

Prefatory Note

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Class I FOMC – Restricted Controlled (FR)

Report to the FOMC on Economic Conditions and Monetary Policy



Book B

Monetary Policy Alternatives

January 26, 2017

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

Data received since the Committee's meeting in December indicate that the economy continues to expand at a moderate pace and that inflation is increasing toward the FOMC's 2 percent objective. The key question for the Committee now is whether the funds rate path suggested by the December FOMC statement and SEP remains appropriate or whether the economic outlook and associated risks warrant signaling a somewhat different path of rate hikes.

- All three draft statements characterize recent economic activity as having continued to expand at a moderate pace, with solid job gains and the unemployment rate near its recent low. Alternatives B and C also acknowledge the recent increase in consumer and business sentiment. The description of the medium-term outlook for economic activity in all three Alternatives is unchanged from the December FOMC statement.
- The three Alternatives no longer reference the transitory effects of earlier declines in energy and non-energy import prices when describing recent inflation data and the medium-term outlook for inflation. In their characterization of recent data, the Alternatives differ in the relative weight they place on changes in, and the level of, inflation.
 - Alternative A emphasizes that inflation remains below the 2 percent objective, while Alternative B places slightly more weight on the fact that inflation increased over the second half of 2016. Alternative C highlights only the recent upward trend in inflation.
 - Alternatives A and B characterize market-based measures of inflation compensation as remaining low, while Alternative C emphasizes that those measures were unchanged. All three Alternatives note that survey-based measures of expected inflation are little changed.
 - In describing the medium-term outlook for inflation, only Alternative A retains the reference from the December statement that points to continued strengthening of the labor market as directly contributing to inflation rising toward 2 percent. Alternative A can be interpreted as suggesting that the Committee sees a further strengthening of the labor market as an important reason for expecting inflation to rise, while Alternatives B and C are

noncommittal about the relationship between prospective movements in inflation and labor market conditions.

- Alternatives A and B maintain the current target range for the federal funds rate, while Alternative C raises the target range to $\frac{3}{4}$ to 1 percent. Alternatives A and B repeat language from earlier statements indicating that the stance of monetary policy “remains accommodative.” Alternative C characterizes the stance of monetary policy after the rate hike, as “moderately accommodative.”
 - Except for the policy action itself, paragraphs 3 and 4 of Alternative B maintain the language from the December 2016 FOMC statement, consistent with the view that the economy has evolved roughly in line with expectations and that no change in the guidance about future policy is warranted.
 - Alternative C deletes the reference to the “shortfall of inflation from 2 percent” when outlining the prospects for future increases in the federal funds rate. This deletion, combined with the removal of “only” in describing gradual rate increases, likely would be read as suggesting a less gradual expected pace of rate increases than the language of the current statement and Alternative B.
 - Alternative A signals a more patient approach to future rate increases. It emphasizes that the Committee is “waiting for evidence of further progress toward its employment and inflation objectives.” Paragraph 4 of Alternative A cites “risks to the economic outlook” as an explicit additional consideration when determining future changes to the stance of monetary policy, which, under current circumstances, underscores a more cautious pace of rate increases than outlined in Alternatives B and C. Alternative A notes, in addition, that the Committee’s inflation goal is “symmetric.”
- None of the Alternatives change the description of the Committee’s policy concerning reinvestment of maturing securities from the System Open Market Account.

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DECEMBER 2016 FOMC STATEMENT

1. Information received since the Federal Open Market Committee met in November indicates that the labor market has continued to strengthen and that economic activity has been expanding at a moderate pace since mid-year. Job gains have been solid in recent months and the unemployment rate has declined. Household spending has been rising moderately but business fixed investment has remained soft. Inflation has increased since earlier this year but is still below the Committee's 2 percent longer-run objective, partly reflecting earlier declines in energy prices and in prices of non-energy imports. Market-based measures of inflation compensation have moved up considerably but still are low; most survey-based measures of longer-term inflation expectations are little changed, on balance, in recent months.
2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace and labor market conditions will strengthen somewhat further. Inflation is expected to rise to 2 percent over the medium term as the transitory effects of past declines in energy and import prices dissipate and the labor market strengthens further. Near-term risks to the economic outlook appear roughly balanced. The Committee continues to closely monitor inflation indicators and global economic and financial developments.
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 1/2 to 3/4 percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a return to 2 percent inflation.
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 objectives of maximum employment and 2 percent inflation. 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. In light of the current shortfall of inflation from 2 percent, the Committee will carefully monitor actual and expected progress toward its inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant only gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.
5. The Committee is maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction, and it anticipates doing so until normalization of the level of the federal funds rate is well under way. This policy, by keeping the Committee's holdings of

longer-term securities at sizable levels, should help maintain accommodative financial conditions.

JANUARY-FEBRUARY 2017 ALTERNATIVE A

1. Information received since the Federal Open Market Committee met in ~~November~~ **December** indicates that the labor market has continued to strengthen and that economic activity has ~~been expanding~~ **continued to expand** at a moderate pace since ~~mid-year~~. Job gains have ~~been~~ **remained** solid in recent months and the unemployment rate has ~~declined~~ **stayed near its recent low**. Household spending has been rising moderately but business fixed investment has remained soft. **Although** inflation has increased since earlier this year **in recent quarters**, but **it** is still below the Committee's 2 percent longer-run objective, ~~partly reflecting earlier declines in energy prices and in prices of non-energy imports~~. Market-based measures of inflation compensation ~~have moved up considerably but still are~~ **remain** low; most survey-based measures of longer-term inflation expectations are little changed, on balance, ~~in recent months~~.
2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace and labor market conditions will strengthen somewhat further. Inflation is expected to rise to 2 percent over the medium term as ~~the transitory effects of past declines in energy and import prices dissipate and the labor market strengthens further~~. Near-term risks to the economic outlook appear roughly balanced. The Committee continues to closely monitor inflation indicators and global economic and financial developments.
3. ~~In view of realized and expected labor market conditions and inflation~~ **Against this backdrop**, the Committee decided to ~~raise~~ **maintain** the target range for the federal funds rate ~~to~~ **at** 1/2 to 3/4 percent **while waiting for evidence of further progress toward its employment and inflation objectives**. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a return to 2 percent inflation.
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 objectives of maximum employment and 2 percent inflation, **along with risks to the economic outlook**. 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. In light of the current shortfall of inflation from 2 percent, the Committee will carefully monitor actual and expected progress toward its **symmetric** inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant only gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.
5. The Committee is maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency

mortgage-backed securities and of rolling over maturing Treasury securities at auction, and it anticipates doing so until normalization of the level of the federal funds rate is well under way. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions.

JANUARY-FEBRUARY 2017 ALTERNATIVE B

1. Information received since the Federal Open Market Committee met in ~~November~~ **December** indicates that the labor market has continued to strengthen and that economic activity has ~~been expanding~~ **continued to expand** at a moderate pace since ~~mid-year~~. Job gains have ~~been~~ **remained** solid in recent months and the unemployment rate has ~~declined~~ **stayed near its recent low**. Household spending has ~~been rising~~ **continued to rise** moderately but **while** business fixed investment has remained soft. **Consumer and business sentiment have improved of late**. Inflation has increased ~~since earlier this year~~ **in recent quarters** but is still below the Committee's 2 percent longer-run objective, ~~partly reflecting earlier declines in energy prices and in prices of non-energy imports~~. Market-based measures of inflation compensation ~~have moved up considerably but still are~~ **remain** low; most survey-based measures of longer-term inflation expectations are little changed, on balance, ~~in recent months~~.
2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, ~~and labor market conditions will strengthen somewhat further,~~ **and** inflation is ~~expected to~~ **will** rise to 2 percent over the medium term ~~as the transitory effects of past declines in energy and import prices dissipate and the labor market strengthens further~~. Near-term risks to the economic outlook appear roughly balanced. The Committee continues to closely monitor inflation indicators and global economic and financial developments.
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** 1/2 to 3/4 percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a return to 2 percent inflation.
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 objectives of maximum employment and 2 percent inflation. 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. In light of the current shortfall of inflation from 2 percent, the Committee will carefully monitor actual and expected progress toward its inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant only gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.
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mortgage-backed securities and of rolling over maturing Treasury securities at auction, and it anticipates doing so until normalization of the level of the federal funds rate is well under way. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions.

JANUARY-FEBRUARY 2017 ALTERNATIVE C

1. Information received since the Federal Open Market Committee met in ~~November~~ **December** indicates that the labor market has continued to strengthen and that economic activity has ~~been expanding~~ **continued to expand** at a moderate pace since ~~mid-year~~. Job gains have ~~been~~ **remained** solid in recent months and the unemployment rate has ~~declined~~ **stayed near its recent low**. **Although** household spending has been rising moderately ~~but~~ **and** business fixed investment has remained soft, **consumer and business sentiment recently have improved substantially**. Inflation has increased ~~since earlier this year but is still below~~ **in recent quarters, moving toward** the Committee's 2 percent longer-run objective, ~~partly reflecting earlier declines in energy prices and in prices of non-energy imports~~. Market-based measures of inflation compensation ~~have moved up considerably but still are low;~~ **and** most survey-based measures of longer-term inflation expectations are little changed, on balance, ~~in recent months~~.
2. Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee expects that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, ~~and~~ labor market conditions will strengthen somewhat further, ~~and~~ inflation is ~~expected to~~ **will** rise to 2 percent over the medium term ~~as the transitory effects of past declines in energy and import prices dissipate and the labor market strengthens further~~. Near-term risks to the economic outlook appear roughly balanced. The Committee continues to closely monitor inflation indicators and global economic and financial developments.
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 ~~1/2 to 3/4~~ **to 1** percent. The stance of monetary policy remains **moderately** accommodative, thereby supporting some further strengthening in labor market conditions and a return to 2 percent inflation.
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 objectives of maximum employment and 2 percent inflation. 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. ~~In light of the current shortfall of inflation from 2 percent, the Committee will carefully monitor actual and expected progress toward its inflation goal.~~ **In light of currently available information,** the Committee expects that economic conditions will evolve in a manner that will warrant ~~only~~ gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.
5. The Committee is maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency

mortgage-backed securities and of rolling over maturing Treasury securities at auction, and it anticipates doing so until normalization of the level of the federal funds rate is well under way. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions.

