

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

March 9, 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 met in February indicate that the economy has continued to expand at a moderate pace and that inflation moved closer to the FOMC's 2 percent longer-run objective. There are two key questions for the Committee at this meeting: first, whether the available information warrants raising the federal funds rate; and second, whether the economic outlook and associated risks indicate that the funds rate path suggested by recent FOMC statements remains appropriate or call for signaling a somewhat different path of rate hikes. The employment report for February will be released after this Tealbook is published but before the FOMC meeting; consequently, this Tealbook includes four draft statements. Alternatives A, B, and C are intended for consideration if the employment report shows that the labor market has developed broadly in line with expectations or that it has strengthened more than expected. Alternative B' is intended for consideration if the employment report falls significantly short of expectations.

- Alternatives A, B, and C all characterize recent economic activity as having continued to expand at a moderate pace. The Alternatives differ somewhat in their interpretation of the incoming data on inflation, unemployment, and business fixed investment.
 - These three Alternatives recognize that inflation has increased, moving “toward” (Alternative A) or “close to” (Alternatives B and C) the Committee's 2 percent objective. At the same time, Alternative A states that the rise “largely reflected the temporary effects of recent increases in energy prices” while Alternative B indicates that “excluding energy and food prices, inflation is little changed and continues to run somewhat below 2 percent.” When discussing longer-term inflation expectations, Alternatives A and B characterize market-based measures of inflation compensation as remaining low, while Alternative C states that such measures are little changed. All three Alternatives note that survey-based measures of expected inflation are little changed.
 - With respect to the labor market, Alternative A indicates that it “strengthened somewhat in recent months,” while Alternatives B and C note that the labor market “has continued to strengthen.” Moreover, Alternative A, unlike Alternatives B and C, states that “the unemployment rate and other indicators

of labor utilization have changed little, on balance,” and that “wage pressures have remained subdued.”

- All of the Alternatives indicate that consumer spending has continued to rise moderately. Whereas Alternatives B and C state that business fixed investment “appears to have firmed somewhat,” Alternative A says it “has risen modestly.” Inasmuch as the Committee now has information indicating how consumer and business spending have evolved since the election, the draft Alternatives no longer reference recent improvements in measures of consumer and business sentiment.
- In describing the medium-term outlook for inflation, Alternatives B and C anticipate that inflation “will stabilize around 2 percent over the medium term,” whereas Alternative A preserves the language of paragraph 2 of the February statement, predicting that inflation “will rise to 2 percent over the medium term.” The language concerning the medium-term outlook for economic activity and labor market conditions is unchanged in the three Alternatives. Alternatives A and B continue to condition the outlook on “gradual adjustments” in the stance of monetary policy; Alternative C uses “further gradual adjustments.”
- All of the Alternatives retain the assessment that near-term risks to the economic outlook “appear roughly balanced.”
- Alternatives B and C raise the target range for the federal funds rate to $\frac{3}{4}$ to 1 percent, whereas Alternative A maintains the current target range. The Alternatives repeat the formulation from earlier statements indicating that the stance of monetary policy “remains accommodative.” All of the Alternatives state that such a stance supports “a sustained return to 2 percent inflation.”
- The Alternatives differ somewhat in their description of the prospects for future increases in the federal funds rate.
 - All of the Alternatives delete the February statement’s reference to the “current shortfall of inflation from 2 percent.”
 - Alternatives A and B emphasize that the inflation goal is “symmetric.” The combination of “stabilize around 2 percent” and “symmetric” may be seen as a signal that the Committee will be neither more nor less concerned when it

sees inflation running temporarily above 2 percent than when it sees inflation running temporarily below 2 percent.

- Alternatives B and C strike the word “only” in describing gradual rate increases.
 - Alternative C indicates that the Committee “currently” expects that the federal funds rate will remain, for some time, below levels that are expected to prevail in the longer run.
- None of the three Alternatives changes the description of the Committee’s policy concerning reinvestment.
 - Inasmuch as Alternative B’ is predicated upon the release, on March 10, of a quite weak February employment report, it declares that “the pace of improvement in the labor market diminished in recent months.” Moreover, it indicates that “job gains slowed sharply and the unemployment rate rose.”
 - Alternative B’ maintains the current target range for the federal funds rate and indicates that the Committee will be assessing “whether incoming information is consistent with the Committee’s current economic outlook.”

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JANUARY-FEBRUARY 2017 FOMC STATEMENT

1. Information received since the Federal Open Market Committee met in December indicates that the labor market has continued to strengthen and that economic activity has continued to expand at a moderate pace. Job gains remained solid and the unemployment rate stayed near its recent low. Household spending has continued to rise moderately while business fixed investment has remained soft. Measures of consumer and business sentiment have improved of late. Inflation increased in recent quarters but is still below the Committee's 2 percent longer-run objective. Market-based measures of inflation compensation remain low; most survey-based measures 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, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, labor market conditions will strengthen somewhat further, and inflation will rise to 2 percent over the medium term. 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 maintain the target range for the federal funds rate 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.
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.

MARCH 2017 ALTERNATIVE A

1. Information received since the Federal Open Market Committee met in ~~December~~ **February** indicates that the labor market ~~has continued to strengthen~~ **ed somewhat in recent months** and that economic activity has continued to expand at a moderate pace. Job gains **have** remained solid ~~and~~; **however**, the unemployment rate ~~stayed near its recent low~~ **and other indicators of labor utilization have changed little, on balance, and wage pressures have remained subdued**. Household spending has continued to rise moderately while business fixed investment has ~~remained soft~~ **risen modestly**. ~~Measures of consumer and business sentiment have improved of late.~~ **Although** inflation increased in recent ~~quarters~~ **months** but is still below, **moving toward** the Committee's 2 percent longer-run objective, **the rise largely reflected the temporary effects of recent increases in energy prices**. Market-based measures of inflation compensation remain low; ~~most~~ survey-based measures 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, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, labor market conditions will strengthen somewhat further, and inflation will rise to 2 percent over the medium term. 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 maintain the target range for the federal funds rate 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 **sustained** 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~~ **inflation developments relative to** 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.

MARCH 2017 ALTERNATIVE B

1. Information received since the Federal Open Market Committee met in ~~December~~ **February** indicates that the labor market has continued to strengthen and that economic activity has continued to expand at a moderate pace. Job gains remained solid and the unemployment rate [~~declined~~ | ~~stayed~~ **was unchanged, remaining** near its recent low |]. Household spending has continued to rise moderately while business fixed investment ~~has remained soft~~ **appears to have firmed somewhat**. Measures of consumer and business sentiment have improved of late. Inflation **has** increased in recent quarters but is still below, **moving close to** the Committee's 2 percent longer-run objective; **excluding energy and food prices, inflation is little changed and continues to run somewhat below 2 percent**. Market-based measures of inflation compensation remain low; ~~most~~ survey-based measures 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, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, labor market conditions will strengthen somewhat further, and inflation will ~~rise to~~ **stabilize around** 2 percent over the medium term. 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 ~~maintain~~ **raise** the target range for the federal funds rate at 1/2 to 3/4 **to 1** percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a **sustained** 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 **inflation developments relative to** 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.

MARCH 2017 ALTERNATIVE C

1. Information received since the Federal Open Market Committee met in ~~December~~ **February** indicates that the labor market has continued to strengthen and that economic activity has continued to expand at a moderate pace. Job gains remained solid and the unemployment rate [~~declined~~ | ~~stayed~~ **was unchanged, remaining** near its recent low]. Household spending has continued to rise moderately while business fixed investment ~~has remained soft~~ **appears to have firmed somewhat**. Measures of consumer and business sentiment have improved of late. Inflation **has** increased in recent quarters ~~but is still below~~, **moving close to** the Committee's 2 percent longer-run objective. Market-based measures of inflation compensation ~~remain low; most~~ **and** survey-based measures 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, with **further** gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, labor market conditions will strengthen somewhat further, and inflation will ~~rise to~~ **stabilize around** 2 percent over the medium term. 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 ~~maintain~~ **raise** the target range for the federal funds rate at ~~1/2 to 3/4~~ **to 1** percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a **sustained** 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 **currently** expects that economic conditions will evolve in a manner that will warrant ~~only~~ gradual increases in the federal funds rate; **and that** the federal funds rate is likely to **will** 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.

