loans and other credit extensions**	2	6	0	0	0	0	0	0
Securities held outright	4,157	4,240	3,997	3,868	3,107	3,059	3,330	3,856
U.S. Treasury securities	2,437	2,465	2,313	2,223	1,748	1,929	2,427	3,242
Agency debt securities	42	7	2	2	2	2	2	2
Agency mortgage-backed securities	1,678	1,768	1,682	1,642	1,356	1,127	900	611
Unamortized premiums	209	162	145	140	111	90	69	43
Unamortized discounts	-19	-14	-14	-13	-10	-8	-7	-5
Total other assets	66	66	65	53	53	53	53	53
Total liabilities	4,360	4,419	4,155	4,009	3,221	3,151	3,395	3,884
Selected liabilities								
Federal Reserve notes in circulation	1,249	1,532	1,638	1,667	1,878	2,019	2,230	2,651
Reverse repurchase agreements	277	557	279	240	234	230	230	230
Deposits with Federal Reserve Banks	2,825	2,323	2,232	2,098	1,103	897	931	999
Reserve balances held by depository institutions	2,762	2,073	1,769	1,749	729	500	500	500
U.S. Treasury, General Account	49	159	385	279	304	327	361	429
Other deposits	15	91	78	70	70	70	70	70
Earnings remittances due to the U.S. Treasury	3	2	1	0	0	0	0	0
Total Federal Reserve Bank capital***	56	41	39	39	39	43	49	62

Source: Federal Reserve H.4.1 daily data and staff calculations.
Note: Components may not sum to totals due to rounding.
*August 2014 corresponds to the peak month-end value of reserve balances; September 2017 corresponds to the last month-end before the initiation of the normalization program; September 2018 is the most recent historical value.
**Loans and other credit extensions includes discount window credit; central bank liquidity swaps; and net portfolio holdings of Maiden Lane LLC.
***Total capital includes capital paid-in and capital surplus accounts.

Income Projections



$15 billion to $44 billion this year.[6] In addition, the reduction in SOMA securities holdings this year results in a slight decrease in projected interest income to $112 billion. As interest expense on reserve balances increases with a higher target range for the federal funds rate, and as interest income decreases with lower asset holdings, remittances are expected to decline further and to bottom out at $33 billion in 2020. Thereafter, remittances increase due to both a decrease in interest expense as the target range for the federal funds rate is projected to decline, and an increase in interest income once the Desk resumes purchases of Treasury securities for the SOMA portfolio.

The projected path for remittances over the next few years is similar to that in the September Tealbook. As shown in the bottom left panel of the "Income Projections" exhibit, annual remittances average about 0.25 percent of nominal GDP over the projection period, slightly higher than their pre-crisis average.

Unrealized gains or losses. The SOMA portfolio was in a net unrealized loss position of about $66 billion at the end of September.[7] With longer-term interest rates expected to rise further over the next few years, the unrealized loss position is expected to peak at $280 billion in 2020:Q1. Of this amount, $119 billion is attributable to Treasury securities and $161 billion to agency MBS. The unrealized loss position subsequently narrows, in large part because the value of securities acquired under the Federal Reserve's large-scale asset purchase programs returns to par as those securities approach maturity. The net unrealized position is projected to be a bit lower in the near term compared to the September Tealbook.

Term premium effect. As shown in the table "Projections for the 10-Year Treasury Term Premium Effect," SOMA securities held as a result of the Federal Reserve's asset purchase programs are currently estimated to be reducing the term premium in the 10-year Treasury yield by about 75 basis points, the same as projected in

[6] We continue to assume that the FOMC will set a 25-basis-point-wide target range for the federal funds rate throughout the projection period. Consistent with the September FOMC Implementation Note, we assume that the interest rates paid on reserve balances will be set five basis points below the top of the target range for the federal funds rate. We continue to assume that the offering rate on overnight RRPs will be set at the bottom of the range.

[7] For an explanation of the accounting notions of unrealized and realized positions, as well as their potential implications for the Federal Reserve's ability to meet its obligations, see Brian Bonis, Lauren Fiesthumel, and Jamie Noonan (2018), "SOMA's Unrealized Loss: What Does It Mean?" FEDS Notes (Washington: Board of Governors of the Federal Reserve System, August 13), https://www.federalreserve.gov/econres/notes/feds-notes/somas-unrealized-loss-what-does-it-mean-20180813.htm.

