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.

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Authorized for Public Release

Class I FOMC – Restricted Controlled (FR)

Report to the FOMC on Economic Conditions and Monetary Policy

Book B

Monetary Policy Alternatives

December 13, 2018

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

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Monetary Policy Alternatives

Information received since the Committee met in November indicates that the labor market has continued to strengthen. In November, the unemployment rate held steady at 3.7 percent and, despite some slowing, the 3-month average of payroll gains, at 170,000 per month, remained well above the pace necessary to absorb new entrants to the labor force. Real GDP is projected to grow 3 percent over this year. The staff continues to expect 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 2 percent and 1.8 percent, respectively, in October. The staff projects that core PCE inflation will edge back up to 1.9 percent by year-end and then run at 2 percent over the medium term. Headline PCE inflation is projected to be below core inflation through 2019, reflecting the recent large declines in oil prices, but to run in line with the core rate thereafter. The staff has not significantly altered its outlook in light of the recent movements in financial market prices.

Against this backdrop, the alternative policy statements presented below offer a range of options for the current setting of policy and the expected path going forward. Alternative B is written with a view that the economy has evolved roughly in line with the Committee's expectations, thus meriting another increase in the target range for the federal funds rate at the December meeting. To acknowledge that the extent of future policy tightening has likely diminished as the target range has risen, and to indicate somewhat less conviction about the expected path of the federal funds rate, the draft of Alternative B modifies the forward guidance language in paragraph 2. In particular, the draft states that the Committee "judges" that "some" further gradual increases in the target range will be consistent with achieving the Committee's goals. Additionally, by making only modest changes to the statement through the adoption of Alternative B, the Committee would communicate that the recent volatility in financial markets has not caused a significant shift in the Committee's outlook for the economy or monetary policy at this time.

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 at this meeting and signal that further gradual increases are likely to be warranted.

Alternative A is motivated by an assessment that the current stance of monetary policy, at this time, is appropriate to achieve the Committee's objectives, and that further gradual increases in the target range 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 signal a pause in the current tightening cycle.

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 very similar characterizations of the incoming data, both of which are little changed from the November FOMC statement. While Alternative B again reports that both overall and core inflation "remain near 2 percent," Alternative A notes that both "have softened but remain near 2 percent."
    - Alternative C emphasizes that the labor market "continued to tighten," citing "robust" job gains and noting that "the unemployment rate is at multi-decade lows."
- The outlook for economic activity and inflation, the associated risks, and the monetary policy path upon which the outlook is conditioned:
    - As in November, 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 "some further gradual increases" in the target range for the federal funds rate.
    - Alternative A offers the same outlook for economic activity and inflation as Alternative B. However, under Alternative A, the Committee does not condition the economic outlook on "some further gradual increases" in the federal funds rate; instead, the Committee "judges that the current target range for the federal funds rate at this time is consistent with" sustained economic expansion and inflation near the Committee's symmetric 2 percent objective.

    - Alternative C also offers essentially the same outlook for economic activity, the labor market, and inflation as Alternative B, but states that "further gradual increases" are "warranted" to achieve this outlook. Additionally, Alternative C states that risks are "roughly balanced" only for "economic activity," thereby implying some upside risk to the outlook for inflation.

- The current policy decision and the outlook for policy:
    - Alternative B raises the target range to 2¼ to 2½ percent.[1] With the outlook conditioned on "some further gradual increases," such a statement would acknowledge that the Committee anticipates slowing its pace of tightening after December.
    - Alternative A maintains the current target range. By removing the reference to "further gradual increases" and indicating that the Committee judges that the current level of the federal funds rate is appropriate "at this time," such a statement would signal a pause in raising rates.
    - Alternative C also raises the target range by 25 basis points. With "further gradual increases" in the federal funds rate "warranted" to keep inflation near the Committee's objective and sustain the economic expansion, 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 its previous communications.

[1] The implementation note associated with Alternatives B and C embeds the assumption that the Federal Reserve would make another 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, bringing the spread to 10 basis points.

November 2018 FOMC Statement

1. Information received since the Federal Open Market Committee met in 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 declined. Household spending has continued to grow strongly, while growth of business fixed investment 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 maintain the target range for the federal funds rate 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.

ALTERNATIVE A FOR DECEMBER 2018

1. Information received since the Federal Open Market Committee met in ~~September~~ **November** 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 ~~declined~~ **remained low**. Household spending has continued to grow strongly, while growth of business fixed investment 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 **have softened but** 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~~ **judges** that ~~further gradual increases in~~ the **current** target range for the federal funds rate ~~will be~~ **at this time is** 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 maintain the target range for the federal funds rate 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.

ALTERNATIVE B FOR DECEMBER 2018

1. Information received since the Federal Open Market Committee met in ~~September~~ **November** 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 ~~declined~~ **remained low**. Household spending has continued to grow strongly, while growth of business fixed investment 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~~ **judges** that **some** 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 ~~maintain~~ **raise** the target range for the federal funds rate ~~at 2~~ to 2-1/4 **to 2-1/2** 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.

ALTERNATIVE C FOR DECEMBER 2018

1. Information received since the Federal Open Market Committee met in ~~September~~ **November** 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 declined~~ **is at multi-decade lows**. Household spending has continued to grow strongly, while growth of business fixed investment 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 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.

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

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 170,000 in the three months ending in November, well above the pace that the staff projects is consistent with no change in resource utilization.
  - The unemployment rate held steady at 3.7 percent in November, 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 3.1 percent over the year ending in November, consistent with a strong labor market.
- The staff estimates that output currently stands about 2¼ percent above its potential level, and anticipates that the output gap will widen to about 3 percent in 2020 before narrowing.
- Inflation is projected to remain close to the Committee's symmetric 2 percent goal.
  - The 12-month change in headline PCE prices was 2 percent in October, while core PCE prices came in a little below staff expectations at 1.8 percent.
  - Despite its dip in October, the staff projects core PCE inflation to remain close to 2 percent over the medium term. While recent declines in oil prices are expected to weigh on headline PCE inflation in early 2019, the effect of these declines on inflation is anticipated to be transitory and this measure is expected to return to 2 percent over the remainder of the medium term.
  - Against the backdrop of a pickup in productivity growth, growth in unit labor costs has remained modest.
  - Measures of inflation expectations continue to suggest that long-term inflation expectations remain well-anchored. While market-based measures of inflation compensation have decreased somewhat, they have stayed within the range of readings over recent years. Survey-based measures of longer-run inflation expectations have remained steady.
- Movements in asset prices indicate that risk sentiment deteriorated somewhat further, on balance, since the November FOMC meeting. Equity prices and Treasury yields

have declined, and yields and spreads on corporate bonds have increased, particularly for speculative-grade debt. Financial conditions for businesses and households have tightened a bit, according to a range of indicators. However, despite these recent developments, financial conditions continue to remain supportive of the economic expansion.