MARCH 2017 ALTERNATIVE B' (CONTINGENCY DRAFT)

1. Information received since the Federal Open Market Committee met in ~~December~~ **February** indicates that the **pace of improvement in the** labor market ~~has continued to strengthen and that~~ **diminished in recent months while** economic activity has continued to expand at a moderate pace. Job gains ~~remained solid~~ **slowed sharply** and the unemployment rate ~~stayed near its recent low~~ **rose**. Household spending has continued to rise moderately while business fixed investment ~~has remained soft~~ **appears to have firmed somewhat**. Measures of consumer and business sentiment ~~have improved of late~~. Inflation **has** increased in recent quarters ~~but is still below~~; **moving close to** the Committee's 2 percent longer-run objective; **excluding energy and food prices, inflation is little changed and continues to run somewhat below 2 percent**. Market-based measures of inflation compensation remain low; ~~most~~ survey-based measures 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. **Although growth in employment slowed recently**, the Committee **continues to** expects that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, labor market conditions will strengthen somewhat further, and inflation will ~~rise to~~ **stabilize around** 2 percent over the medium term. 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 maintain the target range for the federal funds rate at 1/2 to 3/4 percent **while assessing whether incoming information is consistent with the Committee's current economic outlook**. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a **sustained** 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~~ **inflation developments relative to** 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.

THE CASE FOR ALTERNATIVE B

Economic Conditions and Outlook

- Available data indicate that the labor market has continued to strengthen. Total payrolls rose 227,000 in January; the three-month moving average of total payroll gains was 183,000, well above projected trend growth in the labor force. Also indicative of a tightening labor market, the labor force participation rate has remained unchanged on net since late 2013, and thus has risen cumulatively about 1 percentage point relative to its trend, as shown in the box “Labor Force Participation and Labor Market Flows” in the Domestic Economic Developments and Outlook section in Tealbook A. Although the unemployment rate ticked up in December and January, it is at or near most participants’ estimates of its longer-run normal level.
- Real GDP growth for the fourth quarter of 2016 is estimated by the staff at 2 percent, a touch above estimated potential growth.
- Private domestic final purchases continue to grow at a solid pace, with gains in household income and wealth supporting growth in consumer spending.
- Data received over the intermeeting period indicate that total PCE price inflation has increased relative to its pace last year. Twelve-month headline PCE inflation, at 1.9 percent in January, has moved further toward the FOMC’s 2 percent objective. The increase over recent quarters in large part reflects rising consumer energy prices; 12-month core PCE inflation, at 1.7 percent in January, has been essentially constant since the middle of last year. The trimmed mean PCE inflation measure published by the Federal Reserve Bank of Dallas stands at 1.9 percent.
- Market-based measures of longer-term inflation compensation are little changed; 5-year, 5-year-forward CPI inflation compensation remains close to 2 percent, which is low by historical standards. Survey based measures of longer-term inflation expectations also are basically unchanged: The first-quarter Survey of Professional Forecasters median 10-year inflation projection for PCE prices ticked up a tenth of a percentage point after being essentially flat at 2 percent since early 2013. The 3-year-ahead measure of inflation expectations in the Federal Reserve Bank of New York’s Survey of Consumer Expectations increased a tenth to 3 percent in February.
- The staff’s view of the economic outlook for the next few years—and of the risks to the outlook—has not changed appreciably since the Committee last met.

- Real GDP is projected to rise at a 2 percent rate this year, and then to pick up to a 2¼ percent pace in 2018 as the assumed fiscal policy changes kick in, before moving back down to 2 percent in 2019.
- Labor market conditions are projected to strengthen somewhat further over the medium term, with the unemployment rate declining to 4.1 percent by the end of 2019. Average monthly payroll gains are expected to slow from 170,000 in 2017 to 120,000 in 2019—just a little faster than the range of gains that is consistent with no change in labor market slack.
- Total PCE price inflation is expected to move a bit above 2 percent in coming months, and then to drop back to a touch below 2 percent during the second half of the year. Core PCE price inflation is expected to remain close to 1¾ percent this year, and then to move up to 2 percent by 2019 as the restraint from earlier declines in energy prices and non-energy import prices dissipates and the labor market tightens further. With consumer food and energy prices projected to rise roughly in line with core prices beyond the near term, the staff expects total PCE price inflation to run at about the same pace as core inflation over the next few years.

Policy Strategy

- If the February employment report is not too far below expectations, policymakers may judge that they have accumulated sufficient evidence that the real economy and inflation are evolving about as expected to warrant an increase in the target range for the federal funds rate. Given an expectation that the neutral rate of interest will gradually increase toward its longer-run level, policymakers might continue to expect that the appropriate pace of further increases in the target range will also be gradual. As shown in the special exhibit “Optimal Control Using a Projection Consistent with the SEP” in the Monetary Policy Strategies section of Tealbook A, such a gradual path would be consistent with optimal control simulations that take the median responses to the December SEP as the baseline outlook.
- Given the uncertainty about the timing, size, and composition of prospective changes in fiscal policy, policymakers may still consider it premature to communicate that they see an appreciable change either in their modal economic outlook or in the associated path of the federal funds rate that would be consistent with achieving their statutory goals. Or, even if they judge that the appropriate path for the federal funds

rate has steepened, participants may still see the pace of likely rate increases as gradual by historical standards. To the extent this is so, participants may see paragraphs 2 and 4 of Alternative B as appropriately preserving the Committee's flexibility going forward.

- In contrast to the February statement, paragraph 2 of Alternative B expresses the expectation that inflation “will stabilize around 2 percent over the medium term” (rather than “will rise to 2 percent over the medium term”), and paragraph 4 acknowledges progress toward the 2 percent inflation goal by striking the reference to the “current shortfall of inflation from 2 percent.” These changes, combined with the deletion of the word “only” in describing gradual rate increases in paragraph 4 of Alternative B, may be seen as suggesting greater confidence in a pace of rate hikes that is faster than that observed in 2016.
- As shown in figure 1 of the box “Monetary Policy Expectations and Uncertainty,” financial market quotes embed a probability of about 90 percent that the Committee will raise the target range at this meeting. Respondents to the Desk's latest Surveys of Primary Dealers and Market Participants (figure 2) concur in this assessment. Looking ahead, respondents expect three rate hikes this year (of 25 basis point each) but, importantly, they do not seem to have revised their estimates for the number of rate hikes in 2018 (with a median estimate of three hikes) and 2019 (two hikes).

THE CASE FOR ALTERNATIVE C

Economic Conditions and Outlook

- Labor market conditions are strong and have continued to strengthen. Despite a recent uptick, the unemployment rate is at or near participants' estimates of its longer-run normal level and below the staff's estimate of the natural rate. Total payroll gains in January as well as their three-month moving average are well above estimates of the pace needed to maintain a constant unemployment rate over time. Given a declining trend in the labor force participation rate of about 0.3 percentage point per year (the staff's current estimate), the flat participation rate over the past three years represents a cyclical improvement of nearly 1 percentage point, as shown in the box “Labor Force Participation and Labor Market Flows” in the Domestic Economic Developments and Outlook section in Tealbook A.

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Monetary Policy Expectations and Uncertainty

Market participants' perceptions of the odds that the next increase in the target range for the federal funds rate will occur at the March FOMC meeting rose notably over the intermeeting period (figure 1). The market-implied probability of the next rate hike occurring in March moved up from about 25 to 90 percent, with most of the increase occurring toward the end of the intermeeting period following comments by various FOMC participants. The Desk's March Surveys of Primary Dealers and Market Participants showed similarly high odds on a rate increase at the March meeting (figure 2).

Looking further ahead, the probability distribution of the federal funds rate that will prevail at the end of 2017 implied by quotes on Eurodollar futures options (figure 3) shifted to the right; it now shows about equal odds of two, three, or four (or more) rate hikes (of 25 basis points each) this year. The distribution from the March Desk Surveys (figure 4) also shifted to the right and now attaches the highest odds to three rate hikes in the federal funds rate by year-end. Similarly, the median of respondents' modal expectations (not shown) suggests that respondents now view three rate hikes over the course of 2017 as the mostly likely outcome, up from two hikes in the January survey. Beyond the current year, median estimates suggest that respondents continue to see three rate hikes in 2018 and two in 2019 as the most likely outcome.