THE CASE FOR ALTERNATIVE B

Economic Conditions and Outlook

- Spending data received during the intermeeting period largely confirmed earlier assessments of economic activity during the second half of 2016, leaving the outlook for economic growth over the medium term virtually unchanged.
- The incoming data suggested that the labor market continued to tighten gradually, with nonfarm payroll employment now estimated to have increased an average of 165,000 per month over the three months through December. The unemployment rate, at 4.7 percent in December, remained near its recent low.
- On a 12-month basis, total PCE price inflation continued to rise toward the FOMC's 2 percent objective, while core PCE price inflation has stayed around 1.7 percent since the middle of 2016.
- Recent data do not indicate a material shift in longer-term inflation expectations. In the Michigan Survey of Consumers, median inflation expectations over the next 5 to 10 years dropped to a historical low of 2.3 percent in December and then rebounded to 2.5 percent in the January preliminary report. The TIPS-based measure of 5-to-10-year-forward inflation compensation, which had increased notably to 2 percent in the last few months of 2016 (returning to the level seen during the first half of 2015), is little changed from the time of the December FOMC meeting.
- Consumer and business sentiment recently have improved. These higher levels of sentiment may presage a pickup in spending later this year, or they may reflect transitory election-related shifts that ultimately will have little effect on spending.

Policy Strategy

- Policymakers may view the information received over the intermeeting period as largely consistent with their expectations as of the time of the December FOMC meeting. Moreover, policymakers may decide that it is premature to reach or express a judgment about the implications for the outlook of potential fiscal and other economic policies, or of recent changes in consumer and business sentiment. Accordingly, policymakers may choose to leave unchanged, for now, both the target range for the federal funds rate and their communications about the likely future path of that rate.

- Even if they judge that a somewhat steeper federal funds rate path is appropriate, policymakers may still see the pace of likely rate increases as “gradual” by historical standards. To the extent this is so, they may see paragraph 4 of Alternative B, which is unchanged from the December statement, as appropriately preserving the Committee’s flexibility going forward.
- A decision to maintain the current target range for the federal funds rate would be in line with the expectations of financial market participants. As shown in figure 1 of the box “Monetary Policy Expectations and Uncertainty,” financial market quotes embed a negligible probability that the Committee will alter the target range at this meeting. Responses to the Desk’s latest Survey of Primary Dealers point to a similar assessment—see figure 2 in the box. Moreover, maintaining the current language about the prospects for future rate hikes also would be consistent with the expectations of respondents to the Desk’s survey.

THE CASE FOR ALTERNATIVE C

Economic Conditions and Outlook

- Recent spending data confirmed the step-up in growth of private domestic final purchases, a measure that excludes some volatile components of GDP, in the second half of 2016. Moreover, the substantial recent increases in consumer and business sentiment may support a view that the upside risks to the outlook for household spending and business investment in 2017 have risen.
- The labor market continues to strengthen, with the December employment report pointing to a labor market near or at full employment: The unemployment rate is at or below most participants’ estimates of its longer-run normal level and below the staff’s estimate of the natural rate, while the employment-to-population ratio is currently a little above the staff’s estimate of its structural trend. Data on labor compensation, including the recent acceleration in average hourly earnings, are also indicative of a tightening labor market.
- Twelve-month headline PCE inflation has continued to rise toward the FOMC’s 2 percent objective in recent quarters. With consumer energy prices likely to rise further, policymakers may anticipate that 12-month headline inflation will run above 2 percent relatively soon.

Monetary Policy Expectations and Uncertainty

Market participants' perceptions of the probabilities that the next increase in the target range for the federal funds rate will occur at the upcoming FOMC meeting, at the March meeting, or later, are about the same now as they were at the time of the December meeting (figure 1). The market-implied probability of the next rate hike occurring at the upcoming meeting is negligible, but the market-implied probability of the next hike occurring at the March FOMC meeting stands at about 30 percent. The Desk's January Survey of Primary Dealers showed roughly similar results (figure 2).

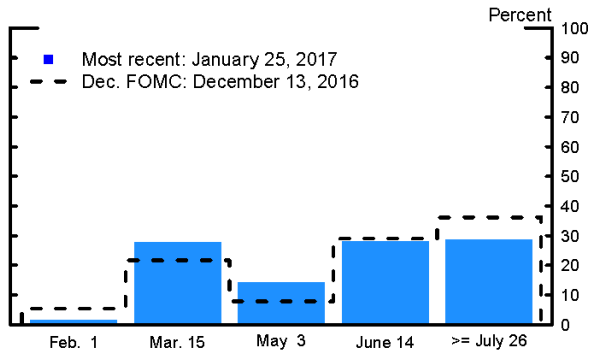
Looking ahead, the probability distribution of the federal funds rate at the end of 2017 implied by quotes on Eurodollar futures options (figure 3) shifted to the right a bit, but is still quite diffuse. The distribution from the January Desk survey (figure 4) is somewhat less diffuse and attaches notably smaller probabilities to interest rate outcomes at or below 1 percent. The larger odds on lower-rate outcomes implied by options compared with those from surveys may reflect investors' perception that future adverse economic scenarios are likely associated with lower rates. Risk-averse investors would be willing to pay higher prices for options that pay off in those scenarios, pushing up the associated option-implied probabilities relative to investors' subjective probabilities. The mean of the option-implied distribution lies to the left of that of the survey-implied distribution, suggesting negative term premiums.

The federal funds path implied by a straight read of OIS quotes (the black lines in figure 5) was little changed over the intermeeting period. Assuming zero term premiums, these market-implied forward rates imply two hikes (of 25 basis points each) in 2017 and again in 2018, with the target policy rate reaching 2 percent by the end of 2020. However, results from the staff's experimental OIS-based term structure model, which takes the effective lower bound into account and incorporates information from Blue Chip survey forecasts of the federal funds rate, suggest that OIS rates beyond six months contain negative term premiums. With the caveat that there is considerable uncertainty surrounding the term premium estimates, the expected federal funds rate path adjusted for these term premiums (the light blue lines in figure 5) points to a somewhat faster expected pace of tightening of about three hikes per year in both 2017 and 2018, with the funds rate reaching 3 percent by the end of 2020. As shown in figure 6, the model-based path (the light blue line) lies above the modal federal funds rate path from the primary dealer survey (the brown line) but is roughly consistent with the median federal funds rate projections (in blue) from the FOMC's December Summary of Economic Projections (SEP).

Results from the model and the survey also shed light on market participants' expectations of the longer-run level of the federal funds rate (the far-right dots in figure 6). The staff's experimental term structure model estimates that the federal funds rate will reach about $3\frac{3}{4}$ percent in the longer run, about $\frac{3}{4}$ percentage point above the median projected longer-run federal funds rate in the December SEP and the January primary dealer survey.

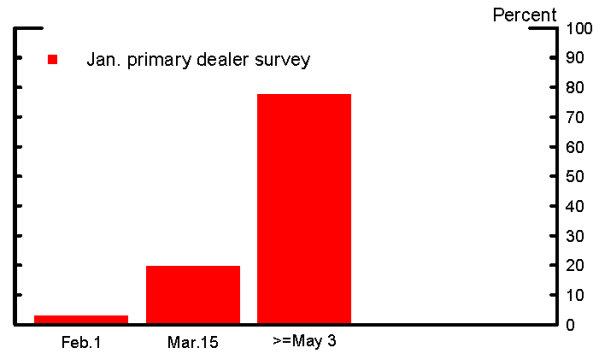


Figure 1: Market-Implied Probability Distribution of the Timing of Next Rate Increase



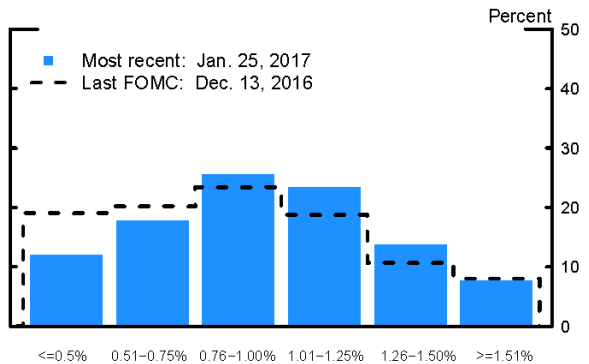
Note: Probabilities implied by a binomial tree model fitted to settlement prices on fed funds futures contracts, conditional on the next policy action being either no change or an increase in rates. The bar showing the probabilities before the Dec. FOMC statement release assumes the effective federal funds rate before the statement release is equal to the observed rate in the previous business day. The bar showing the probabilities after the FOMC statement release uses one-week OIS quotes to obtain the effective federal funds rate before the next FOMC meeting.
Source: CME Group; Federal Reserve Board staff estimates.