- Risks to the outlook appear roughly balanced. Upbeat household and business sentiment, as reflected in recent readings, could combine with the ongoing boost from fiscal stimulus enacted last year to cause spending and investment to expand faster than in the staff projection. In addition, sustained low levels of unemployment may give rise to greater inflation pressures than anticipated by the staff. Conversely, a slowdown in foreign growth, adverse trade policy shocks, or significant further tightening in financial conditions pose downside risks for economic activity.

Policy Strategy

- Policymakers may see an increase in the target range for the federal funds rate in December as consistent with earlier communications indicating that further gradual increases in the target range would be appropriate if the economy evolved about as anticipated.
- Policymakers may also judge that "some" further gradual increases in the target range will be appropriate in order to balance the risks associated with resource utilization becoming overly tight against the risk of unduly slowing the economy, potentially leading to below-target inflation.
    - Policymakers may view the reference to "some" further tightening as an acknowledgement that, with an increase in the target range in December, they anticipate only relatively limited additional tightening.
    - Policymakers may also prefer to replace the word "expects" with "judges" to communicate more clearly the Committee's current level of conviction regarding the timing and size of future adjustments to the target range.
- Policymakers may expect that inflation will continue to run close to the Committee's symmetric 2 percent inflation goal as some further gradual tightening of monetary policy is carried out.
    - Policymakers may see an increase in the federal funds rate at this meeting, along with some future gradual increases in conjunction with ongoing

balance-sheet reduction, as containing the risk that inflation will rise appreciably above 2 percent.

- Policymakers may also view the stability of longer-term inflation expectations as consistent with achieving the Committee's inflation objective.

- Market quotes along with responses to the Desk's latest surveys of primary dealers and market participants indicate that an increase in the target range is seen as highly likely at the December meeting (see the box, "Monetary Policy Expectations and Uncertainty"). Survey respondents have also noted policymakers' communications about potential changes to the forward guidance language. Consequently, a statement along the lines of Alternative B seems unlikely to generate substantial changes in asset prices.

Monetary Policy Expectations and Uncertainty

Market participants appear to remain confident that the Committee will announce a 25-basis-point increase in the target range for the federal funds rate at the December FOMC meeting. In contrast, expectations for the federal funds rate beyond 2018 moved down, suggesting that investors expect the federal funds rate to rise less quickly and to a lower level than at the time of the November meeting.

A straight read of quotes on federal funds futures contracts implies that investors attach about 85 percent odds to a 25-basis-point increase in the target range for the federal funds rate at the upcoming FOMC meeting (the left-most blue bar in figure 1). This probability does not take into account the widely-expected technical adjustment to the rate of interest on reserves (IOR). Assuming that the IOR rate will be raised by only 20 basis points at the December meeting, these quotes would instead imply that investors are near certain of a 25-basis-point increase in the target range (the cumulative area covered by the blue and red bars).[1] Respondents to the Desk's December surveys assigned, on average, about 80 percent odds to a rate increase at the upcoming meeting.

Expectations for the federal funds rate beyond 2018 have fallen over the intermeeting period. The market-implied probability of a rate hike at the March 2019 FOMC meeting, unadjusted for term premiums, has fallen from 70 percent to about 30 percent (figure 1).[2] And the probability distribution for the level of the federal funds rate at the end of 2019 implied by options quotes, also unadjusted for term premiums, has shifted to the left (figure 2), with the mean of the distribution falling from 2.9 to 2.6 percent. The corresponding average probability distribution from the December Desk surveys has also shifted lower (figure 3), albeit by less; the mean of the survey-based distribution fell from 2.8 to 2.7 percent. Survey respondents now place the highest odds on two 25-basis-point rate increases in 2019 (at the time of the November surveys, respondents attached roughly equal probability to two or three rate hikes).

Forward rates implied by OIS quotes (the light-blue lines in figure 4) decreased by 30, 44, and 37 basis points on net at the end of 2019, 2020 and 2021, respectively. Under the assumption of zero term premiums, these market-implied forward rates suggest that investors expect the federal funds rate to reach about 2.6 percent at the end of 2019 before falling a bit in 2020. The expected path of the federal funds rate adjusted for term premiums using a staff term structure model (the red lines in figure 4) has declined by less and continues to point to a higher

[1] About 90 percent of the respondents who answered the question in the Desk's December surveys expect the spread between the top of the target range for the federal funds rate and the IOR rate to widen from the current 5 basis points to 10 basis points following the December meeting.

[2] The probability of a rate hike at the January 2019 FOMC meeting remains close to zero.

expected path for the federal funds rate, reaching about 3 percent by the end of 2019 and gradually rising in 2020.

As shown in figure 5, the most recent expected path for the federal funds rate implied by the staff model (the red line) is roughly consistent with the median of respondents' modal projections from the December Desk surveys (the brown line) but now lies somewhat below the Committee's September median SEP projections (the dark blue dots) for the end of 2019 and 2020. The survey-implied mean path (the golden squares) continues to lie noticeably below the survey-implied modal path, suggesting that survey respondents perceive the risks to the economic outlook as skewed towards the downside.

Figure 6 shows measures of the longer-run expected federal funds rate. A straight read of forward rates at longer horizons implied by Treasury securities (the blue line) suggests that investors' current expectation for the average federal funds rate from 5 to 10 years ahead is about 3 percent, about 35 basis points lower than at the time of the November meeting. Adjusting for term premiums using various staff term structure models (with the light-red 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 remain close to the unadjusted forward rates; the average longer-run forecast from the December Blue Chip survey (the yellow diamonds) and the median forecast from the latest Desk surveys (the green diamonds) were 3.1 and 2.9 percent, respectively.

The December Desk surveys also asked several questions pertaining to the average size and composition of the Federal Reserve System's balance sheet in 2025, assuming the economy would not move back to the effective lower bound between now and then. The median of respondents' projections for the level of reserve balances in 2025 was $1.1 trillion, about $350 billion above the median projection reported in the June survey, when this question was last asked; this increase could reflect the results of the Senior Financial Officer Survey that were published in late November, and the FOMC's discussion of its future implementation framework as reported in the minutes of the November meeting. In a new question, respondents were also asked to provide their projection for the lowest weekly level they expected reserve balances to reach between now and the end of 2025, assuming the economy does not move back to the effective lower bound. The median respondent projected that reserve balances will decline to a trough of $1 trillion, with 90 percent of the respondents who answered the question projecting a trough between $500 billion and $1.4 trillion. The median respondent projected the fourth quarter of 2020 as the most likely date when the par value of the domestic SOMA portfolio will first exhibit quarter-over-quarter growth.