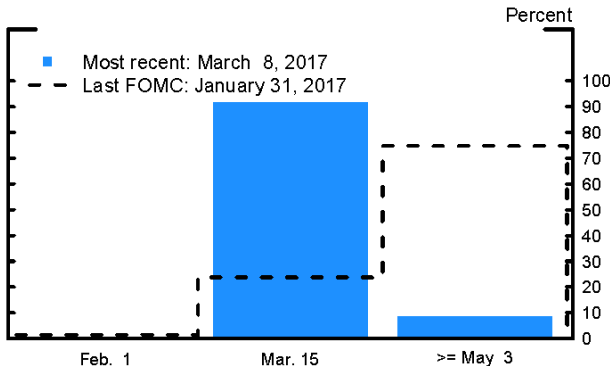
The federal funds rate path implied by a straight read of OIS quotes (the black lines in figure 5) moved up about 20 basis points over the intermeeting period. Assuming zero risk premiums, these market-implied forward rates imply about two and a half rate hikes in 2017 and two in 2018, with the target rate reaching a little less than 2¼ percent by the end of 2020. The staff's 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, provides an estimate of the expected federal funds rate that is adjusted for term premiums. The expected path from the model (the light blue lines in figure 5) rose a touch; it suggests that the federal funds rate will rise at a somewhat faster pace of about four hikes per year in 2017 and three hikes in 2018, with the funds rate nearing 3¼ percent by the end of 2020. The difference between the term premium-adjusted and unadjusted paths narrowed somewhat over the intermeeting period, suggesting that OIS rates beyond six months now contain slightly less negative term premiums.

As shown in figure 6, the model-based path for the federal funds rate (the light-blue line) continues to lie above the modal path from the Desk Surveys (in brown) but is roughly consistent with the staff's March baseline projection through 2018 (in dark blue).

Results from the model and the surveys 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 term structure model continues to estimate that the federal funds rate will reach about 3¾ percent over the next five to ten years, about in line with the average of the target funds rate in the staff's March baseline projection over that same time period, but about ¾ percentage point above the median projected longer-run federal funds rate in the March Desk Surveys.

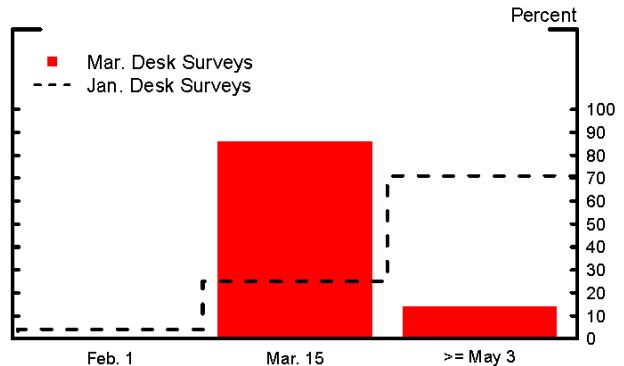


Figure 1: Market-Implied Probability Distribution of the Timing of Next Rate Increase



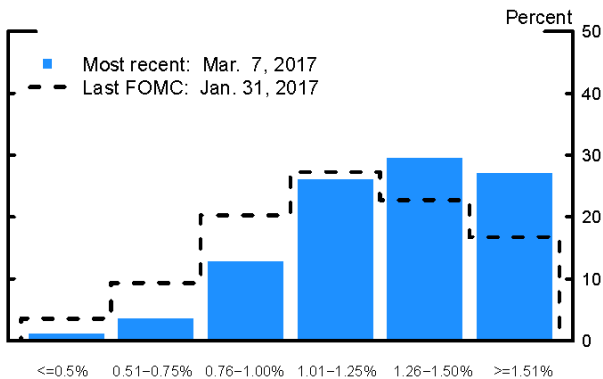
Note: Probabilities implied by a binomial tree model fitted to settlement prices on fed funds futures contracts, conditional on the next policy action being either no change or an increase in rates, no intermeeting moves, 25 basis point hikes, and corrected for month-end effects. The effective federal funds rate before the next FOMC meeting is assumed to be equal to the observed rate on the previous business day.
Source: CME Group; Federal Reserve Board staff estimates.

Figure 2: Probability Distribution of the Timing of Next Rate Increase from the Desk Surveys



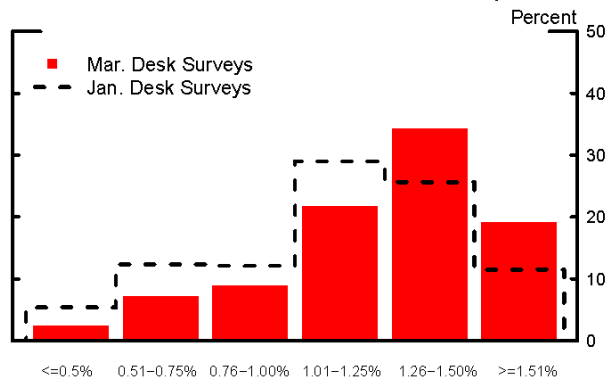
Note: Average probabilities across the surveys of primary dealers and market participants, conditional on the next policy action being an increase in rates.
Source: FRBNY.

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



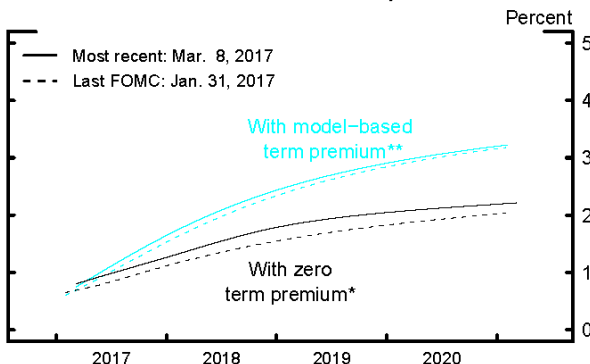
Note: Estimated from Eurodollar futures options, accounting for the differences in the levels and option-implied volatilities of LIBOR and the federal funds rate, but not adjusted for risk premiums.
Source: CME Group; Federal Reserve Board staff estimates.

Figure 4: Probability Distribution of the Federal Funds Rate, Year-End 2017, from the Desk Surveys



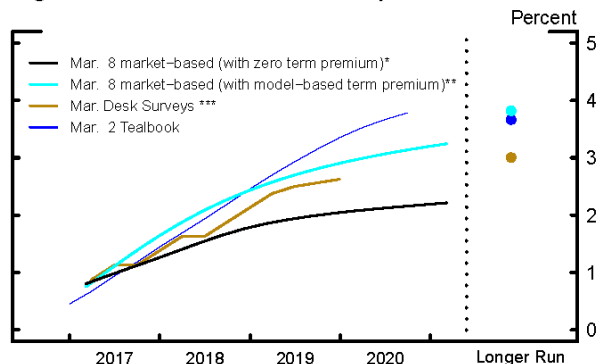
Note: Average unconditional probabilities across the surveys of primary dealers and market participants for different ranges of the federal funds rate at the end of 2017.
Source: FRBNY.

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



* Estimated using overnight index swap quotes with a spline approach and a term premium of zero basis points.
** Estimated using a term structure model maintained by Board staff and adjusted for term premiums.
Source: Bloomberg; Blue Chip Financial Forecasts; Federal Reserve Board staff estimates.

Figure 6: Federal Funds Rate Projections



* Estimated using overnight index swap quotes with a spline approach and a term premium of zero basis points.
** Estimated using a term structure model maintained by Board staff and adjusted for term premiums. The longer-run model-implied forecast is for the expected federal funds rate 5 to 10 years ahead.
*** Median of the respondents' modal paths for the federal funds rate.
Source: Bloomberg; Blue Chip Financial Forecasts; Federal Reserve Board staff estimates; FRBNY.

- Growth in real GDP in the fourth quarter of 2016 is estimated at 2 percent, the same as in the January Tealbook. With the survey measures of consumer confidence still elevated from the respective pre-election levels, and with household wealth having increased appreciably in recent months with the rise in equity prices, participants may see some upside risk to the outlook for real PCE and hence for real GDP.
- Spending data received during the intermeeting period point to some firming of business fixed investment. Indicators of business sentiment have been favorable lately, with the headline indexes in the Manufacturing and Non-manufacturing ISM reports, and the Manufacturing Business Outlook Survey from the Federal Reserve Bank of Philadelphia all signaling expansion.
- Twelve-month headline PCE inflation has continued to rise toward the FOMC's 2 percent objective in recent quarters and is expected to run above 2 percent in the near term.
- Market-based measures of longer-term inflation compensation suggest that downside risks to inflation receded during the fall of last year. Moreover, the drop in survey-based measures seen late last year proved transitory.