Figure 2: Dealer Survey Probability Distribution of the Timing of Next Rate Increase



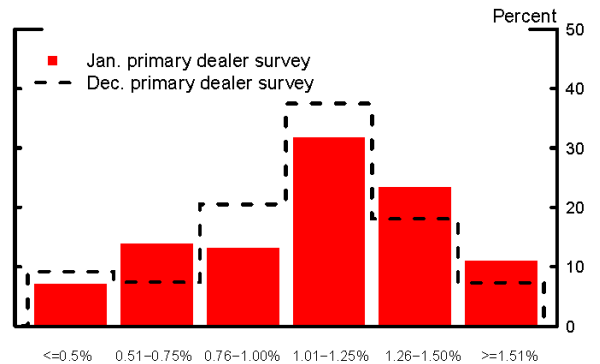
Note: Average probabilities across primary dealers, conditional on the next policy action being an increase in rates.
Source: FRBNY.

Figure 3: Market-Implied Probability Distribution of the Federal Funds Rate, Year-End 2017



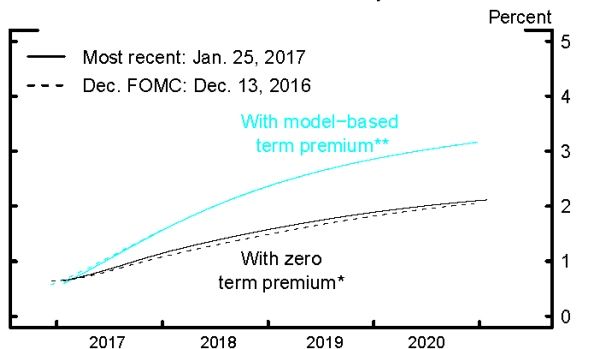
Note: Estimated from Eurodollar futures options, accounting for the differences in the levels and option-implied volatilities of LIBOR and the federal funds rate, but not adjusted for risk premiums.
Source: CME Group; Federal Reserve Board staff estimates.

Figure 4: Dealer Survey Probability Distribution of the Federal Funds Rate, Year-End 2017



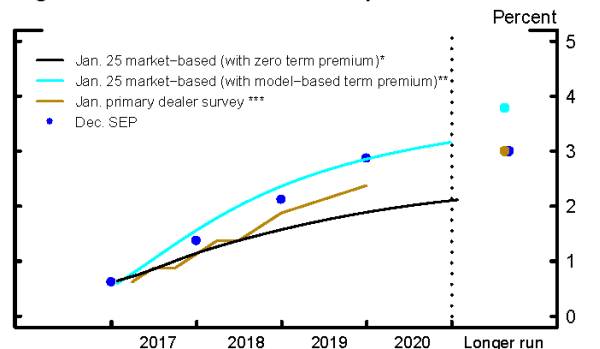
Note: Average unconditional probabilities across primary dealers for different ranges of the federal funds rate at the end of 2017.
Source: FRBNY.

Figure 5: Market-Implied Rate Expectations with and without Term Premium Adjustment



* 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; Blue Chip Financial Forecasts; Federal Reserve Board staff estimates.

Figure 6: Federal Funds Rate Projections



* 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.
*** The primary dealer survey path is the median of the dealers' modal paths for the federal funds rate.
Note: The longer-run model-implied forecast is for the expected federal funds rate 5 to 10 years ahead.
Source: Bloomberg; Blue Chip Financial Forecasts; Federal Reserve Board staff estimates; FRBNY.

- Market-based measures of longer-term inflation compensation have not reversed the sharp upward movement that occurred in late 2016, and the drop in survey-based measures seen late last year proved transitory.

Policy Strategy

- Policymakers may judge that an immediate increase in the target range for the federal funds rate is warranted; they might also regard it as prudent for the Committee’s statement to include language signaling that the federal funds rate may rise somewhat more quickly than previously expected, though still at a gradual pace.
- Policymakers may judge that the evidence accumulated since the December meeting, in combination with earlier data, reflects sufficient progress toward the Committee’s objectives of maximum employment and 2 percent inflation to justify a small reduction in policy accommodation at next week’s meeting.
- The timing and effects of the anticipated fiscal stimulus may be hard to predict. The effects could be felt at a time of significant undershooting of the unemployment rate, a situation that could lead to increased upside risks to inflation. In addition, there is considerable uncertainty about the size of the stimulus. The staff forecast assumes a moderate-sized tax cut, but the actual fiscal package could turn out to be much larger. Accordingly, policymakers might be concerned about an outcome such as the “Larger Fiscal Stimulus” alternative scenario in Tealbook A.
- Policymakers may be concerned that reducing policy accommodation too slowly could lead to substantial undershooting of the longer-run normal unemployment rate, and they may be skeptical that such undershooting can be unwound smoothly. They might be concerned that the Phillips curve relationship between economic slack and inflation may be nonlinear, meaning that sustained undershooting of unemployment could lead to an undesirably large increase in inflation.
- Policymakers might also be worried that maintaining the federal funds rate at its current low level, or raising it too slowly, will lead to excessive risk-taking in financial markets that could eventually endanger financial stability.
- Respondents to the Desk’s latest surveys perceive no material odds that the Committee will change the target range at this meeting, and so a decision to increase the target range would be very surprising.
 - If market participants infer that the Committee intends a less accommodative stance going forward than they had expected, then it is likely that real interest

rates will rise, that equity prices and inflation compensation will decline, and that the dollar would appreciate.

- However, if investors interpret a statement like Alternative C as primarily reflecting an upbeat assessment of the strength of the U.S. expansion or a greater likelihood of large fiscal stimulus than previously anticipated, then equity prices and inflation compensation might fall less than otherwise, or even rise.

THE CASE FOR ALTERNATIVE A

Economic Conditions and Outlook

- Data on spending received during the intermeeting period point to GDP growth of about 2 percent in 2016:Q4 and do not suggest a strengthening trend.
- Core inflation is somewhat higher now than earlier in the year, but no higher than had been expected. In addition, the further rise in the dollar is expected to hold down core inflation in the near term, and part of the recent rise in headline inflation might not be sustained because it reflects a transitory step-up in energy prices. The incoming data on longer-term inflation expectations have been mixed.
- Smoothing through short-term ups and downs, inflation still seems likely to remain below the Committee's objective in the near term and to rise only gradually toward the objective over the medium term.
- While policymakers may see near-term risks to the economic outlook as roughly balanced, they may remain concerned about downside medium-term risks in part because adverse developments abroad could lead to tightening global financial conditions and decreased demand for U.S. exports, and in part because proximity to the ELB is still limiting the FOMC's ability to reduce the federal funds rate in response to adverse shocks.
- Policymakers may think it likely that the eventual increase in fiscal stimulus in the United States will lag far behind the post-election increase in longer-term interest rates and appreciation of the dollar, and judge that financial conditions have already tightened.

Policy Strategy

- Policymakers might view information received since the December FOMC as indicating not only that progress is being made in labor markets but also that

opportunities remain for further improvement in labor market outcomes, particularly for those marginally attached to the workforce. In light of how long inflation has been running below 2 percent, they might elect to defer any additional increases in the federal funds rate until there is more evidence of further progress toward the Committee's objectives in order to maintain the credibility of the Committee's 2 percent inflation goal.

- Policymakers might also judge that inflation dynamics in recent decades demonstrate that the Phillips curve is fairly flat, implying that greater resource utilization will have only a muted effect on inflation.
- Some policymakers may see benefits associated with a somewhat persistent undershooting of unemployment. For example, policymakers might judge that a tight labor market could have lasting positive effects on the productive capacity of the economy.
- Policymakers might judge that the neutral rate of interest is currently well below its longer-run level, reflecting restraint on U.S. economic activity from economic and financial developments abroad, a sustained period of low productivity growth, or borrowing conditions that remain tight for some households. They may see such headwinds as unlikely to subside in the near term.
- Some policymakers might regard the prospects for, and composition of, fiscal stimulus as still highly uncertain. They might therefore think that the optimism that recently has been built into asset prices is overdone and likely to be reversed, at least in part.
- In recognition of the asymmetric risks noted above, policymakers might regard it as prudent risk management to signal a slower expected pace of rate increases than the December 2016 FOMC statement and SEP indicated.
- Markets would be surprised by a signal of a more patient approach to future rate hikes. As discussed in the box "Monetary Policy Expectations and Uncertainty," the probability distribution of the federal funds rate at the end of 2017 derived using options on Eurodollar futures has shifted to the right a bit and the same distribution computed from answers to the January Desk survey attaches notably smaller probabilities to interest rate outcomes at or below 1 percent.

- Financial market participants might push further into the future the expected date of the next rate increase, the expected path for the federal funds rate would likely flatten, and longer-term yields would likely decline.
- If the statement is primarily interpreted as more accommodative than anticipated, equity prices and inflation compensation would likely rise, and the dollar would depreciate. Conversely, if investors read the statement as reflecting an unexpectedly downbeat assessment of the economic outlook, equity prices and inflation compensation could fall.