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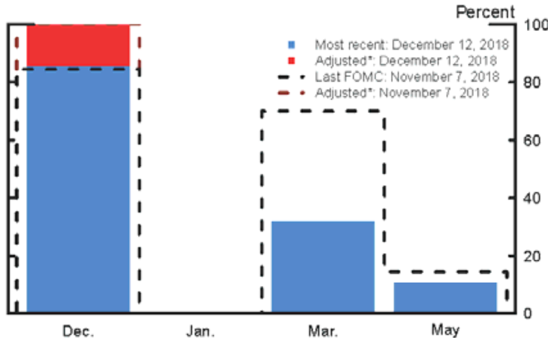
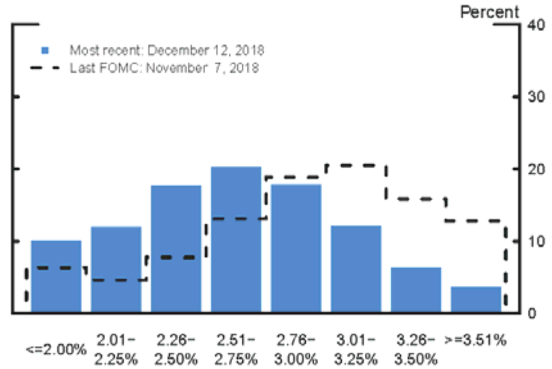
Figure 1: Market–Implied Probability of a Rate Increase at Each of the Next Four FOMC Meetings



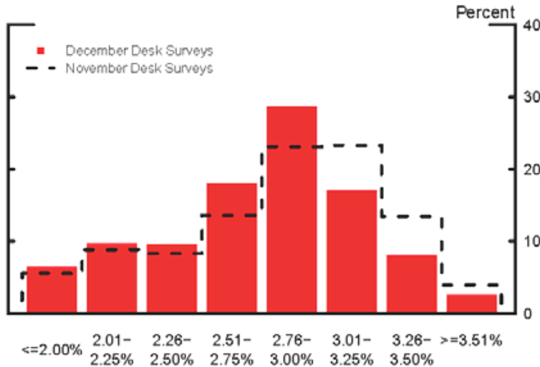
Note: Probabilities implied by a binomial tree fitted to settlement prices on federal funds futures contracts, assuming the policy action at each meeting is either no change or a 25–basis point increase in rates and no intermeeting moves.
*Adjusted under the assumption that the policy action for the 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: Market–Implied Probability Distribution of the Federal Funds Rate, Year–End 2019



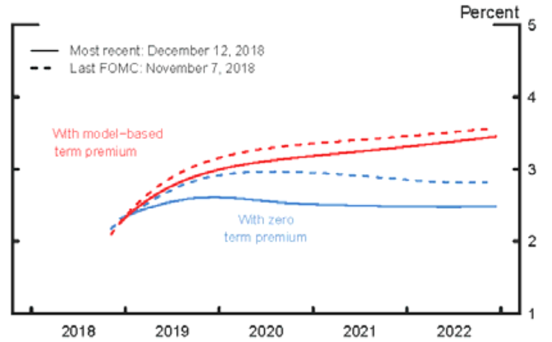
Note: Estimated from Eurodollar futures options, accounting for the differences in the levels and option–implied volatilities of LIBOR and the federal funds rate, but not adjusted for risk premiums.
Source: CME Group; Federal Reserve Board staff estimates.

Figure 3: Desk Survey Average Probability Distribution of the Federal Funds Rate, Year–End 2019



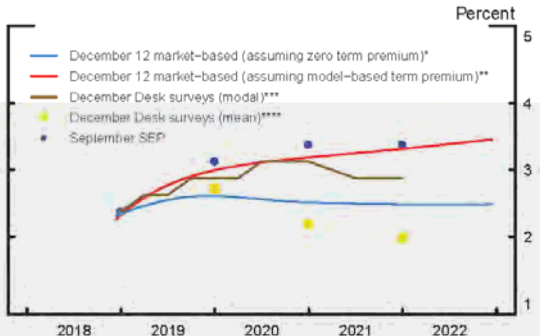
Note: Probabilities are averages of the probabilities assigned by respondents to different ranges of the federal funds rate at the end of 2019.
Source: FRBNY.

Figure 4: Market–Implied Federal Funds Rate Expectations



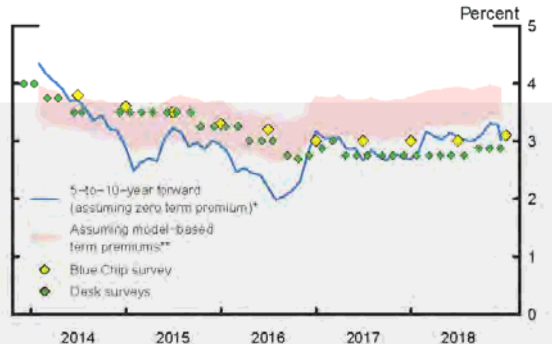
Note: Zero term premium path is estimated using overnight index swap quotes with a spline approach and a term premium of zero basis points. Model–based term premium path is estimated using a term structure model maintained by Board staff and corrects for term premium.
Source: Bloomberg; Federal Reserve Board staff estimates.

Figure 5: Federal Funds Rate Projections



* Estimated using overnight index swap quotes with a spline approach and a term premium of zero basis points.
** Adjusting for premiums using a term structure model maintained by Board staff.
*** Median of respondents' modal paths for the federal funds rate.
**** Calculated by averaging over individual respondents' year–end probability distributions.
Source: Bloomberg, Federal Reserve Board staff estimates; FRBNY; Summary of Economic Projections.

Figure 6: 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 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.

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 slightly further.
- Policymakers may predict that unwanted upward pressure on inflation is likely to emerge amid a prolonged period of significant labor market tightness. This tightness is apparent through widespread reports of shortages of qualified employees and evidence of supply constraints in certain sectors.
- Policymakers may judge that broader financial conditions continue to be accommodative relative to historical experience, and that financial imbalances, which are already present, may grow larger. Although the federal funds rate and key interest rates for household and business borrowers have increased, they have risen from very low levels, and the increases have occurred alongside some easing in non-price 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 focused on indicators of a strong labor market, such as the employment-to-population ratio of prime-age workers, which at nearly 80 percent has returned to levels last seen in 2007. They may be concerned that this labor market tightness, combined with ongoing above-trend economic growth, could soon result in more notable upward pressure on inflation.
    - They may also see a need 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 should inflation pick up following a prolonged period of tight resource utilization.

- Policymakers may note that, even with a rate hike at their December meeting, the federal funds rate would still lie below prescriptions from a wide range of policy strategies—including those from most of the simple policy rules shown in the "Monetary Policy Strategies" section of Tealbook A. To the extent that these prescriptions have provided reasonable characterizations of past Committee behavior, policymakers may believe that large, prolonged deviations from these prescriptions risk unmooring inflation expectations or exacerbating other imbalances.
- In order to avoid a significant buildup of financial imbalances, policymakers may see the need to signal a higher end-point for the tightening cycle than has been previously communicated by the Committee.
- 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 increases" are "warranted."
- Policymakers may also wish to communicate in paragraph 2 that risks to the outlook appear roughly balanced specifically for the outlook for economic activity. This could signal, by omission, policymakers' concern that risks to the outlook for inflation may not be balanced.
- While financial market participants regard a rate hike at the upcoming meeting as highly likely, the guidance contained in Alternative C would come as a surprise and would likely cause policy expectations to ratchet up next year and potentially farther out. In response to a statement like Alternative C, near-term real interest rates would likely 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, although inflation has softened recently, it remains close to 2 percent and that it is projected to remain near that level on a sustained basis.
- Moreover, policymakers may see little evidence of labor market overheating.
    - Wage pressures remain subdued even as the unemployment rate has moved down since the beginning of the year. Although measures of labor compensation have firmed over the past two years, so has productivity growth. As a result, growth of unit labor costs has been modest, making it less likely that the low level of the unemployment rate will lead to inflation rising 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 temporary factors, and that real GDP growth is projected to decline steadily over the next few years, in part reflecting waning fiscal impetus.
- Policymakers may see developments in Treasury markets—particularly the further flattening of the nominal yield curve—as supporting the view that the current level of the federal funds rate is close to its neutral level.
- Policymakers may judge recent developments across broader financial markets to be evidence of nascent downside risks to economic activity, which additional tightening of monetary policy would likely exacerbate.