Policy Strategy

- Policymakers may conclude that the information accumulated since the February meeting, in combination with earlier data, provides ample evidence that the real economy and inflation are evolving about as expected and thus warrants a further reduction in policy accommodation at next week's meeting. They might note that with stock prices having climbed substantially in the past few months, and business and consumer confidence at elevated levels, there is now a noteworthy risk of "falling behind the curve" in tightening the stance of monetary policy.
- In addition, policymakers might regard it as prudent for the Committee's statement to include language signaling that the federal funds rate may rise more quickly than previously expected, though still at a gradual pace. To that end, paragraph 4 of Alternative C suggests deleting the word "only" and paragraph 2 adding the word "further" when describing gradual adjustments in the federal funds rate. Additionally, paragraph 4 uses the phrase "The Committee currently expects" when describing prospects for future increases in the federal funds rate.

- Policymakers may be concerned that, with an economy projected to be operating above its long-run potential, inflation might well increase more than the staff expects. This view is consistent with the predictions of models that emphasize nonlinear effects of economic slack on inflation, a possibility that is explored in the alternative scenario “Steeper Wage Phillips Curve and More Sensitive Long-Run Inflation Expectations” in the Risks and Uncertainty section of Tealbook A.
- 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.
- Responses to the Desk’s latest surveys, like financial market quotes, indicate that market participants now see an approximately 90 percent probability that the Committee will raise the target range at this meeting. However, the recent jump in the perceived probability of a rate hike at this meeting has not been accompanied by the expectation of a steeper path for the federal funds rate going forward. Consequently, signaling that the federal funds rate may rise more quickly, as done in this Alternative, could induce financial market participants to revise upward their policy path expectations, which in turn might trigger a drop in stock prices and inflation compensation as well as a strengthening of the dollar.

THE CASE FOR ALTERNATIVE A

Economic Conditions and Outlook

- The incoming data suggest that the pace of improvement in the labor market moderated in recent months. In particular, average job gains slowed relative to the summer months of last year, and the unemployment rate ticked up. Even though the labor force participation rate is unchanged, on net, since 2013, measures of labor compensation have shown hardly any acceleration in recent years.
- GDP growth in the fourth quarter of 2016 is estimated to have increased at an annual rate of 2 percent, the same as in the January Tealbook. However, real personal consumption expenditures declined in January.
- Although total PCE price inflation has increased in recent months, the increase largely reflects rising consumer energy prices; core inflation has been essentially constant at 1.7 percent. In addition, the projected divergence between domestic and foreign monetary policies could generate greater appreciation of the dollar than

assumed in the staff's baseline, holding down core inflation. Furthermore, part of the recent rise in headline inflation might not be sustained because it reflects a transitory step-up in energy prices.

- Survey measures of longer-run inflation expectations and readings on longer-term inflation compensation are still low by historical standards. Policymakers may be concerned that if forecasts of a pickup in inflation prove too optimistic, longer-run inflation expectations could decrease. If this were to occur now, after a lengthy period of underperformance on inflation, the Committee's reputation could suffer.

Policy Strategy

- Policymakers might view information received since the February FOMC meeting as indicating not only that progress in the labor market has slowed 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 sustained progress toward the Committee's inflation objective 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.
- Policymakers might estimate that the neutral federal funds rate 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 and businesses. Policymakers 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.
- Market participants would be surprised by a decision to maintain the target range for the federal funds rate: Responses to the Desk's latest surveys, like financial market

quotes, indicate that market participants now see an approximately 90 percent probability that the Committee will raise the target range at this meeting. Going forward, market participants attach notably smaller probabilities to federal funds rate outcomes at or below 1 percent at the end of 2017.

- Financial market participants would likely 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 signaling a more accommodative stance 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.

THE CASE FOR CONTINGENCY ALTERNATIVE B'

Economic Conditions and Outlook

- The unemployment rate in January was at or near many participants' estimates of its longer-run normal level, and staff made no material changes to its near-term labor market forecast in reaction to the January employment report and other recent indicators. Staff currently projects that total payroll employment will increase 182,000 in February, roughly in line with private sector forecasters. These predictions are notably above the pace estimated to be consistent with the longer-run trend in labor force growth—between 75,000 and 125,000 per month. However, if the employment report for February is significantly weaker than anticipated, the Committee might want to consider Alternative B'.

Policy Strategy

- Should the employment report turn out to be particularly disappointing, policymakers may be concerned that the combination of sharply slowing employment growth and a rising unemployment rate in recent months could signal that the economy is not evolving as expected. Accordingly, the Committee might choose to leave unchanged the target range for the federal funds rate as well as its communications about the likely future path of that rate “while assessing whether incoming information is consistent with the Committee’s current economic outlook.”

- Even if they anticipate that the appropriate path for the federal funds rate might be somewhat steeper or somewhat less steep than suggested by the December SEP, policymakers may still see the pace of likely rate increases as “gradual” by historical standards. If so, they may see paragraph 4 of Alternative B’, as appropriately preserving the Committee’s flexibility going forward.
- Current pricing of federal funds futures and options suggests that financial market participants attach only a small probability to a decision to maintain the current target range for the federal funds rate. Of course, the perceived probability could increase substantially if the March 10 employment report turns out to be quite weak.

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. Draft implementation notes that correspond to these two cases appear on the following pages; struck-out text indicates language deleted from the February directive and implementation note, bold red underlined text indicates added language, and blue underlined text indicates text that links to websites.

Implementation Note for March 2017 Alternatives A and B'

Release Date: ~~February 1~~ **March 15**, 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 ~~February 1~~ **March 15**, 2017:

- The Board of Governors of the Federal Reserve System voted unanimously to maintain the interest rate paid on required and excess reserve balances at 0.75 percent.
- 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 ~~February 2~~ **March 16**, 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 the establishment of the primary credit rate at the existing level of 1.25 percent.

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

Implementation Note for March 2017 Alternatives B and C

Release Date: ~~February 1~~ **March 15**, 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 ~~February 1~~ **March 15**, 2017:

- 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 ~~to 0.75~~ **1.00** percent, effective ~~February 2~~ **March 16**, 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 ~~February 2~~ **March 16**, 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 ~~the establishment of~~ **a 1/4 percentage point increase in** the primary credit rate ~~at the existing level of 1.25~~ **to 1.50** percent, **effective March 16, 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 . . .**

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 two projections of the Federal Reserve's balance sheet and key elements of the associated income statement. The projections are distinguished by the assumed longer-run level of reserve balances. Both projections are consistent with the interest rate paths incorporated in the staff's baseline economic outlook presented in Tealbook A.¹

- In the “March Tealbook baseline” scenario, the longer-run level of reserve balances is assumed to be \$100 billion.² In this scenario the federal funds rate is 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 generally follow a similar pattern, reaching peak levels slightly earlier before declining somewhat throughout the remainder of the projection period.
- In the “\$500 billion reserves” scenario, the longer-run level of reserve balances is assumed to be \$500 billion. The interest rate paths associated with this scenario are very similar to those in the baseline scenario.

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

- **Reinvestment policy:** We continue to assume that the FOMC will cease reinvestments of principal repayments on securities in the System Open Market Account when the target range for the federal funds rate reaches 1¼ to 1½ percent. (See the accompanying box for a summary of when and how respondents to the Desk's surveys expect the Committee's reinvestment policy to change.) As in the previous Tealbook, reinvestments cease in full at the end of the third quarter of 2017 under both scenarios. Thereafter, the SOMA portfolio shrinks passively until reserve

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

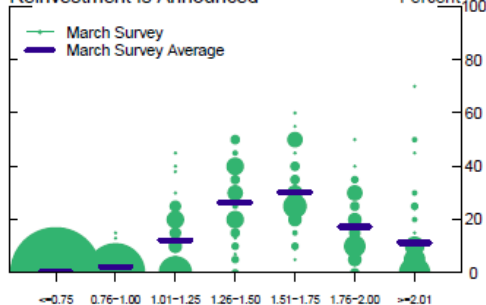
² For a discussion of key factors that have increased the demand for reserve balances over the past 10 years, see the appendix of the memo “Changing the FOMC's Reinvestment Policy: Approaches and Considerations” that was distributed to the FOMC on March 3, 2017.