IMPLEMENTATION NOTE

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 to its administered rates—the interest rates on required and excess reserves, the offering rate on overnight reverse repurchase agreements, and the primary credit rate—would be issued. If the Committee decides to maintain the current target range for the federal funds rate, an implementation note that indicates no change in these three policy tools would be issued.

The Board has decided to adopt a procedural change in its review and determination of the discount rates (the primary credit, secondary credit, and seasonal credit rates) established by the Reserve Banks. The change applies to joint Board and FOMC meetings, and to separate Board meetings, whenever discount rates are on the Board's agenda. Under the new procedure, the Board will vote to determine the primary credit rate and formulas for the secondary and seasonal credit rates whether or not any of them are being changed. A parallel change will be made to the Board's procedure for setting the interest rates on reserve balances (IOR). Before these procedural changes, the Board voted on IOR and discount rates only when it altered those rates or formulas. The procedural changes do not alter in any way Reserve Banks' responsibility for establishing discount rates or the Board's responsibility for the review and determination of discount rates and for setting the interest rates on reserve balances. Board votes on IOR and discount rates at all joint Board and FOMC meetings will reinforce the consistency of the settings of the instruments of monetary policy and will increase the transparency of the Board's role in monetary policy.

We anticipate that, after the FOMC's policy vote at next week's joint meeting, the Chair will request, from the Board, a motion and vote to maintain or change the interest rates on reserves, consistent with the FOMC's decision on the target range for the federal funds rate. We anticipate that the Chair also will request, from the Board, a motion and vote on the establishment of discount rates and formulas, again consistent with the FOMC's decision. The Board's votes on IOR and the primary credit rate will be announced in the implementation note that is released with the FOMC statement. A draft implementation note consistent with no change in rates, and another draft consistent with an increase in the target range and associated rates, appear on the following pages; struck-out text indicates language deleted from the December directive and

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

Implementation Note for January-February 2017 Alternatives A and B

Release Date: February 1, 2017

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 ~~December 14, 2016~~ **February 1, 2017**:

- 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** 0.75 percent, ~~effective December 15, 2016~~.
- 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 ~~December 15, 2016~~ **February 2, 2017**, 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 1/2 to 3/4 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 0.50 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 maturing Treasury securities at auction and to continue reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. 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."

More information regarding open market operations may be found on the Federal Reserve Bank of New York's [website](#).

- 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 discount rate~~ **the establishment of** (the primary credit rate) to **at the existing level of** 1.25 percent, ~~effective December 15, 2016~~. ~~In taking this action, the Board approved requests submitted by the Boards of Directors of the Federal Reserve Banks of Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, St. Louis, Kansas City, Dallas, and San Francisco.~~

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.

Implementation Note for January-February 2017 Alternative C

Release Date: February 1, 2017

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 ~~December 14, 2016~~ **February 1, 2017**:

- The Board of Governors of the Federal Reserve System voted unanimously to raise the interest rate paid on required and excess reserve balances to ~~0.75~~ **1.00** percent, effective ~~December 15, 2016~~ **February 2, 2017**.
- 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 ~~December 15, 2016~~ **February 2, 2017**, 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 ~~1/2 to 3/4~~ **to 1** 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 ~~0.50~~ **0.75** 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 maturing Treasury securities at auction and to continue reinvesting principal payments on all agency debt and agency mortgage-backed securities in agency mortgage-backed securities. 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."

More information regarding open market operations may be found on the Federal Reserve Bank of New York's [website](#).

- 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 ~~discount rate~~ (the primary credit rate) to 1.25 percent, effective ~~December 15, 2016~~ **February 2, 2017**. In taking this action, the Board approved requests **to establish that rate** submitted by the Boards of Directors of the Federal Reserve Banks of ~~Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, St. Louis, Kansas City, Dallas, and San Francisco~~ **[insert appropriate list]**.

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.

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Projections

BALANCE SHEET AND INCOME

The staff has prepared projections of the Federal Reserve's balance sheet and of key elements of the associated income statement that are consistent with the staff projections for the path of monetary policy and longer-term interest rates, under two scenarios for the longer-run level of reserve balances.¹

- In the "\$100 billion reserve" scenario, the longer-run level of reserve balances is assumed to be \$100 billion, the same assumption as in the December Tealbook. Interest rates in this projection are similar to those in the December Tealbook, with the federal funds rate projected to rise to 4 percent by the end of 2021, before moving down to 3 percent by the end of the projection period. Longer-term interest rates follow a similar pattern, reaching peak levels slightly earlier before declining somewhat throughout the remainder of the projection period.
- In the "\$500 billion reserve" scenario, the longer-run level of reserve balances is assumed to be \$500 billion. In their discussion of the "Long-Run Monetary Policy Implementation Framework" at the November FOMC meeting, participants commented on the advantages of different operating regimes, some of which could be associated with a higher demand for reserve balances. While there is considerable uncertainty about the longer-run level of demand for reserve balances associated with various operating frameworks, \$500 billion of reserves could be consistent with the longer-run level of reserve demand in some frameworks.² The interest rate paths associated with this scenario are very similar to those in the \$100 billion reserve scenario.³

Under the \$100 billion reserve scenario, the evolution of the Federal Reserve's balance sheet and associated income statement are only minimally different from those presented in the December Tealbook. In the \$500 billion reserve scenario, the size of the balance sheet normalizes about one year earlier than in the \$100 billion reserve scenario and, as

¹ In these scenarios, the response of the federal funds rate to deviations of the endogenous variables from their baseline values is determined by the inertial Taylor (1999) policy rule.

² The longer-run level of the demand for reserve balances can be affected by various factors such regulatory developments and other structural changes.

³ The interest rate paths for this scenario are consistent with those presented in Tealbook A.

discussed in more detail below, results in a slightly less negative path for the term premium over the medium term.

The key policy assumptions associated with the projections are highlighted below.

- Reinvestment policy:** We continue to assume that the FOMC will cease reinvestments of principal from maturing Treasury securities and agency debt as well as principal received on agency MBS when the target range for the federal funds rate reaches 1¼ to 1½ percent. Based on this criterion, reinvestments are expected to cease during the third quarter of 2017, the same timing as in the December Tealbook. Thereafter, the SOMA portfolio would be allowed to shrink passively until reserve balances reach their assumed longer-run level of either \$100 billion or \$500 billion. The box “Market Interpretations of the Committee’s Reinvestment Policy” discusses market participants’ expectations about the timing of a change in the Committee’s reinvestment policy.
- Use of policy normalization tools:** We assume that take-up of overnight reverse repurchase agreements (ON RRP) runs at \$100 billion until the level of reserve balances is closer to its longer-run level. Specifically, the level of ON RRP take-up declines to zero over the course of one year once the level of reserve balances is within \$500 billion of its longer-run level.^{4,5}

Key features of the \$100 billion and \$500 billion reserve scenarios are described below.

- Balance sheet.** Under the \$100 billion reserve scenario, normalization of the size of the balance sheet occurs in the first quarter of 2022, the same quarter as in the

⁴ The use of ON RRP results in a shift in the composition of Federal Reserve liabilities—a decline in reserve balances and a corresponding increase in reverse repurchase agreements—but does not produce an overall change in the size of the balance sheet unless ON RRP take-up continues after the size of the balance is normalized. Separately, we assume that RRP associated with foreign official and international accounts remain throughout the projection period near their December 31, 2016 level of \$257 billion.

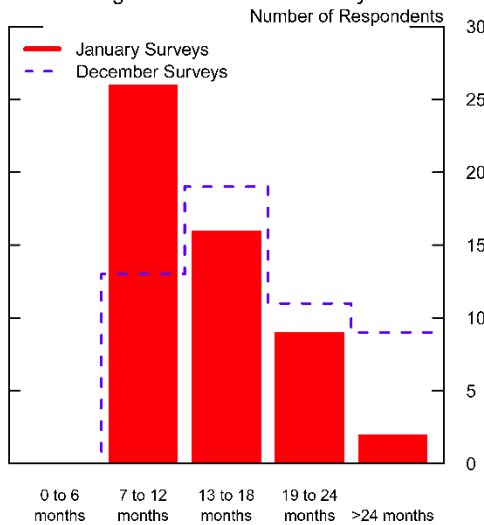
⁵ In previous Tealbooks, we assumed that ON RRP outstanding would begin to decline at the end of 2018 and fall to zero by the end of 2019. The new assumption makes the ON RRP decision state contingent. Under the path for interest rates embedded in the staff’s baseline forecast, the new assumption delays the phaseout of the ON RRP facility by less than one year. If policymakers decide to maintain the ON RRP facility through the projection period and take-up continues at \$100 billion, the size of the balance sheet would normalize one quarter earlier. In this case, the balance sheet size would be \$100 billion larger, but there would be only minor income and interest-rate effects.

Market Interpretations of the Committee’s Reinvestment Policy

The Committee has indicated that it will continue reinvestments until normalization of the level of the federal funds rate is “well under way.” This box provides information on the range of views among market participants about when the Committee will choose to taper or cease reinvestments.