Projections for the 10-Year Treasury Term Premium Effect *
(Basis Points)

Date	November Tealbook	September Tealbook
Quarterly Averages		
2018:Q4	-75	-75
2019:Q4	-65	-65
2020:Q4	-57	-58
2021:Q4	-52	-52
2022:Q4	-48	-49
2023:Q4	-45	-46
2024:Q4	-42	-43
2025:Q4	-39	-40
2026:Q4	-37	-38
2027:Q4	-35	-35
2028:Q4	-33	-34
2029:Q4	-31	-32
2030:Q4	-30	-30

* The figures show the estimated effects on the 10-year Treasury term premium resulting from the Federal Reserve's large-scale asset purchases.

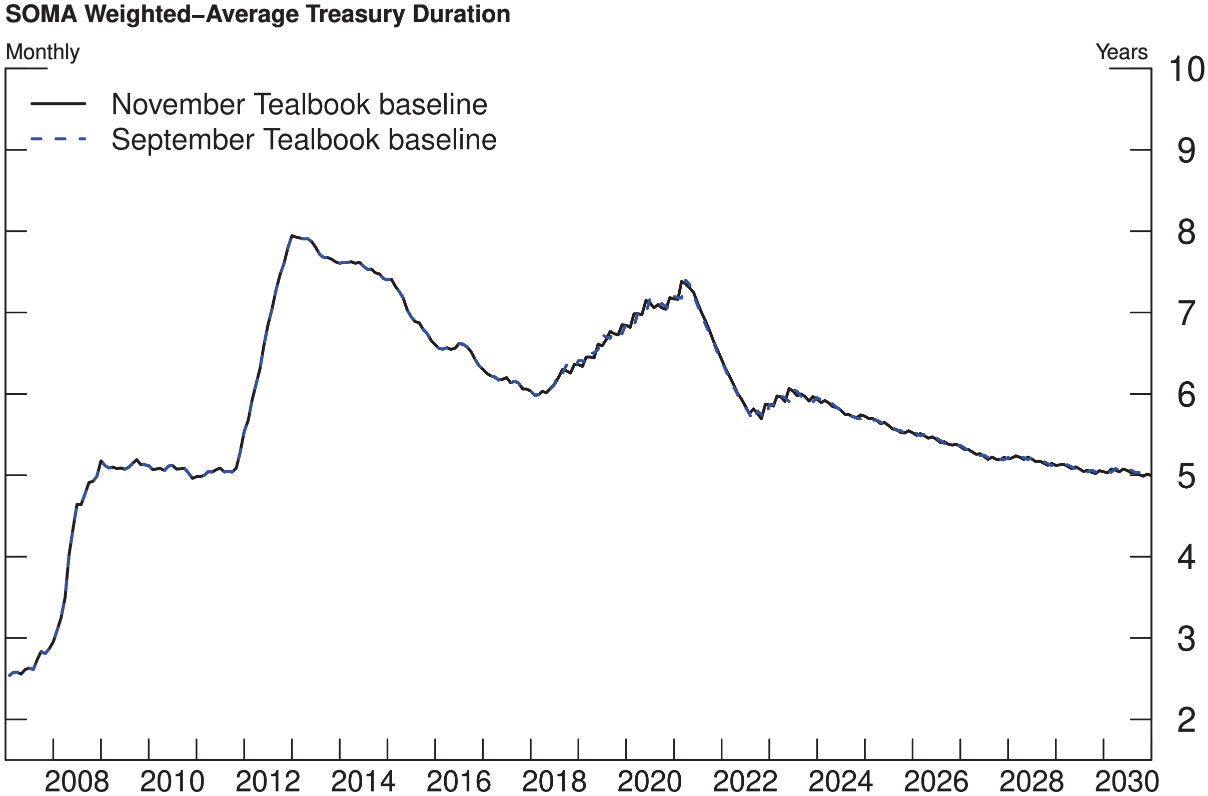
the previous Tealbook; this effect fades gradually over time. The estimated path of the term premium effect depends on the difference between the expected path of the Federal Reserve's balance sheet over coming years and a counterfactual projection based on the configuration of the balance sheet that prevailed before the financial crisis of 2007–2008. In this counterfactual projection it is assumed that reserve balances reach their longer-run level at $100 billion.