Expectations for Changes to Reinvestment Policy

The Desk’s latest Surveys of Primary Dealers and Market Participants indicate that respondents hold diffuse views, within certain ranges, of when the Committee will first announce a change in its reinvestment policy and of what the level of the federal funds rate will be at that time.

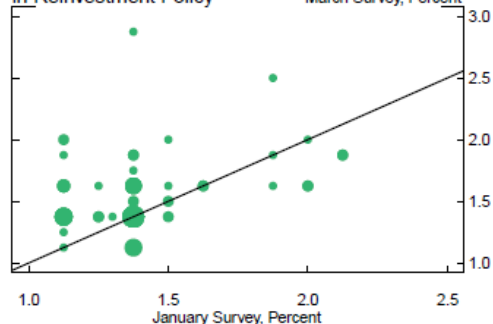
The March survey asked respondents to provide a point estimate and probability distribution for the level of the federal funds rate expected to prevail when the Committee first announces a change to its reinvestment policy.¹ The median point estimate was 1.625 percent, but, as shown in figure 1, respondents on average assigned only a 30 percent probability to the federal funds rate being between 1.51 and 1.75 percent when a change in reinvestment policy is announced.² The reported probabilities of the federal funds rate falling within any particular range varied considerably across respondents, except that nearly all respondents saw a 5 percent or lower probability of an announcement occurring before the federal funds rate exceeds 1 percent.

Figure 1: Distributions of Market Beliefs on Level of Fed Funds Rate When Change to Reinvestment is Announced



Note: Based on all responses from the Survey of Primary Dealers and Survey of Market Participants. Dots scaled by percent of respondents. Source: FRBNY.

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



Note: Based on all responses from the Survey of Primary Dealers and Survey of Market Participants. Dots scaled by percent of respondents. Source: FRBNY.

Figure 2 plots respondents’ point estimates of the expected level of the federal funds rate at the time of a change in reinvestment policy, as reported in the March surveys, against their responses to the January surveys.³ A majority of the dots in the scatter plot lie above the 45-degree line, indicating that most respondents now expect a higher level of the federal funds rate to prevail when reinvestment policy is first

¹ The surveys pose these questions only to those participants that assign some positive probability to the Committee making a future change to its reinvestments policy.

² In figure 1, and similarly in figure 3 below, the size of the green bubbles represents the number of respondents who assigned the probability (as indicated on the vertical axis) to the scenario that a change in reinvestment policy would first be announced when the federal funds rate falls in the target range indicated on the horizontal axis (Figure 1) or in the quarter indicated on the horizontal axis (Figure 3). The blue horizontal dashes show the resulting average probabilities across respondents.

³ Note that in January, respondents were asked to indicate their estimate for the timing and the most likely level of the target federal funds rate or range when the Committee first *changes* its reinvestment policy, whereas in March they were asked to provide their point estimate for the most likely outcome of the level of the target federal funds rate or range and their distribution of the timing outcome when the Committee first *announces* a change to its reinvestment policy.

changed. When asked to explain the factors behind changes in their views, two factors commonly cited were an expected earlier start or faster pace of rate hikes in 2017, and recent Federal Reserve communications.

Figure 3 summarizes respondents' probability distributions for the timing of the first announcement of a change in reinvestment policy. Respondents on average assigned a 44 percent probability to an announcement occurring in the fourth quarter of 2017 or the first quarter of 2018, and the vast majority of respondents assigned a 5 percent or lower probability to a policy change announcement occurring before the third quarter of 2017. The reported probabilities of a policy change announcement occurring at any particular time, however, were diverse. Figure 4 plots respondents' expectations for the most likely timing of a policy change announcement derived from their responses to the March and January surveys.⁴ While a majority of respondents revised earlier their modal expectations, the average expectation did not change significantly.⁵

Figure 3: Distributions of Market Beliefs on Timing of When Change to Reinvestment is Announced

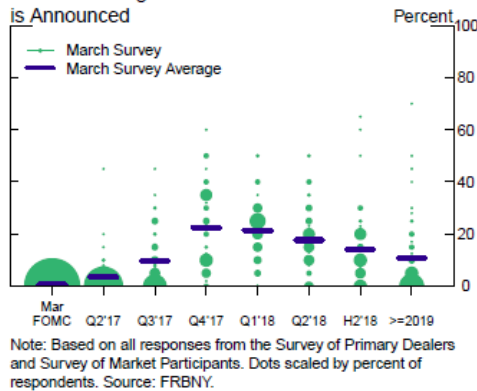
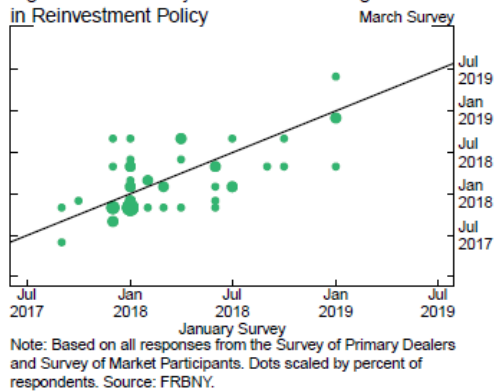


Figure 4: Most Likely Time of First Change in Reinvestment Policy



The Desk's surveys also asked for respondents' views on whether the Committee will cease reinvestments all at once, phase out reinvestments over time, or not change its reinvestment policy during the process of policy normalization. The median respondent attached roughly a 75 percent likelihood to the Committee phasing out reinvestments over time, little changed from recent surveys. The median expectation was that reinvestments of Treasury securities and MBS would each be phased out over 12 months, the same as in the December Primary Dealer Survey.⁶

⁴ For each respondent the date plotted for the March surveys is the date or average of dates for which the respondent reported the highest likelihood of a policy change announcement. The date plotted for the January survey is derived from the number of months forward the respondent first expected a change in reinvestment policy for either Treasuries or MBS.

⁵ In the January surveys, the median estimate for the most likely timing of the first change in reinvestment policy, across both asset classes, was about 12 months forward, corresponding to January 2018. In the March surveys, the median of the modes of individual views of this timing derived from their probability distributions of timing outcomes was quite similar—the first quarter of 2018.

⁶ Note that the December Survey of Market Participants did not ask about the number of months over which reinvestments would be phased out.

balances reach their assumed longer-run level of either \$100 billion, in the baseline scenario, or \$500 billion, in the alternative scenario.

- ***Use of policy normalization tools:*** We continue to 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. More specifically, in each scenario, once the level of reserve balances is within \$500 billion of its assumed longer-run level, ON RRP take-up declines to zero over the course of one year.³

Key features of the two scenarios are described below:

- ***Balance sheet.*** Under the Tealbook baseline scenario, normalization of the size of the balance sheet occurs in the first quarter of 2022, the same quarter as in the \$100 billion reserve scenario in the January Tealbook (see the exhibit titled “Total Assets and Selected Balance Sheet Items” and the table that follows the exhibit).⁴ At the time reserve balances reach \$100 billion, 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 reserves scenario, the size of the portfolio is normalized in the first quarter of 2021, four quarters earlier than projected in the baseline 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 commensurately larger securities portfolio. At that time, total assets are projected to be about \$2.8 trillion, with total SOMA securities holdings of \$2.6 trillion.

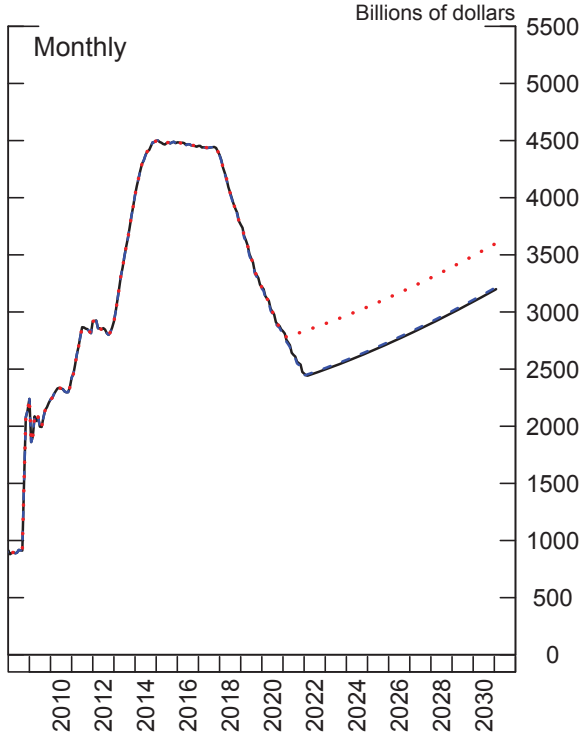
³ The use of ON RRP results in a shift in the composition of Federal Reserve liabilities—a decline in reserve balances and a corresponding increase in RRP—but does not produce an overall change in the size of the balance sheet unless ON RRP take-up continues after the size of the balance sheet is normalized. Separately, we assume that RRP associated with foreign official and international accounts remain throughout the projection period near their January 31, 2017 level of \$263 billion.