Policy Strategy

- Policymakers may judge that both objectives of the dual mandate are nearly fulfilled. They may deem it prudent to leave the target range for the federal funds rate unchanged "at this time" while 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 sizable increase in either unit labor cost growth 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. A restrictive policy stance could be reflected in an inversion of the yield curve—a development that has historically been associated with recessions. Furthermore, a slowdown in growth abroad or trade policy developments could also restrain the economy over the near term. Thus, they may feel that only conditional on a flatter path of the policy rate are risks to the outlook roughly balanced.
- 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. Policymakers may believe that pausing now could provide an opportunity to ascertain with greater precision the stance of monetary policy.

- Policymakers may continue to view the current state of the financial system as sound and the potential for a significant 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.
- Financial market participants are broadly expecting a rate hike at the upcoming meeting; against this backdrop, adoption of a statement such as Alternative A would certainly be a surprise. Expectations for rate hikes in the near future would fall, and medium- and longer-term interest rates could decline as well. If investors viewed monetary policy as simply being more accommodative than previously expected, equity prices and inflation compensation could rise and the dollar could depreciate. Conversely, if market participants viewed the statement as signaling a less optimistic economic outlook, equity prices and inflation compensation could fall.

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 November directive and implementation note, bold red underlined text indicates added language, and blue underlined text indicates text that links to websites.

Implementation Note for December 2018 Alternative A

Release Date: December 19, 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 ~~November 8~~ **December 19**, 2018:

- The Board of Governors of the Federal Reserve System voted [unanimously] to maintain the interest rate paid on required and excess reserve balances at 2.20 percent, effective ~~November 9~~ **December 20**, 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 ~~November 9~~ **December 20**, 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 each calendar month that exceeds $30 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 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 the establishment of the primary credit rate at the existing level of 2.75 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.

Implementation Note for December 2018 Alternatives B and C

Release Date: December 19, 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 ~~November 8~~ **December 19**, 2018:

- The Board of Governors of the Federal Reserve System voted **[** unanimously **]** to ~~maintain~~ **raise** the interest rate paid on required and excess reserve balances ~~at 2.20~~ **to 2.40** percent, effective ~~November 9~~ **December 20**, 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 ~~November 9~~ **December 20**, 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 each calendar month that exceeds $30 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 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."

Alternatives

- In a related action, the Board of Governors of the Federal Reserve System voted [unanimously] to approve ~~the establishment of~~ **a 1/4 percentage point increase in** the primary credit rate ~~at the existing level of 2.75~~ **to 3.00** percent**, effective December 20, 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.

Balance Sheet and Income Projections

Here we summarize projections of the Federal Reserve's balance sheet and income statement that are consistent with the baseline forecast in Tealbook A. The projections in this Tealbook are based on an assumption of a longer-run level of reserve balances of $1 trillion, compared to an assumption of $500 billion in the November Tealbook.[1,2] Staff projects that this revised level of reserve balances will be reached in the second quarter of 2020, about five quarters earlier than under the previous baseline level.[3]

Evolution of the SOMA Portfolio. So far, the balance sheet normalization program initiated in October 2017 has led to the redemption of $199 billion of Treasury securities and $139 billion of agency securities through October 2018 (see the table in the exhibit, "Redemptions and Reinvestments of SOMA Principal Payments"). During this same period, reinvestments of principal payments on Treasury and agency securities were $195 billion and $152 billion, respectively. Over the next year, redemptions of Treasury securities and MBS are projected to total approximately $280 and $170 billion, respectively.[4] All told, total redemptions are predicted to be about $1 trillion prior to

[1] Policymakers' discussion at the November FOMC meeting suggested that many participants lean toward implementing policy in the longer run in a regime of abundant excess reserves. The $1 trillion figure represents a rough estimate of the level of reserve balances in an abundant-excess-reserve regime and is based on the range of such forecasts provided by staff in the FOMC memo titled "The Federal Reserve's Long-Run Operating Regime" (November 2018). The figure includes a buffer to accommodate volatility in autonomous factors that affect the level of reserves and in banks' reserve demand, as well as a cushion to allow for potential frictions in the redistribution of reserves.

[2] Other unchanged 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 October 2018 levels of approximately $225 billion and $60 billion, respectively; and take-up at the overnight RRP facility is assumed to remain at its October 2018 average of about $5 billion until reserve balances reach $1.5 trillion, at which point take-up declines to zero over the subsequent year.

[3] Generally speaking, the size of the balance sheet normalizes when reserves fall to their longer-run level and purchases of Treasury securities resume keeping pace with the expansion of key non-reserve liability items.

[4] No further reinvestments of agency securities are projected to occur and future reinvestments of principal from maturing Treasury securities will take place primarily in the middle month of each quarter (see the bottom panel in the exhibit, "Redemptions and Reinvestments of SOMA Principal Payments"). However, the projections for agency securities are subject to considerable uncertainty because of unscheduled prepayments.

Redemptions and Reinvestments of SOMA Principal Payments

Projections for Treasury Securities
(Billions of dollars)

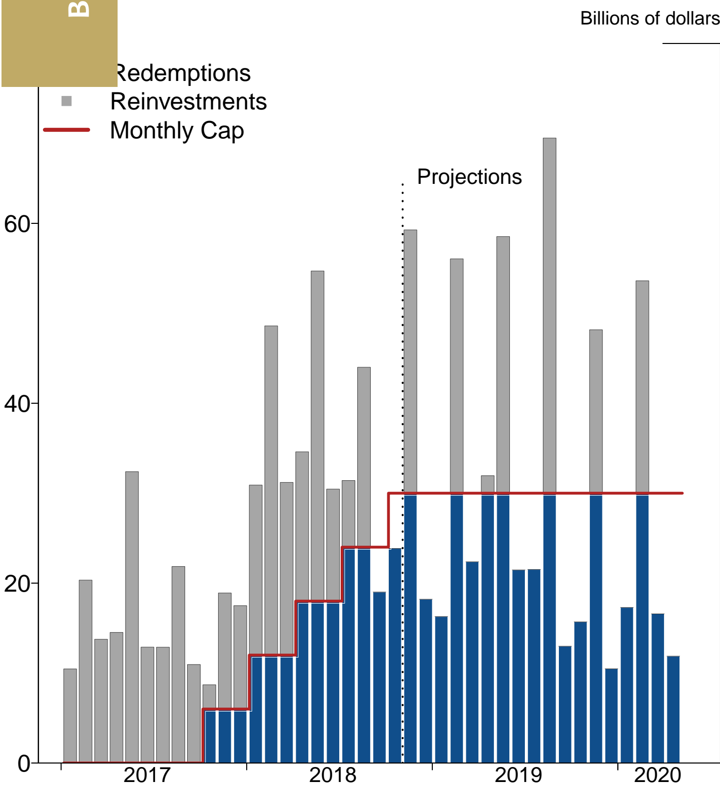
	Redemptions		Reinvestments	
	Period	Since Oct. 2017	Period	Since Oct. 2017
2017: Oct - 2018: Oct	198.9	198.9	195.0	195.0
2018: Nov - 2019: Oct	278.5	477.4	125.3	320.3
2018	229.1	247.1	197.1	224.2
2019	270.8	517.9	114.2	338.4
2020*	75.8	593.6	23.6	362.0

*Until projected normalization in May 2020.