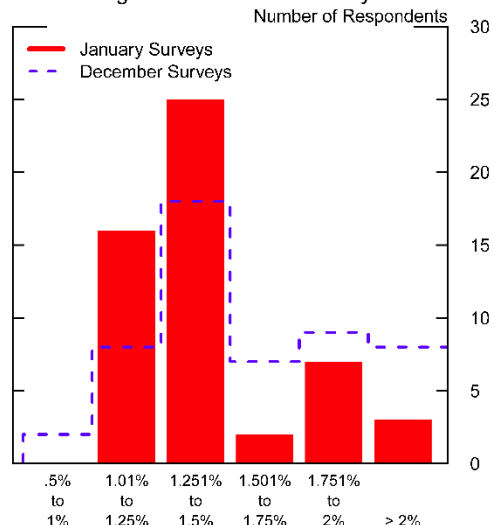
The Desk’s Surveys of Primary Dealers and Market Participants include questions that ask for respondents’ views about the most likely timing of the first change in the Committee’s reinvestment policy. Figure 1 presents a histogram of respondents’ expectations for the number of months after the date of the surveys this change will take place.¹ The red bars in the figure indicate that, in the January surveys, nearly half of respondents expect reinvestment policy to be changed within the next 7 to 12 months, and another 30 percent expect the first change in 13 to 18 months. Relative to the December surveys (the dashed blue line), many respondents now expect reinvestment policy to be changed sooner. This shift appears to reflect a reevaluation after the release of the minutes of the December 2016 FOMC meeting, which noted that several FOMC participants had indicated that circumstances that might warrant changes to the path for the federal funds rate could also have implications for reinvestment policy. Subsequent speeches on this topic by policymakers also garnered significant market attention.²

Figure 1: Most Likely Months Forward of First Change in Reinvestment Policy



Note: Two (three) respondents in the January (December) surveys who expect reinvestments to continue indefinitely are placed in the >24 months bin. Source: Surveys of Primary Dealer and Market Participants, FRBNY.

Figure 2: Most Likely FFR at Time of First Change in Reinvestment Policy



Note: One (one) respondent in the January (December) surveys who expects reinvestments to continue indefinitely is placed in the >2% bin. Source: Surveys of Primary Dealer and Market Participants, FRBNY.

¹ We report the earliest date that respondents indicate a change in either Treasury or MBS reinvestment.

² Several respondents cited increased discussion of reinvestment policy in recent Federal Reserve communication as informing the change in their expectations.

Figure 2 presents a histogram of respondent’s expectations for the most likely level of either the target federal funds rate or the midpoint of the target range when reinvestment policy is first changed. In the January surveys, the majority of respondents expect a federal funds rate within the 1 to 1.5 percent range and the median respondent expects a midpoint level of 1.375 percent, in line with the staff’s assumptions in the January Tealbook. Relative to the December surveys, most respondents now expect a lower level of the policy rate when reinvestment policy is first changed.

Figure 3: Comparison of December and January Surveys

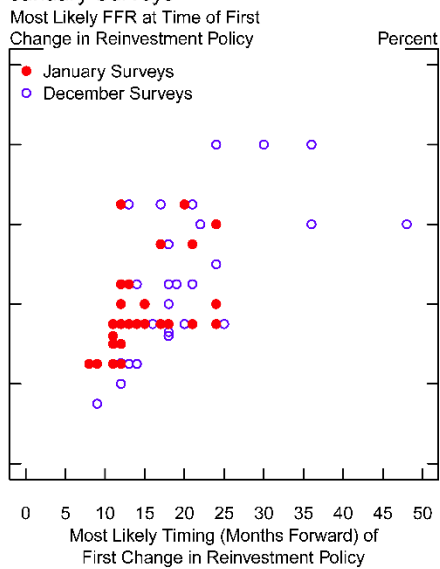
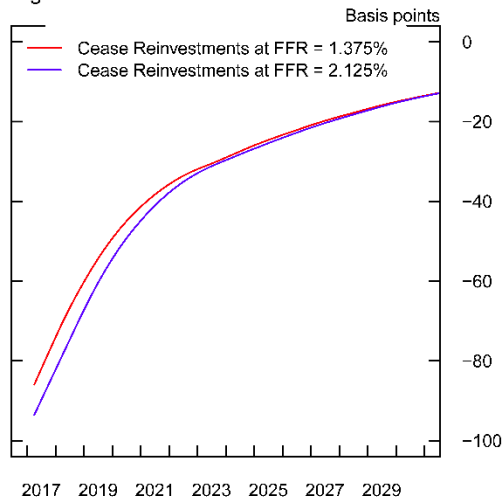


Figure 4: Term Premium Effect



Source: Staff estimate.

Note: Respondents who expect reinvestments to continue indefinitely or who participated in only one of the survey months are not included in the chart. Source: Surveys of Primary Dealer and Market Participants, FRBNY.

Figure 3 combines respondents’ expected number of months until the time of a change in reinvestment policy (horizontal axis) and the most likely level of the target federal fund rate (vertical axis) into a scatterplot. The solid red and hollow blue dots capture the responses from the January and the December surveys, respectively. Overall, the responses suggest that market participants’ expectations have started to coalesce in recent weeks, pointing to a lower degree of dispersion in expectations about the timing of the first change in the Committee’s reinvestment policy and the concurrent level of the federal funds rate.³

Figure 4 illustrates that, based on our usual methodology, there would be at most a modest effect on the staff’s estimate for the term premium effect (TPE) if we

³ The inward shifts of the distributions primarily reflect revisions from the Survey of Market Participants.

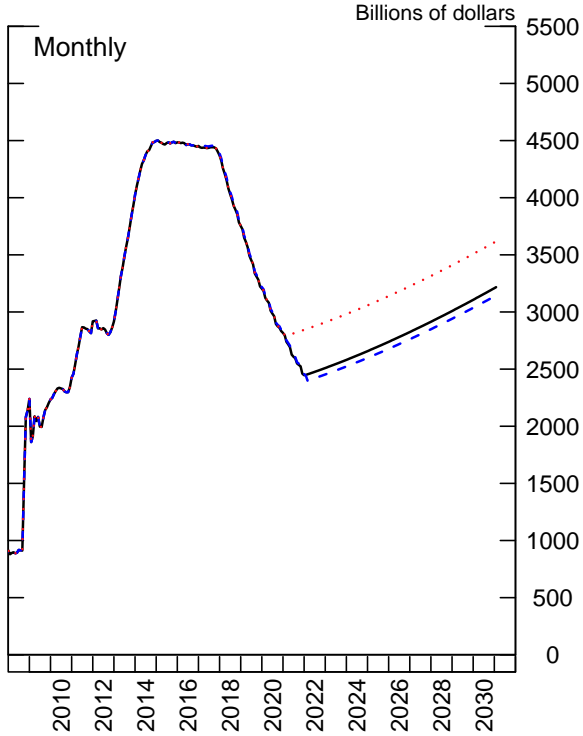
changed our assumption for the timing of ending reinvestments.⁴ The red line shows our estimate of the TPE under our baseline scenario, which is based on the assumption that the cessation of reinvestment occurs at the end of September 2017, when staff projects that the federal funds rate will reach 1.375 percent. As noted, this is also the federal funds rate level at which the median respondent to the January surveys expects the first change in the reinvestment policy. The blue line shows our TPE estimate under an alternative scenario that incorporates the assumption that reinvestments will cease when the federal funds rate reaches 2.125 percent, just above the level corresponding to the 95th percentile of the expectations in the January surveys for the federal funds rate prevailing when reinvestment policy is first changed. Along the projected path for the federal funds rate in Tealbook A, this level is reached in June 2018. Pushing out the end date of reinvestment by 9 months makes the TPE about 7 basis points more negative, on average, through 2019. These calculations assume that the Federal Reserve's balance sheet affects term premiums entirely through the so-called "stock effect," and that the public would not infer from a change in reinvestment policy any changes to the future path of short-term interest rates. While this is a useful framework, the experience of the so-called "taper tantrum" in the summer of 2013 suggests that market participants' policy expectations were sensitive at that time to relatively modest potential changes in the Federal Reserve's balance sheet policy.

⁴ The staff assumes all reinvestment are ceased in 2017:Q3. Of note, only a small share of survey respondents believe that reinvestments will cease all at once. The majority believe there will be a phaseout, implying larger SOMA holdings for longer and, therefore, a slightly more negative term premium than what the staff reports in the Tealbook.

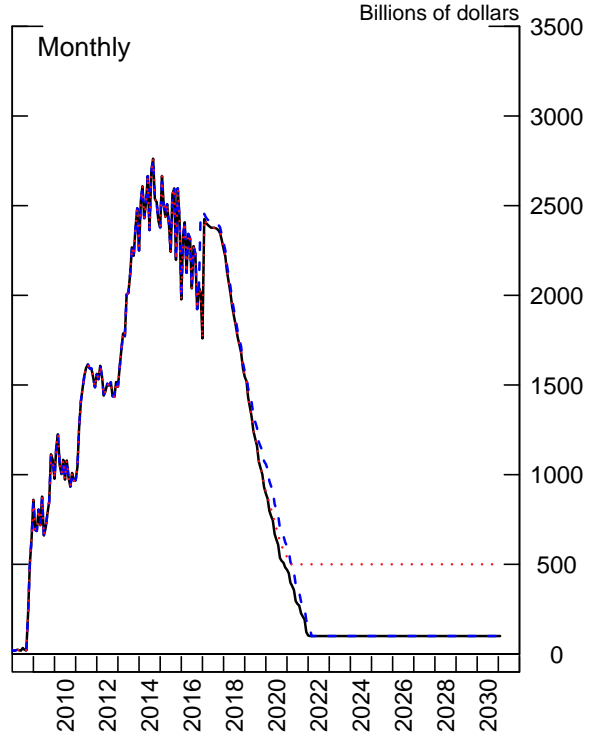
Total Assets and Selected Balance Sheet Items