⁴ 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 and other Federal Reserve liabilities.

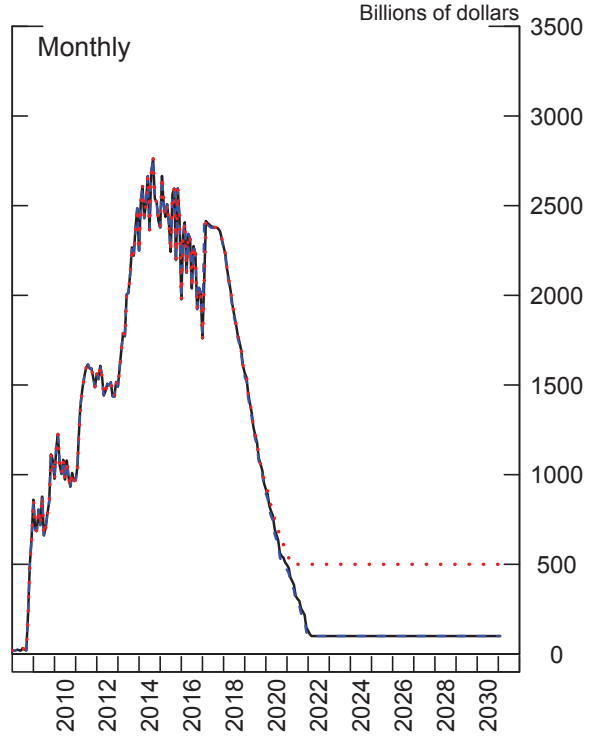
Total Assets and Selected Balance Sheet Items

— March Tealbook baseline (\$100 billion reserves) ···· \$500 billion reserves
- - - January \$100 billion reserves

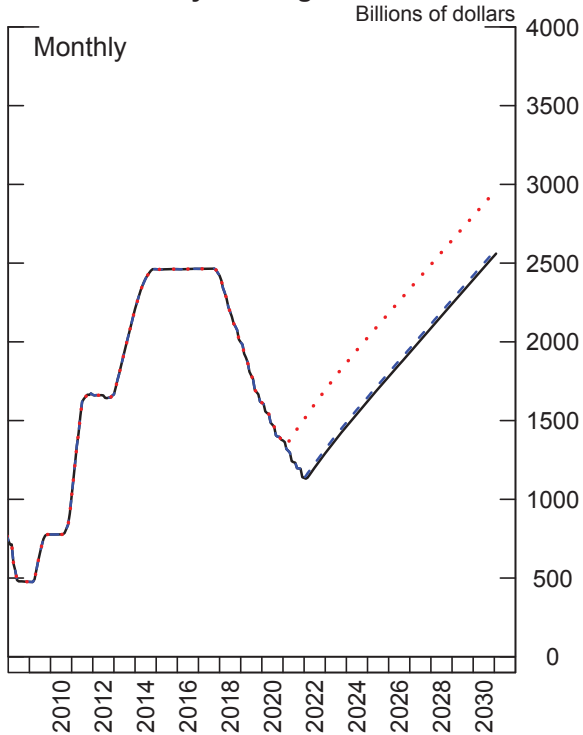
Total Assets



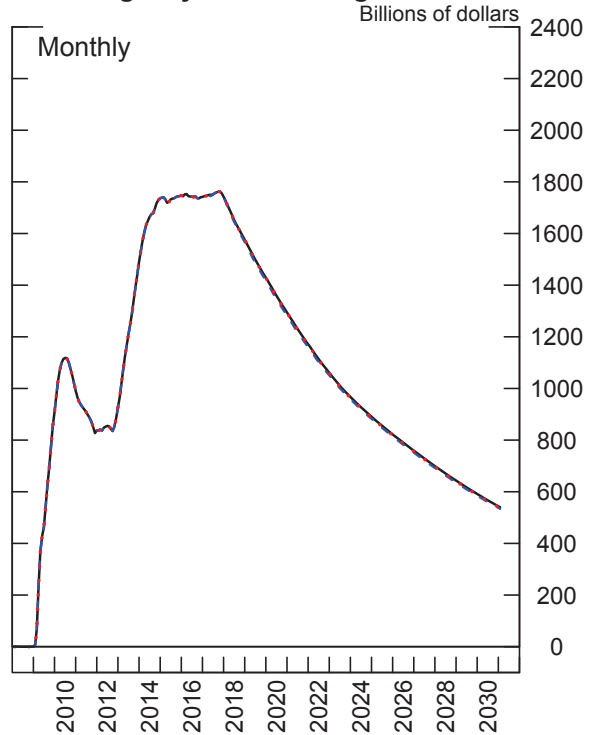
Reserve Balances



SOMA Treasury Holdings



SOMA Agency MBS Holdings



Balance Sheet & Income

Federal Reserve Balance Sheet
End-of-Year Projections -- March Tealbook baseline (\$100 billion reserves)
 (Billions of dollars)

	Jan 31, 2017	2017	2019	2021	2023	2025	2030
Total assets	4,454	4,374	3,219	2,461	2,567	2,724	3,191
Selected assets							
Loans and other credit extensions*	2	0	0	0	0	0	0
Securities held outright	4,224	4,168	3,045	2,310	2,432	2,602	3,094
U.S. Treasury securities	2,463	2,421	1,613	1,136	1,462	1,778	2,547
Agency debt securities	16	4	2	2	2	2	2
Agency mortgage-backed securities	1,745	1,743	1,429	1,171	967	822	544
Unamortized premiums	171	160	125	100	82	68	42
Unamortized discounts	-15	-13	-10	-8	-7	-6	-4
Total other assets	51	53	53	53	53	53	53
Total liabilities	4,413	4,333	3,175	2,413	2,515	2,667	3,119
Selected liabilities							
Federal Reserve notes in circulation	1,453	1,537	1,732	1,859	1,990	2,142	2,595
Reverse repurchase agreements	443	363	363	263	263	263	263
Deposits with Federal Reserve Banks	2,509	2,426	1,074	285	255	255	255
Reserve balances held by depository institutions	2,084	2,271	919	130	100	100	100
U.S. Treasury, General Account	373	150	150	150	150	150	150
Other deposits	52	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	52	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 -- March \$500 billion reserves
 (Billions of dollars)

	Jan 31, 2017	2017	2019	2021	2023	2025	2030
Total assets	4,454	4,375	3,219	2,832	2,968	3,125	3,593
Selected assets							
Loans and other credit extensions*	2	0	0	0	0	0	0
Securities held outright	4,224	4,167	3,044	2,680	2,833	3,003	3,495
U.S. Treasury securities	2,463	2,421	1,613	1,509	1,866	2,181	2,952
Agency debt securities	16	4	2	2	2	2	2
Agency mortgage-backed securities	1,745	1,742	1,428	1,169	965	820	541
Unamortized premiums	171	161	125	100	82	68	42
Unamortized discounts	-15	-13	-10	-8	-7	-6	-4
Total other assets	51	53	53	53	53	53	53
Total liabilities	4,413	4,333	3,174	2,784	2,916	3,068	3,521
Selected liabilities							
Federal Reserve notes in circulation	1,453	1,537	1,732	1,859	1,991	2,143	2,596
Reverse repurchase agreements	443	363	355	263	263	263	263
Deposits with Federal Reserve Banks	2,509	2,427	1,082	655	655	655	655
Reserve balances held by depository institutions	2,084	2,271	926	500	500	500	500
U.S. Treasury, General Account	373	150	150	150	150	150	150
Other deposits	52	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	52	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.