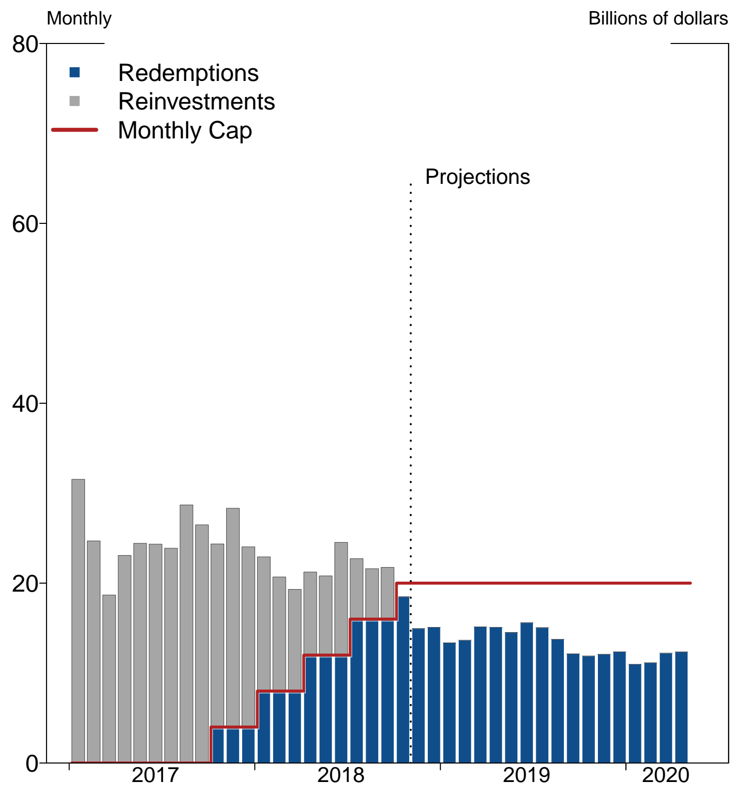
Projections for Agency Securities
(Billions of dollars)

	Redemptions		Reinvestments	
	Period	Since Oct. 2017	Period	Since Oct. 2017
2017: Oct - 2018: Oct	138.5	138.5	152.3	152.3
2018: Nov - 2019: Oct	170.3	308.8	0.0	152.3
2018	156.5	168.5	87.6	152.3
2019	164.7	333.2	0.0	152.3
2020*	46.7	380.0	0.0	152.3

*Until projected normalization in May 2020.



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



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

normalization, with Treasury and agency securities comprising about $600 billion and $380 billion, respectively (see the exhibit titled "Total Assets and Selected Balance Sheet Items" and the table that follows the exhibit).

When the size of the balance sheet is normalized, the SOMA portfolio is projected to be a touch less than $3.3 trillion, consisting of about $1.9 trillion in Treasury securities and $1.4 trillion in agency securities. At that time, the size of the balance sheet is projected to stand at roughly 16 percent of nominal GDP, with non-reserve liabilities totaling 11 percent of nominal GDP. For comparison, the size of the balance sheet as a share of nominal GDP peaked at about 25 percent in 2014 and averaged about 6 percent prior to the crisis. 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.

The share of agency MBS in the portfolio, which currently stands at 42 percent, is expected to rise slightly in the near term, reflecting the faster pace of Treasury roll-offs. This share begins to decline once the size of the balance sheet normalizes and reaches 25 percent at the end of 2024.

SOMA portfolio characteristics. The weighted-average duration of the SOMA Treasury portfolio is currently about six years (see the top panel of the exhibit titled "Projections for the Characteristics of SOMA Treasury Securities Holdings"). This measure is projected to increase until mid-2020 as redemptions continue and longer-duration securities become a larger share of the portfolio. After normalization of the size of the balance sheet in 2020, the duration of the SOMA Treasury portfolio is projected to decline as the Desk adds Treasury bills to the portfolio when non-reserve liabilities grow and securities mature.[5] Once Treasury bills are one-third of the Federal Reserve's Treasury securities portfolio, close to their pre-crisis share, further purchases of Treasury securities are assumed to be spread across the maturity spectrum (see the bottom panel of the exhibit).[6]

[5] The FOMC memo titled "SOMA Portfolio Composition" (December 2018) explores two alternative Treasury compositions.

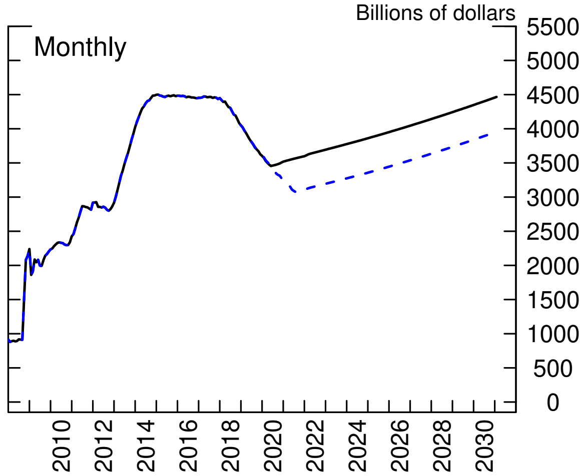
[6] Excluding securities acquired through small-value test operations, the SOMA portfolio currently contains no Treasury bills.