— \$100 billion reserve ···· \$500 billion reserve
- - - December Tealbook Baseline

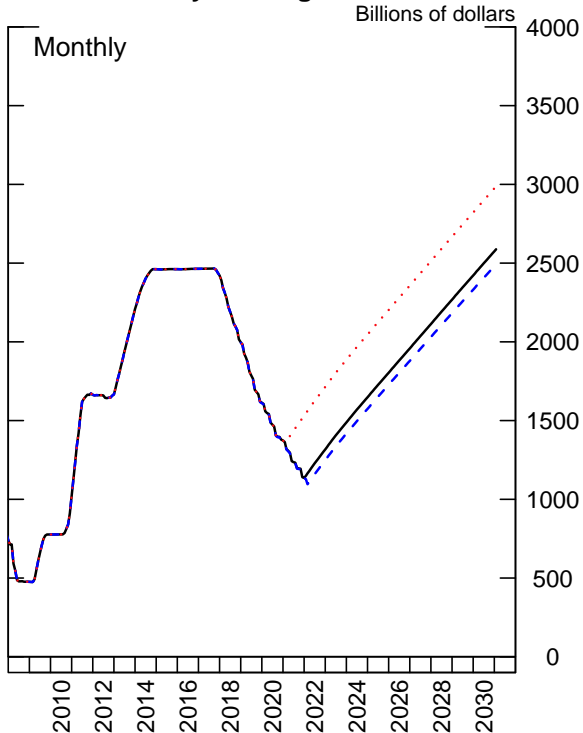
Total Assets



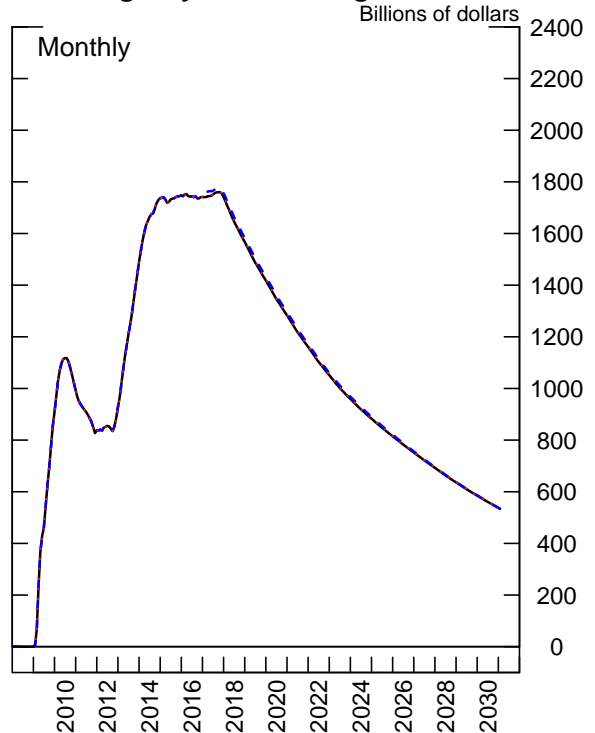
Reserve Balances



SOMA Treasury Holdings



SOMA Agency MBS Holdings



Balance Sheet & Income

December Tealbook (see the solid black lines in the exhibit titled “Total Assets and Selected Balance Sheet Items” and the corresponding table that follows).⁶ At the time of normalization, total assets are projected to stand at roughly \$2.4 trillion, with about \$2.3 trillion in total SOMA securities holdings, composed of \$1.1 trillion of Treasury securities and \$1.2 trillion of MBS. Total assets and SOMA Treasury holdings rise thereafter, keeping pace with the projected increases in Federal Reserve notes in circulation and Federal Reserve Bank capital.

Under the \$500 billion reserve scenario, the size of the portfolio is normalized in the first quarter of 2021, four quarters earlier than projected in the \$100 billion reserve scenario (see the dotted red lines and the corresponding table that follows), reflecting the higher longer-run level of reserve balances and the resulting need to hold a larger securities portfolio.

- ***Federal Reserve remittances.*** Under both the \$100 billion and \$500 billion reserve scenarios, annual remittances are projected to decline from \$92 billion in 2016 to about \$75 billion this year (see the solid black lines in the “Income Projections” exhibit). The step-down reflects increased interest expense on reserves resulting from the FOMC’s decision to increase the target range for the federal funds rate and the Board’s accompanying decision to raise the IOER rate in December 2016. In addition, the decline in remittances reflects the staff forecast of further increases in the policy rate over the course of this year.⁷ Annual remittances are projected to continue to decline, reaching a low of roughly \$36 billion in 2020, as the size of the SOMA portfolio falls and the target range for the federal funds rate increases. Thereafter, remittances gradually increase as higher-yielding Treasury securities are added to the SOMA portfolio. The remittance paths are similar for both scenarios,

⁶ The size of the balance sheet is assumed to be normalized when the securities portfolio reverts to the level consistent with its longer-run trend; this trend is determined largely by the rising level of Federal Reserve notes in circulation and the assumed long-run level of reserve balances.

⁷ We assume that the interest rate paid on excess reserve balances will average 12.5 basis points above the effective federal funds rate and the offering rate on ON RRP’s will average 12.5 basis points below the effective federal funds rate. The effective federal funds rate has averaged 65 basis points over the intermeeting period.

Federal Reserve Balance Sheet
End-of-Year Projections -- \$100 billion reserve
 (Billions of dollars)

	Dec 31, 2016	2017	2019	2021	2023	2025	2030
Total assets	4,453	4,369	3,205	2,446	2,580	2,738	3,208
Selected assets							
Loans and other credit extensions*	7	0	0	0	0	0	0
Securities held outright	4,221	4,167	3,034	2,299	2,450	2,621	3,115
U.S. Treasury securities	2,464	2,421	1,614	1,136	1,488	1,803	2,574
Agency debt securities	16	4	2	2	2	2	2
Agency mortgage-backed securities	1,741	1,741	1,418	1,161	960	815	538
Unamortized premiums	173	160	124	99	81	67	41
Unamortized discounts	-15	-13	-10	-8	-7	-6	-4
Total other assets	47	49	49	49	49	49	49
Total liabilities	4,413	4,328	3,160	2,398	2,528	2,681	3,136
Selected liabilities							
Federal Reserve notes in circulation	1,463	1,551	1,748	1,878	2,011	2,164	2,619
Reverse repurchase agreements	725	357	357	257	257	257	257
Deposits with Federal Reserve Banks	2,217	2,415	1,050	258	255	255	255
Reserve balances held by depository institutions	1,760	2,259	895	103	100	100	100
U.S. Treasury, General Account	399	150	150	150	150	150	150
Other deposits	58	5	5	5	5	5	5
Earnings remittances due to the U.S. Treasury	2	0	0	0	0	0	0
Total capital**	40	41	44	48	53	57	72

Balance Sheet & Income

Source: Federal Reserve H.4.1 statistical releases and staff calculations.

Note: Components may not sum to totals due to rounding.

*Loans and other credit extensions includes primary, secondary, and seasonal credit; central bank liquidity swaps; and net portfolio holdings of Maiden Lane LLC.

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

Federal Reserve Balance Sheet
End-of-Year Projections -- \$500 billion reserve
 (Billions of dollars)

	Dec 31, 2016	2017	2019	2021	2023	2025	2030
Total assets	4,453	4,371	3,209	2,843	2,981	3,139	3,609
Selected assets							
Loans and other credit extensions*	7	0	0	0	0	0	0
Securities held outright	4,221	4,168	3,038	2,696	2,850	3,021	3,516
U.S. Treasury securities	2,464	2,421	1,614	1,529	1,886	2,202	2,975
Agency debt securities	16	4	2	2	2	2	2
Agency mortgage-backed securities	1,741	1,742	1,422	1,164	962	817	539
Unamortized premiums	173	161	125	100	82	68	42
Unamortized discounts	-15	-13	-10	-8	-7	-6	-4
Total other assets	47	49	49	49	49	49	49
Total liabilities	4,413	4,330	3,164	2,795	2,928	3,081	3,537
Selected liabilities							
Federal Reserve notes in circulation	1,463	1,551	1,748	1,878	2,011	2,164	2,620
Reverse repurchase agreements	725	357	349	257	257	257	257
Deposits with Federal Reserve Banks	2,217	2,416	1,062	655	655	655	655
Reserve balances held by depository institutions	1,760	2,261	907	500	500	500	500
U.S. Treasury, General Account	399	150	150	150	150	150	150
Other deposits	58	5	5	5	5	5	5
Earnings remittances due to the U.S. Treasury	2	0	0	0	0	0	0
Total capital**	40	41	44	48	53	57	72

Source: Federal Reserve H.4.1 statistical releases and staff calculations.

Note: Components may not sum to totals due to rounding.

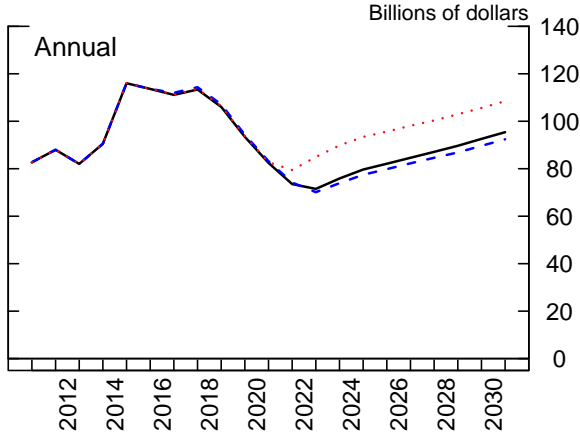
*Loans and other credit extensions includes primary, secondary, and seasonal credit; central bank liquidity swaps; and net portfolio holdings of Maiden Lane LLC.