- ***Federal Reserve remittances.*** Under both the baseline and \$500 billion reserves scenarios, remittances are projected to decline from \$92 billion in 2016 to about \$74 billion this year (see the “Income Projections” exhibit). The step-down reflects increased interest expense resulting from the December 2016 increase in the target range for the federal funds rate and the staff forecast of further increases in that target range over the course of this year.⁵ Annual remittances are projected to continue to decline in coming years, reaching a low of roughly \$36 billion in 2020 under the baseline scenario, as the size of the SOMA portfolio falls and the target range for the federal funds rate increases further. Subsequently, remittances gradually increase as higher-yielding Treasury securities are added to the SOMA portfolio. The remittance paths are similar for both scenarios, though underlying interest income and expense differ after 2020. No deferred asset is projected under either scenario.⁶
- ***Unrealized gains or losses.*** The staff estimates that the SOMA portfolio was in a net unrealized gain position of about \$82 billion at the end of February.⁷ Going forward, the net unrealized gain or loss position of the portfolio will depend primarily on the path of longer-term interest rates. Because these rates are assumed to rise 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 timing as in the January Tealbook. The portfolio is expected to record a peak unrealized loss of \$197 billion in 2019, about \$68 billion of which is attributable to holdings of Treasury securities and \$129 billion to holdings of agency MBS. The unrealized loss position then narrows through the remainder of the projection period, as the value of securities previously acquired under the large-scale asset purchase programs (LSAPs) returns to par as those securities 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 baseline scenario, the securities held in the SOMA

⁵ We continue to assume that the FOMC will set a 25 basis-point-wide target range for the effective federal funds rate. We also continue to assume that the interest rate paid on excess reserve balances will be set at the top of the range, and that the offering rate on ON RRP will be set at the bottom of the range.

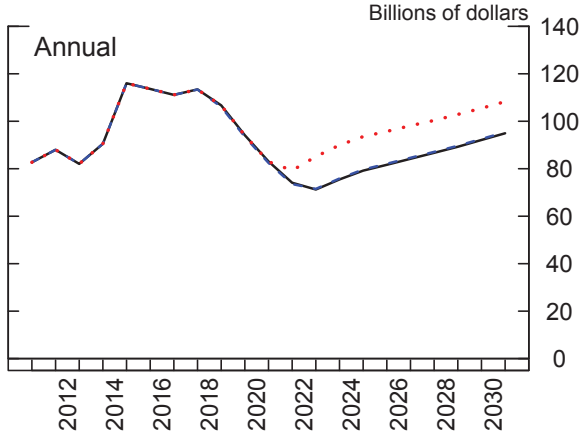
⁶ In the event that a Federal Reserve Bank’s earnings fall short of the amount necessary to cover its operating costs and pay dividends, a deferred asset would be recorded as a claim against future earnings remittances due to the U.S. Treasury.

⁷ 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.

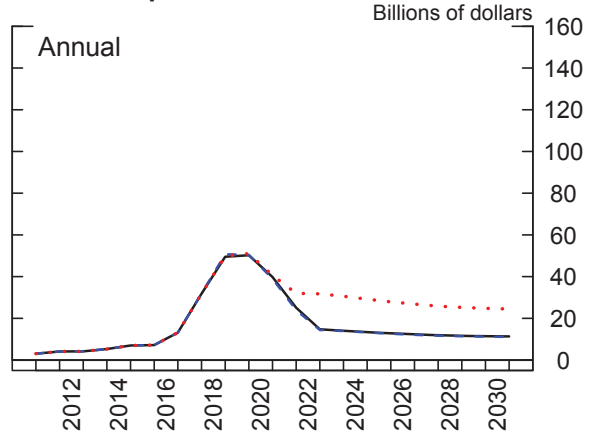
Income Projections

— March Tealbook baseline (\$100 billion reserves) ···· \$500 billion reserves
 - - - January \$100 billion reserves

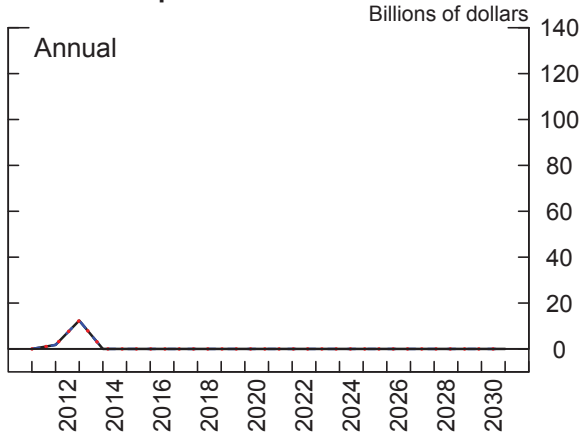
Interest Income



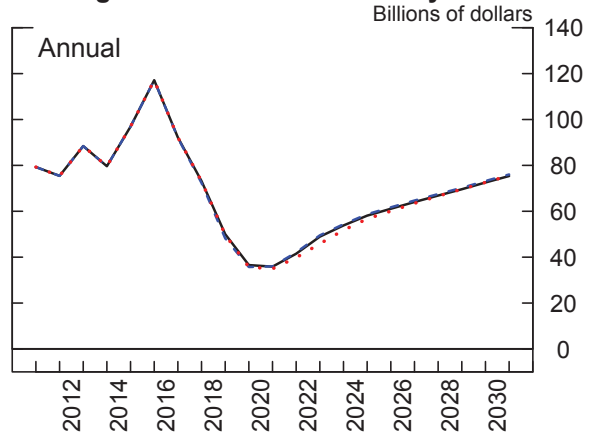
Interest Expense



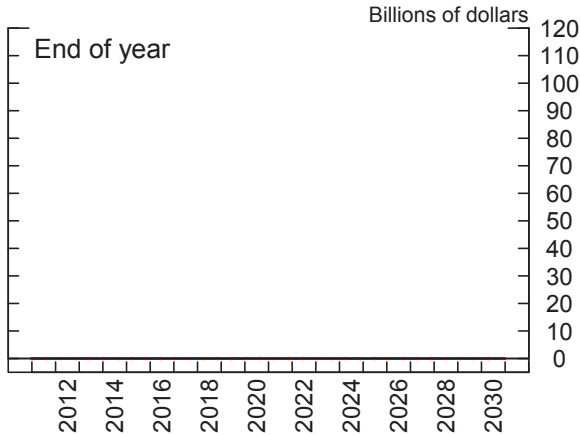
Realized Capital Gains



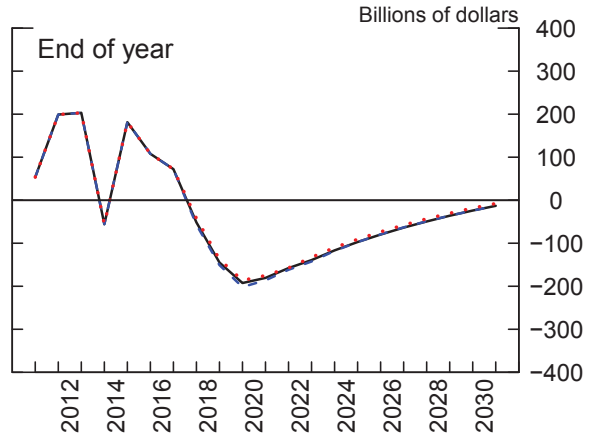
Earnings Remittances to Treasury



Deferred Asset



Memo: Unrealized Gains/Losses



Balance Sheet & Income

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

Date	March Tealbook Baseline	\$500 billion reserve	January \$100 billion reserve
Quarterly Averages			
2017:Q1	-87	-88	-86
Q2	-83	-85	-82
Q3	-79	-81	-78
Q4	-75	-77	-74
2018:Q4	-61	-64	-60
2019:Q4	-50	-55	-49
2020:Q4	-41	-48	-41
2021:Q4	-36	-44	-36
2022:Q4	-32	-40	-32
2023:Q4	-29	-37	-29
2024:Q4	-26	-34	-26
2025:Q4	-23	-31	-23
2026:Q4	-21	-28	-21
2027:Q4	-18	-26	-19
2028:Q4	-16	-24	-17
2029:Q4	-15	-22	-15
2030:Q4	-13	-21	-14

portfolio as a result of the Federal Reserve's LSAPs and reinvestments are estimated to be depressing the term premium embedded in the 10-year nominal Treasury yield by 87 basis points in the current quarter. The evolution of the estimated term premium effect depends importantly on the expected path of the Federal Reserve's balance sheet over coming years relative to a benchmark counterfactual projection for the balance sheet that excludes the effects of asset purchases. The term premium effect under the baseline scenario gradually fades over time, reflecting the convergence of the balance sheet to the path implied by the counterfactual projection.