Total Assets and Selected Balance Sheet Items

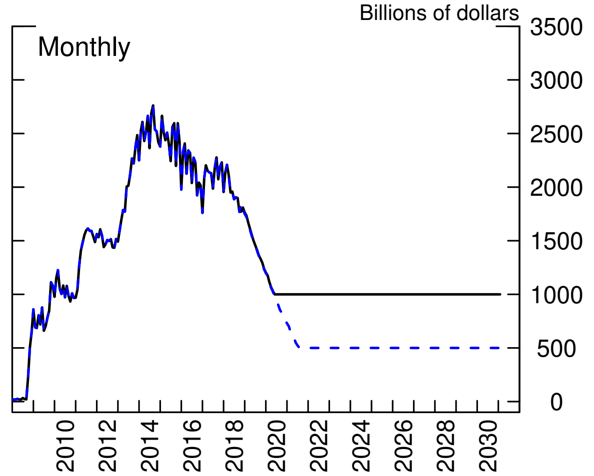
December Tealbook, $1 trillion reserves

November Tealbook, $500 billion reserves

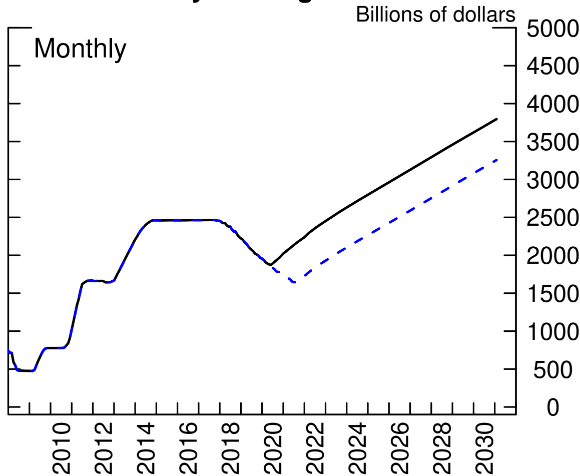
Total Assets



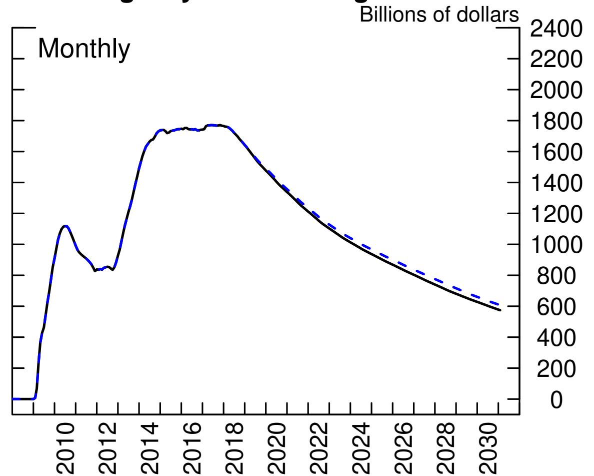
Reserve Balances



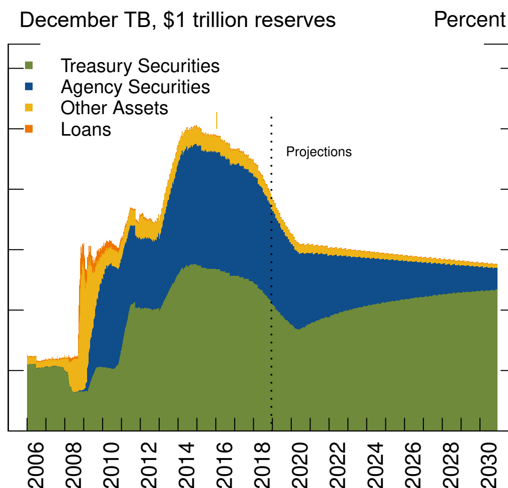
SOMA Treasury Holdings



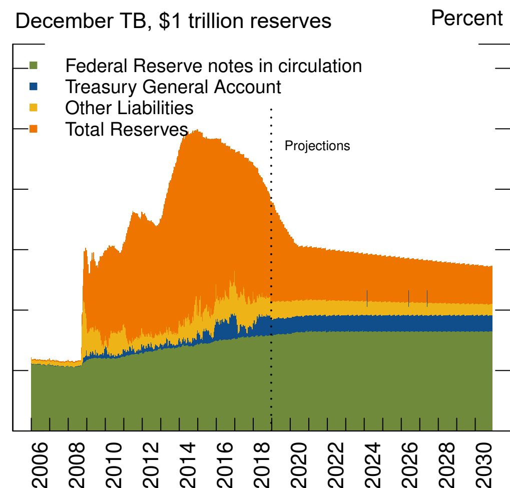
SOMA Agency MBS Holdings



Assets as a Share of GDP



Liabilities as a Share of GDP

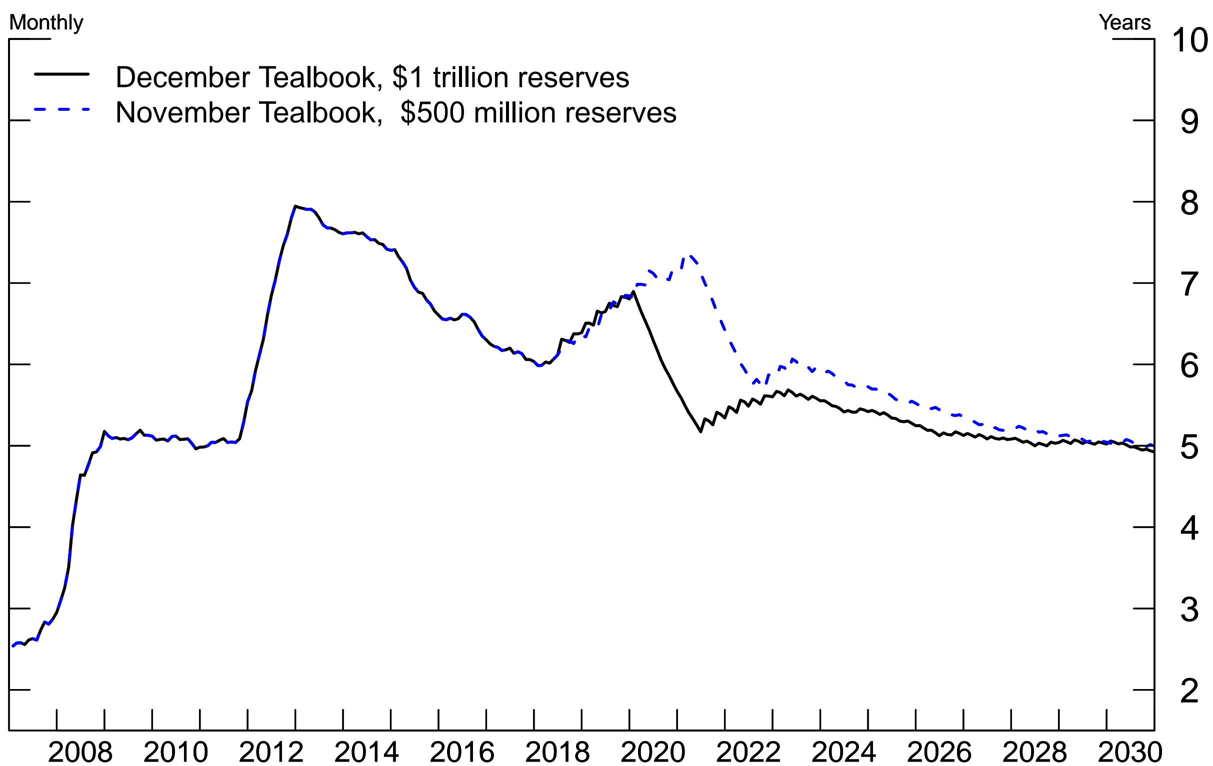


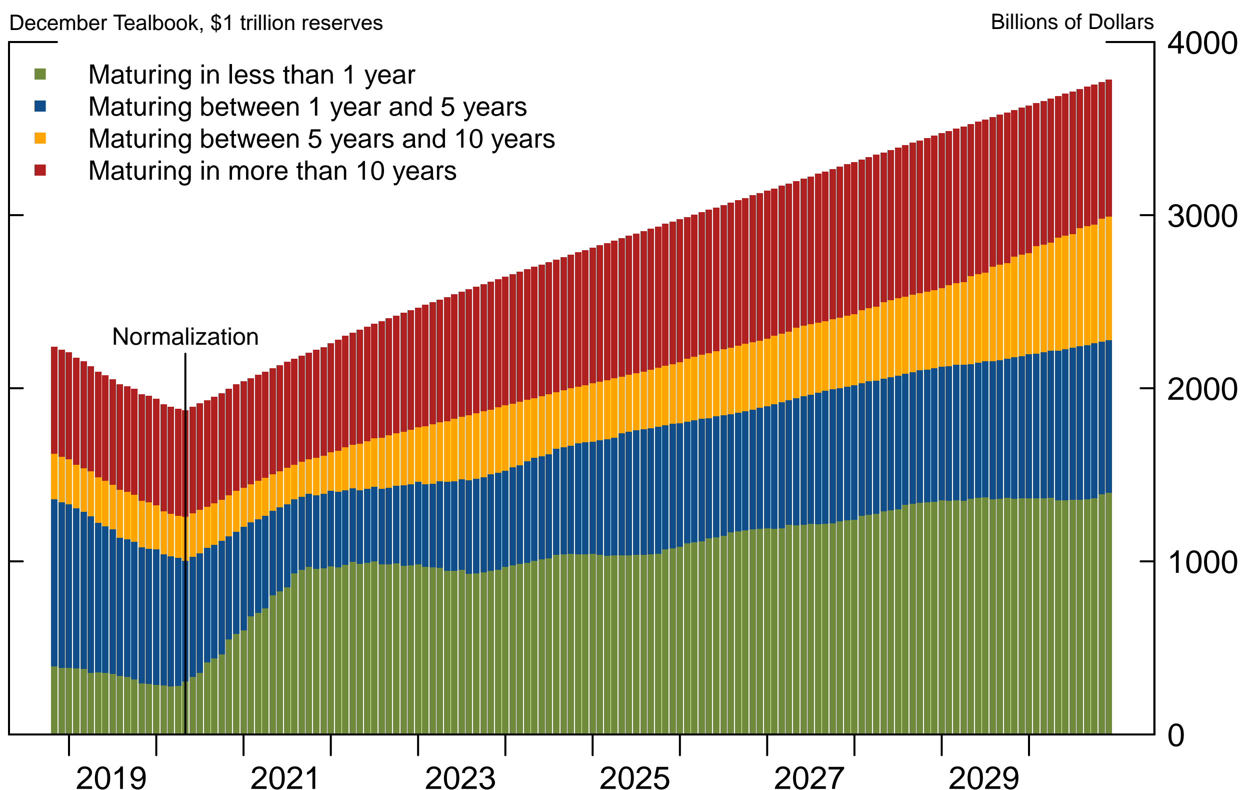
Federal Reserve Balance Sheet
Month-end Projections -- December Tealbook
(Billions of dollars)

	Historical*			Projections				
	Aug 2014	Sep 2017	Oct 2018	Dec 2018	Dec 2020	Dec 2022	Dec 2025	Dec 2030
Total assets	4,416	4,460	4,140	4,050	3,519	3,693	3,951	4,456
Selected assets								
Loans and other credit extensions**	2	6	0	0	0	0	0	0
Securities held outright	4,157	4,240	3,942	3,867	3,363	3,555	3,833	4,363
U.S. Treasury securities	2,437	2,465	2,270	2,223	2,022	2,451	2,962	3,782
Agency debt securities	42	7	2	2	2	2	2	2
Agency mortgage-backed securities	1,678	1,768	1,669	1,642	1,338	1,103	869	578
Unamortized premiums	209	162	143	140	110	89	68	42
Unamortized discounts	-19	-14	-14	-13	-10	-8	-7	-5
Total other assets	66	66	68	56	56	56	56	56
Total liabilities	4,360	4,419	4,101	4,011	3,479	3,650	3,901	4,394
Selected liabilities								
Federal Reserve notes in circulation	1,249	1,532	1,648	1,669	1,881	2,028	2,244	2,669
Reverse repurchase agreements	277	557	237	230	225	225	225	225
Deposits with Federal Reserve Banks	2,825	2,323	2,210	2,107	1,368	1,392	1,427	1,495
Reserve balances held by depository institutions	2,762	2,073	1,772	1,763	1000	1000	1000	1000
U.S. Treasury, General Account	49	159	367	279	303	327	362	430
Other deposits	15	91	72	65	65	65	65	65
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; October 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.

Projections for the Characteristics of SOMA Treasury Securities Holdings