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

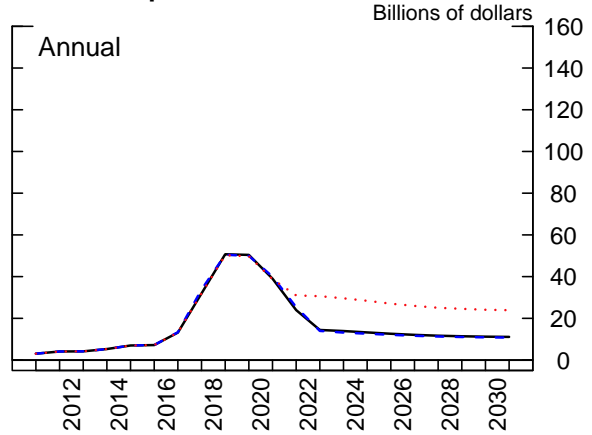
Income Projections

— \$100 billion reserve ···· \$500 billion reserve
 - - - December Tealbook Baseline

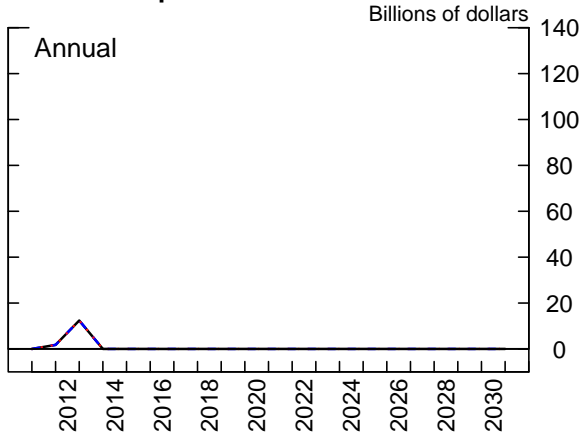
Interest Income



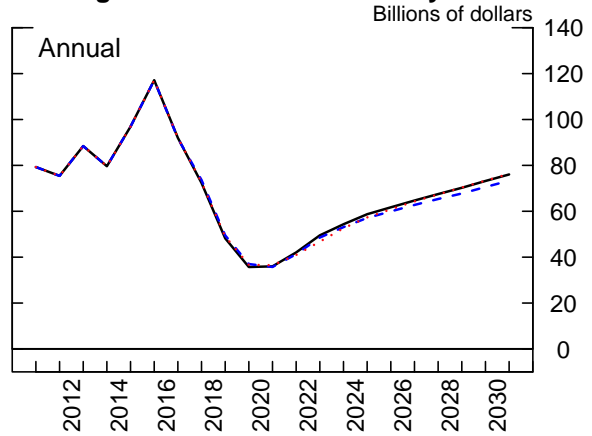
Interest Expense



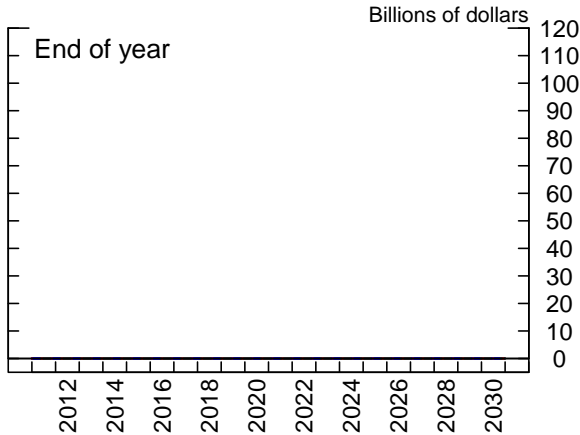
Realized Capital Gains



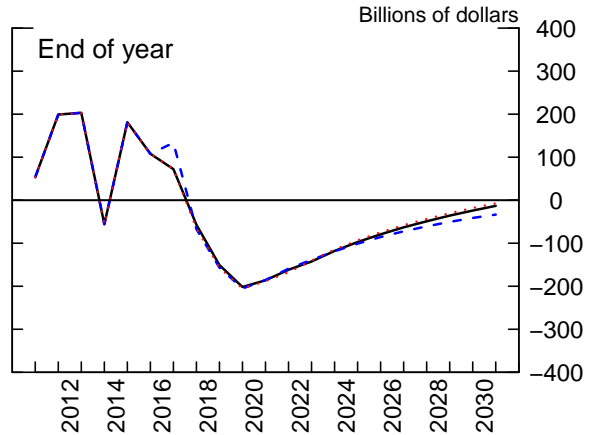
Earnings Remittances to Treasury



Deferred Asset



Memo: Unrealized Gains/Losses



Balance Sheet & Income

though underlying interest income and expense differ after 2020. No deferred asset is projected.⁸

- **Unrealized gains or losses.** The staff estimates that the SOMA portfolio was in a net unrealized gain position of about \$260 billion at the end of September 2016.⁹ Preliminary staff estimates show that the net unrealized gain position fell to about \$70 billion by the end of December as a result of the rise in interest rates over this period, including an 88 basis point increase in the yield on 10-year Treasury securities. Going forward, the net unrealized gain or loss position of the portfolio will depend importantly on the path of longer-term interest rates. Because of the rise in longer-term interest rates assumed over the next several years in both scenarios, the portfolio is projected to shift to an unrealized loss position in the third quarter of 2017, the same as in the December Tealbook baseline. The portfolio is expected to record a peak unrealized loss of approximately \$210 billion in 2019, about \$75 billion of which is attributable to holdings of Treasury securities and \$135 billion to holdings of agency MBS. The unrealized loss position then narrows through the projection period, as the value of securities previously acquired under the large-scale asset purchase programs returns to par as they approach maturity and new securities are added to the portfolio at prevailing market yields.
- **Term premium effects.** As shown in the table “Projections for the 10-Year Treasury Term Premium Effect,” under the \$100 billion reserve scenario, the extra securities held in the SOMA portfolio as a result of the Federal Reserve’s large-scale asset purchases (LSAPs) and reinvestments are estimated to be depressing the term premium embedded in the 10-year nominal Treasury yield by 86 basis points in the current quarter. The estimated term premium effect depends importantly on the expected path of the Federal Reserve’s balance sheet over coming years relative to a counterfactual projection for the balance sheet that excludes the effects of asset purchases. This contemporaneous estimate is comparable to that reported in the December Tealbook. Over time, the term premium effect gradually fades as the projected path of the balance sheet converges to the counterfactual path. Even after

⁸ In the event that a Federal Reserve Bank’s earnings fall short of the amount necessary to cover its operating costs and pay dividends, a deferred asset would be recorded as a claim against future earnings remittances due to the U.S. Treasury.

⁹ The Federal Reserve reports the quarter-end net unrealized gain/loss position of the SOMA portfolio to the public in the “Federal Reserve Banks Combined Quarterly Financial Reports,” available on the Board’s website at http://www.federalreserve.gov/monetarypolicy/bst_fedfinancials.htm#quarterly.

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

Date	\$100 billion reserve	December Tealbook baseline	\$500 billion reserve
Quarterly Averages			
2017:Q1	-86	-87	-76
Q2	-82	-82	-73
Q3	-78	-78	-69
Q4	-74	-74	-65
2018:Q4	-60	-60	-53
2019:Q4	-49	-49	-43
2020:Q4	-41	-41	-37
2021:Q4	-36	-35	-33
2022:Q4	-32	-31	-31
2023:Q4	-29	-28	-28
2024:Q4	-26	-24	-25
2025:Q4	-23	-22	-23
2026:Q4	-21	-19	-21
2027:Q4	-19	-17	-19
2028:Q4	-17	-15	-17
2029:Q4	-15	-13	-16
2030:Q4	-14	-12	-15

the normalization of its size, the balance sheet continues to put downward pressure on longer-term interest rates because the average duration of securities holdings remains above the level that arises in the benchmark counterfactual projection that excludes the effects of the asset purchases.

Under the \$500 billion reserve scenario, the estimated term premium effect in the current quarter is about 10 basis points less negative than under the \$100 billion reserve scenario. The smaller magnitude of the term premium effect in this scenario stems from the fact that these effects are based on the projected path of the Federal Reserve's balance sheet over coming years relative to a counterfactual projection that embeds the \$500 billion longer-run level of reserve balances (and thus a SOMA portfolio that is \$400 billion larger in the long run than in the \$100 billion reserves scenario). So in effect, a portion of the term premium attributed to LSAPs in the \$100 billion scenario is attributed instead to the larger steady state size of the balance sheet in the \$500 billion scenario. The term premium effects of the LSAPs are thus smaller in magnitude in the \$500 billion reserve scenario than in the \$100 billion reserve scenario. The estimated TPE path remains less negative than in the \$100 billion reserve scenario through the beginning of 2022, when the size of balance sheet has normalized in both scenarios. By the time that the size of the balance sheet is normalized, the term premium effect differs little in the two reserve scenarios.