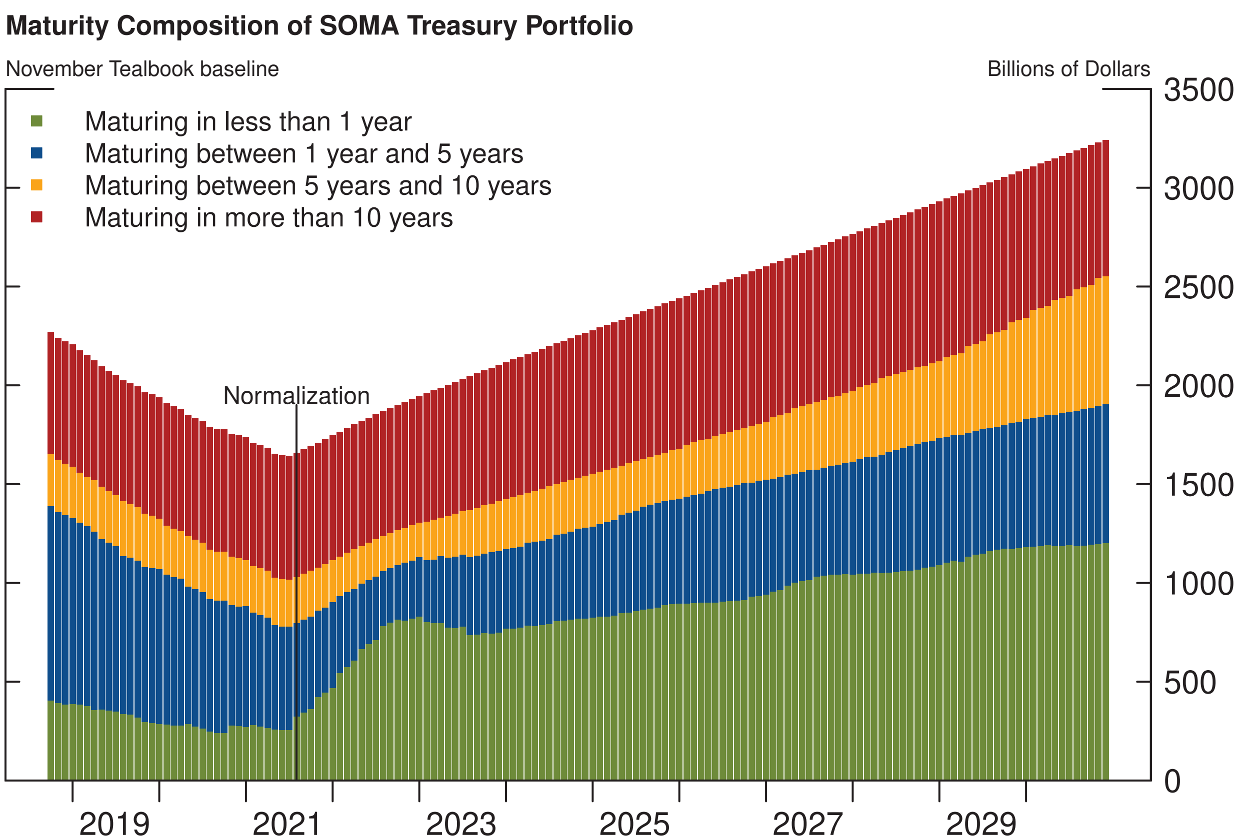
SOMA characteristics. As shown in the top panel of the "Projections for the Characteristics of SOMA Treasury Securities Holdings" exhibit, the weighted-average duration of the SOMA Treasury portfolio is currently about six years. This measure is projected to increase over the course of balance sheet normalization as redemptions continue and longer-duration securities become a larger share of the portfolio. In terms of the composition of the portfolio, the share of agency MBS is expected to peak at 44 percent shortly before the size of the balance sheet is expected to be normalized, reflecting the faster pace of roll-offs of Treasury securities, and then to decline to 30 percent at the end of 2024.

After normalization of the size of the balance sheet in 2021, the duration of the SOMA Treasury portfolio is projected to decline as the Desk begins adding securities to the SOMA portfolio to keep pace with the expansion in non-reserve liabilities. The initial sharp decline in duration results from the staff's assumption that the Desk will purchase only Treasury bills until these securities account for one-third of the Federal Reserve's Treasury securities portfolio, close to their pre-crisis share.[8] Thereafter, purchases of Treasury securities are assumed to be spread across the maturity spectrum (see the bottom panel of the exhibit titled "Projections for the Characteristics of SOMA Treasury Securities Holdings").

[8] Excluding securities acquired through small-value test operations, the SOMA portfolio currently contains no Treasury bills.

Projections for the Characteristics of SOMA Treasury Securities Holdings





Balance Sheet & Income

Abbreviations

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

ISM	Institute for Supply Management
LIBOR	London interbank offered rate
LSAPs	large-scale asset purchases
MBS	mortgage-backed securities
MMFs	money market funds
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
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
SOMA	System Open Market Account
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
TPE	Term premium effects
ZLB	zero lower bound