Balance Sheet & Income

Federal Reserve remittances. Remittances to the Treasury are projected to decline to $65 billion this year from $81 billion in 2017, primarily reflecting the increases in the interest rate paid on reserve balances in 2018 (see the "Income Projections" exhibit).[7] Total interest expense is projected to rise by $14 billion, to $43 billion, this year.[8] In addition, the reduction in SOMA securities holdings this year results in a slight decrease in projected interest income to $112 billion. A similar pattern holds going forward. Remittances are expected to decline further and to bottom out at $37 billion in 2020. Thereafter, remittances rise due to an increase in interest income associated with a growing balance sheet. The projected path for remittances is similar to that in the November 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 $105 billion at the end of October.[9] With longer-term interest rates expected to rise further over the next few years, the unrealized loss position is expected to peak at $241 billion in 2020:Q2. Of this amount, $100 billion is attributable to Treasury securities and $141 billion to agency MBS. The unrealized loss position subsequently narrows, as securities acquired under the Federal Reserve's large-scale asset purchase programs approach maturity. The net unrealized loss position is projected to be a bit smaller in the near term compared to the November Tealbook.

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 78 basis points (see the table, "Projections for the 10-

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[7] 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 2018 following an amendment to Section 7 of the Federal Reserve Act by the Bipartisan Budget Act of 2018, enacted in that month. Second, $675 million was transferred in June 2018, reflecting another amendment to Section 7 by the Economic Growth, Regulatory Relief, and Consumer Protection Act, enacted in May 2018.