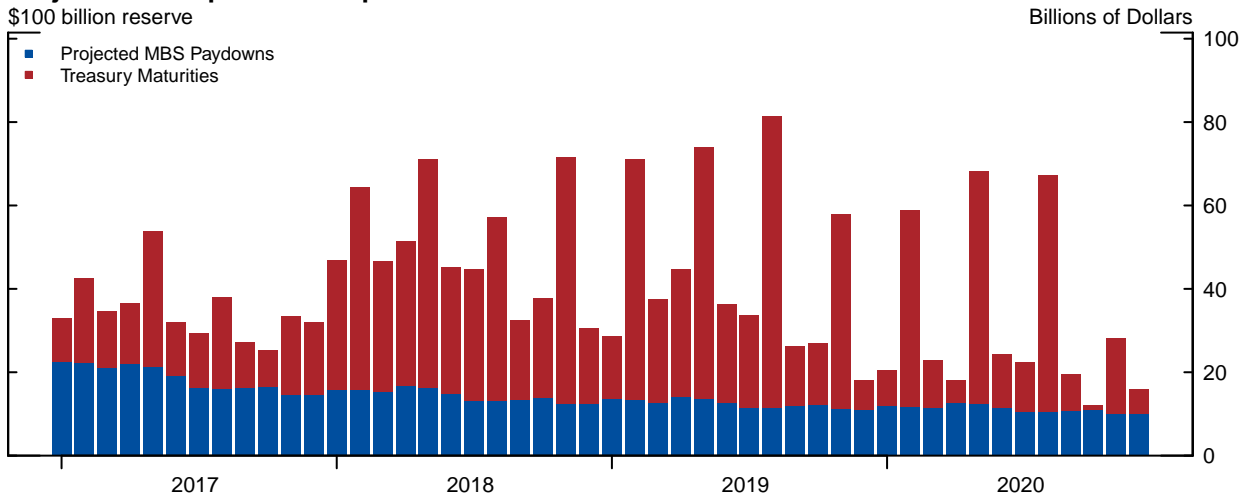
- ***SOMA characteristics.*** Portfolio characteristics are roughly the same under the \$100 billion and \$500 billion reserve scenarios until 2020, given that the balance sheet is shrinking toward normalization under both scenarios until then.

Approximately \$195 billion in SOMA Treasury holdings have already matured or will mature this year, and a total of nearly \$1.3 trillion will mature between 2017 and 2020 (for the baseline scenario, see the top panel of the exhibit “Projections for the Characteristics of SOMA Holdings”).¹⁰ The amount of Treasury securities maturing each month will vary considerably over time, while projected MBS paydowns vary

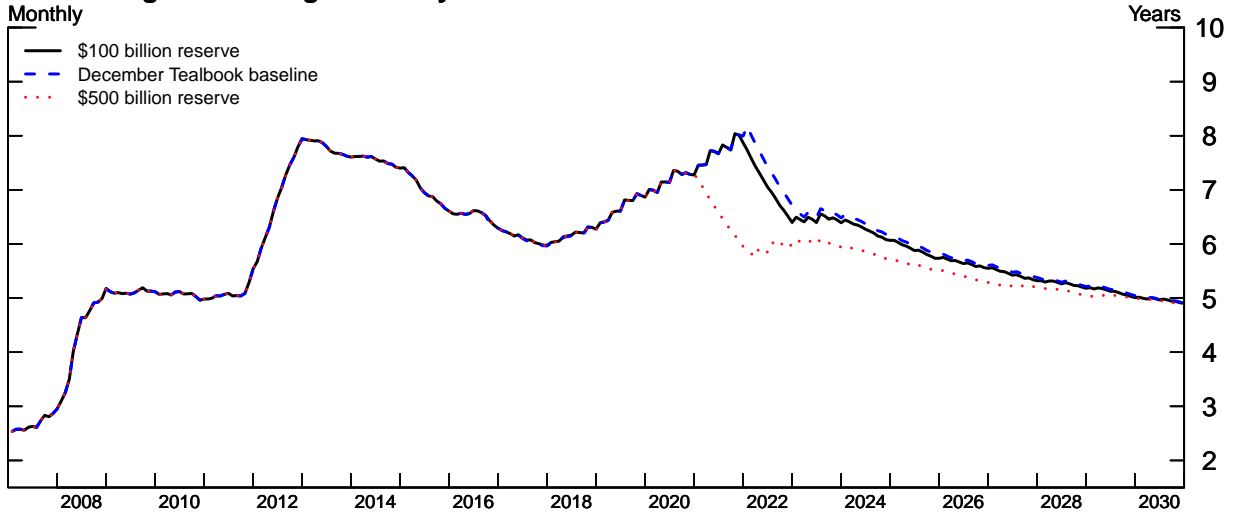
¹⁰ Under the FOMC's current reinvestment policy, the Desk replaces maturing Treasury security holdings with newly issued debt at Treasury auctions. Consistent with longstanding practice, these rollovers are carried out at Treasury auctions by placing bids for the SOMA in a par amount equal to the face value of holdings maturing on the issue date of newly issued securities. Moreover, across the various maturities, these bids are placed proportionately to the issue amounts of the new securities. The Desk's bids at Treasury auctions are placed as noncompetitive tenders and are treated by Treasury as add-ons to announced auction sizes.

Projections for the Characteristics of SOMA Holdings

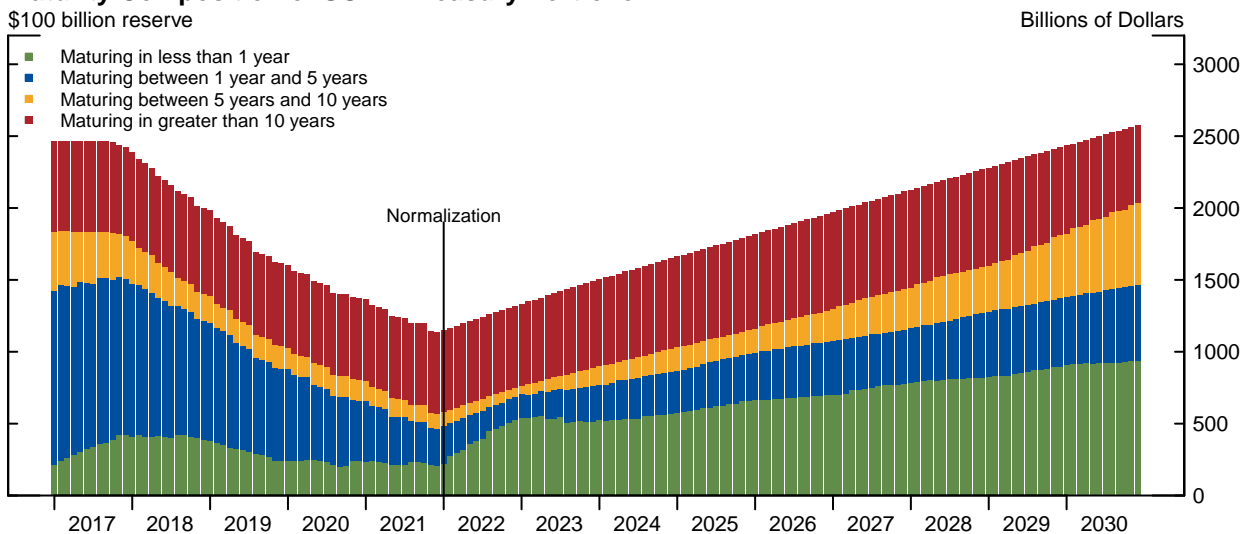
Projected Receipts of Principal on SOMA Securities



SOMA Weighted-Average Treasury Duration



Maturity Composition of SOMA Treasury Portfolio



Balance Sheet & Income

less. Realized MBS paydowns will reflect the evolution of interest rates and other factors and thus could be significantly more volatile than projected.¹¹

The weighted-average duration of the SOMA Treasury portfolio is currently about 6½ years (see the middle panel of the exhibit). The weighted-average duration is projected to decline slightly this year, as the securities in the portfolio approach maturity, and subsequently to rise until the size of the balance sheet is normalized.¹² After reaching its peak, duration is projected to resume its decline as the Desk restarts open market purchases of Treasury securities to keep pace with the increase in Federal Reserve notes in circulation and Federal Reserve Bank capital. The duration contour in this latter portion of the projection is based on the key assumption that the Federal Reserve will limit its purchases to Treasury bills until those holdings are equal to approximately 30 percent of the Treasury portfolio, similar to the pre-crisis composition of the portfolio (currently SOMA holds no Treasury bills). Thereafter, purchases of Treasury securities are assumed to be spread across the maturity spectrum (see the bottom panel, “Maturity Composition of SOMA Treasury Portfolio”).¹³

¹¹ Over the intermeeting period, the Desk reinvested \$22 billion of maturing Treasury securities and is expected to purchase a total of \$55 billion of 15- and 30-year agency MBS under the reinvestment program.

¹² The rise in portfolio duration starts in 2018 as the pace of roll-offs accelerates and longer-tenor securities account for a larger share of the remaining portfolio, causing duration to increase until the size of the balance sheet is normalized.

¹³ We assume zero purchases of agency MBS after reinvestments cease.

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Abbreviations

ABS	asset-backed securities
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
ECB	European Central Bank
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

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
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)
TGA	U.S. Treasury's General Account
TIPS	Treasury inflation-protected securities
TPE	Term premium effects