Under the \$500 billion reserves scenario, the estimated term premium effect is a bit more negative than under the baseline projection. Relative to the baseline scenario, the Federal Reserve permanently holds a larger securities portfolio after the size of the balance sheet normalizes, which depresses the term premium embedded in longer-term Treasury securities. The difference in the term premium effects between the two scenarios peaks at about 8 basis points around the time the balance sheet has normalized under the baseline scenario.

- **SOMA characteristics.** Portfolio characteristics are roughly the same under both scenarios until the start of 2021, when the size of the balance sheet normalizes under the \$500 billion reserves scenario.

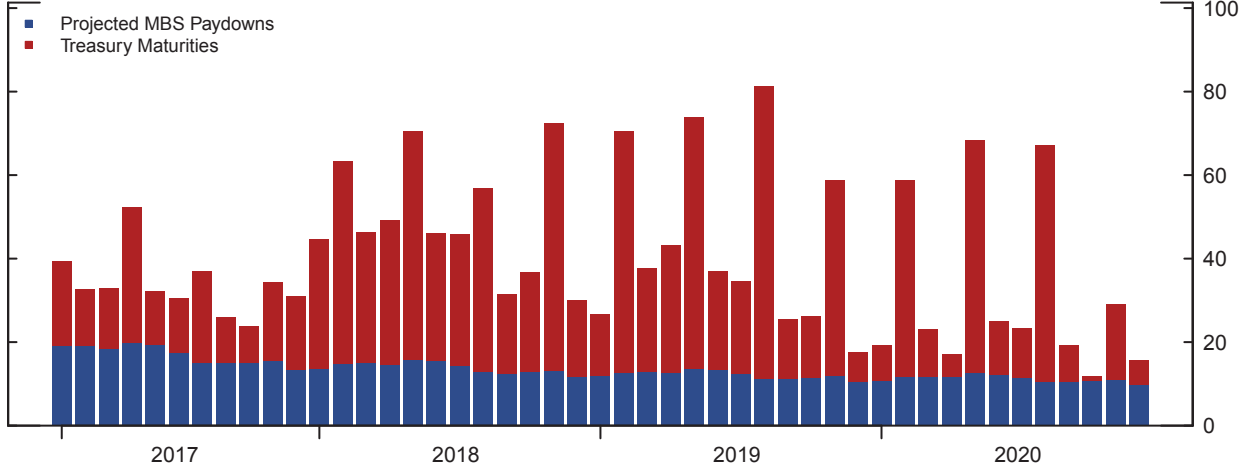
Approximately \$195 billion in SOMA Treasury holdings have already matured or will mature this year, and a total of nearly \$1.3 trillion will mature between 2017 and 2020 (see the top panel of the exhibit, "Projections for the Characteristics of SOMA Holdings").⁸ The amount of Treasury securities maturing each month will vary considerably over time, while projected MBS paydowns implied by the staff's prepayments model vary less. Realized MBS paydowns will reflect the evolution of

⁸ 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 offered. 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

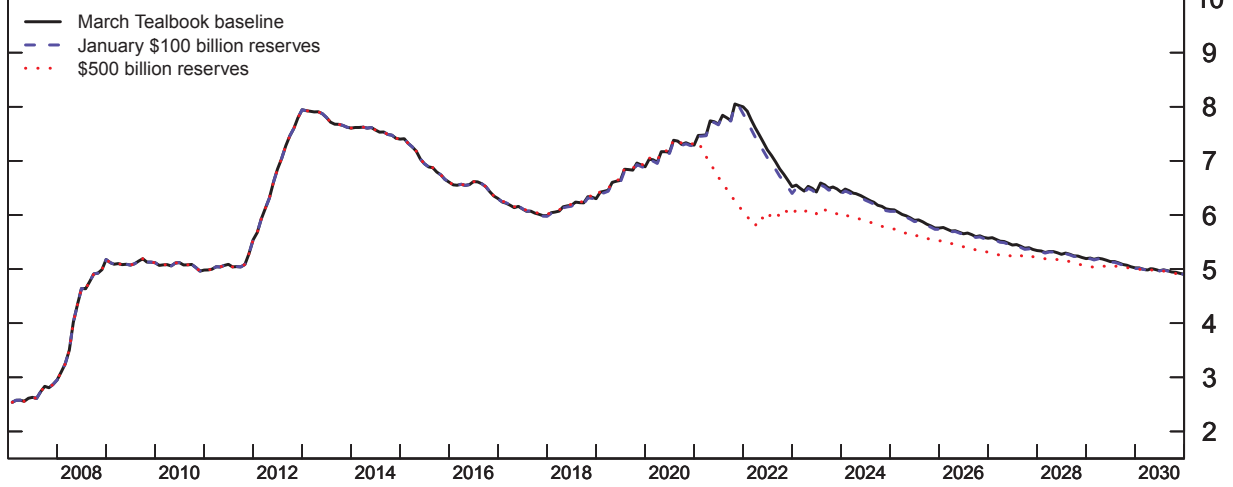
Projected Receipts of Principal on SOMA Securities

March Tealbook baseline



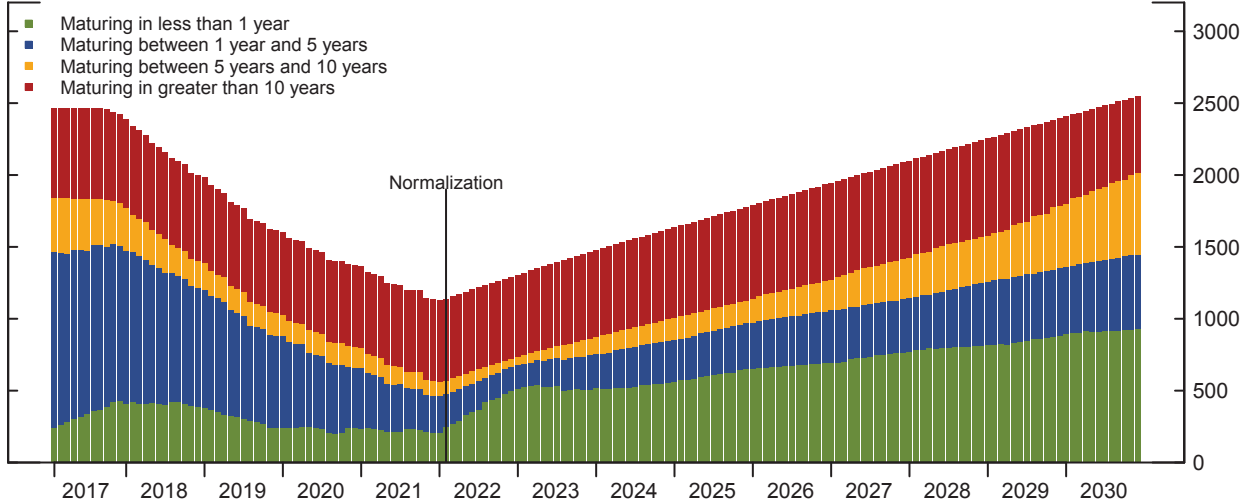
SOMA Weighted-Average Treasury Duration

Monthly



Maturity Composition of SOMA Treasury Portfolio

March Tealbook baseline



Balance Sheet & Income

interest rates and other factors, and thus could be significantly more volatile than projected.⁹

The weighted-average duration of the SOMA Treasury portfolio is currently about 6¼ years (see the middle panel, “SOMA Weighted-Average Treasury Duration”). The weighted-average duration is projected to decline slightly this year, as the securities in the portfolio approach maturity, and to rise subsequently until the size of the balance sheet is normalized.¹⁰ After reaching its peak, duration is projected to again 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 assumption that the Federal Reserve will limit its purchases to Treasury bills until they account for one-third 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”).¹¹

⁹ Over the intermeeting period, the Desk reinvested \$20 billion of maturing Treasury securities and is expected to purchase a total of \$38 billion of 15- and 30-year agency MBS under the reinvestment program.

¹⁰ 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.

¹¹ We assume zero purchases of agency MBS after reinvestments of such securities 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