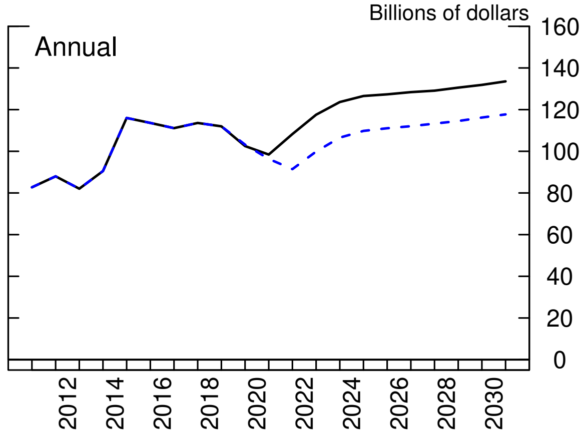
[8] We continue to assume that the FOMC will set a 25-basis-point-wide target range for the federal funds rate throughout the projection period. Consistent with the FOMC's November Implementation Note, we assume that the interest rates paid on reserve balances will be set five basis points below the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

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

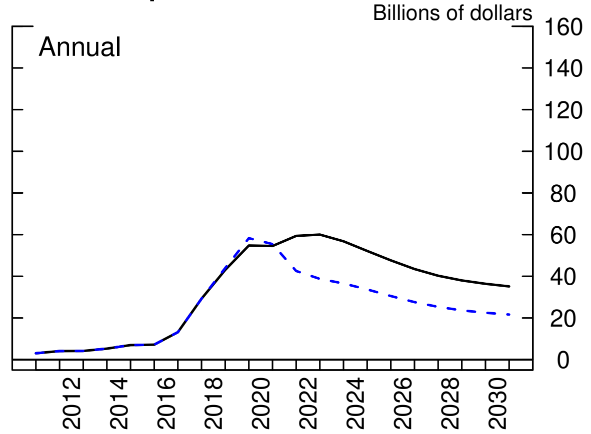
Income Projections

December Tealbook, $1 trillion reserves
November Tealbook, $500 billion reserves

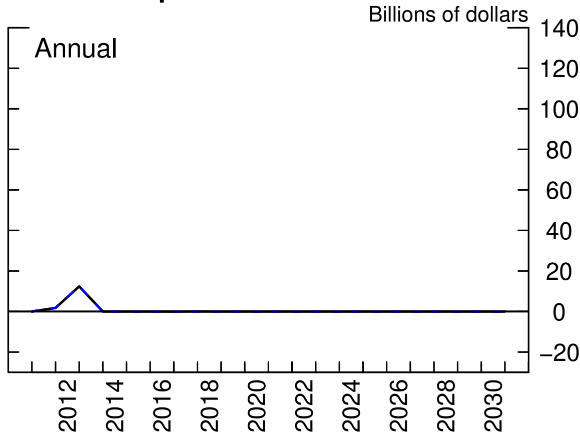
Interest Income



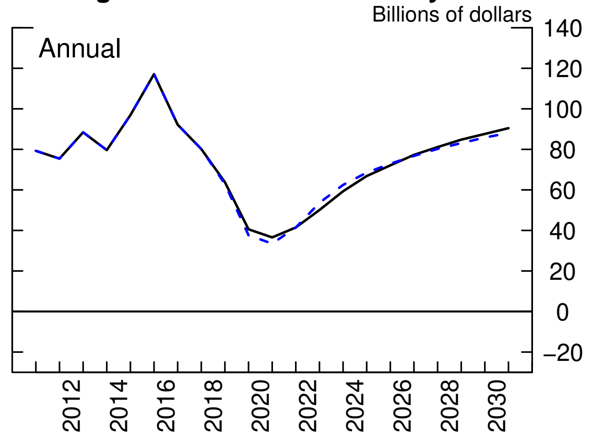
Interest Expense



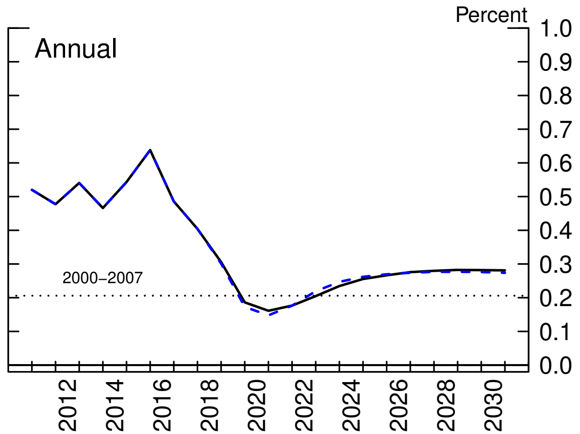
Realized Capital Gains



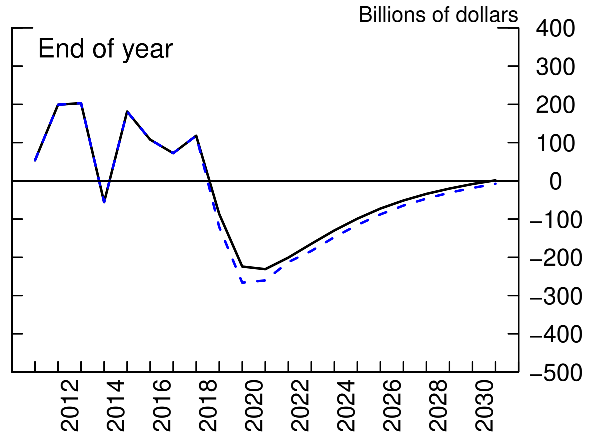
Earnings Remittances to Treasury



Remittances as a Percent of GDP



Memo: Unrealized Gains/Losses



Year Treasury Term Premium Effect"). This term premium effect (or TPE) is a few basis points larger than projected in the previous Tealbook, with the difference between the current and previous estimates growing to about 10 basis points by 2022.[10] The difference between the two paths is due to the $500 billion increase in the assumed longer-run level of reserves, which, in turn, leads to a larger balance sheet.

In comparison to estimates for the TPE of a $500 billion large-scale asset purchase (LSAP) at the time of the last round of such purchases in 2012, the magnitude of the change in the TPE path from the larger balance sheet is smaller. There are three factors affecting the TPE compared with previous staff analyses: First, the effect of a given dollar amount of securities holdings is scaled by nominal GDP, and nominal GDP is now larger. Second, the LSAPs targeted long-duration assets only; this projection assumes that the additional SOMA assets are aligned more closely with the pre-crisis distribution of asset holdings. Taken together, these two factors imply that the TPE of the change in the longer-run reserves assumption should be about one-third the size of the effect of a similarly-sized LSAP in 2012. A third factor works in the opposite direction: Whereas the securities acquired with the LSAPs were assumed to run off, the additional portfolio holdings associated with the increased reserves assumption are permanent, which strengthens the effect of the change in the reserves assumption. All told, the increase in the assumption for the longer-run level of reserves is estimated to increase the TPE by about one-half of a similarly-sized LSAP in 2012.

[10] The estimated path of the TPE 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 the counterfactual projection, it is assumed that reserve balances reach their longer-run level at $100 billion.

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

Date	December Tealbook, $1 trillion reserves	November Tealbook, $500 million reserves
Quarterly Averages		
2018:Q4	-78	-75
2019:Q4	-70	-65
2020:Q4	-64	-57
2021:Q4	-61	-52
2022:Q4	-58	-48
2023:Q4	-55	-45
2024:Q4	-51	-42
2025:Q4	-49	-39
2026:Q4	-46	-37
2027:Q4	-44	-35
2028:Q4	-42	-33
2029:Q4	-40	-31
2030:Q4	-39	-30

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

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