Prefatory Note

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Content last modified 1/13/2023.

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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

June 8, 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 May indicate that the labor market continued to strengthen and that growth in economic activity has picked up appreciably during the current quarter. However, recent readings on total and core PCE price inflation have been noticeably below 2 percent. Two key questions for the Committee as it makes its policy decisions at this meeting are: first, whether the available information on the labor market and inflation warrants raising the federal funds rate immediately; and second, whether the Committee should announce, in its June postmeeting statement, that it expects to change its reinvestment policy either at this meeting or later this year. For the Committee's consideration as it deliberates, this Tealbook contains three draft statements, labeled Alternatives A, B, and C.

- The Alternatives offer somewhat different characterizations of the most recent information on labor market conditions, economic activity, and inflation.
  - Each Alternative notes that the unemployment rate has declined, but the Alternatives differ in their assessment of the state of the labor market. Alternatives A and B characterize the labor market as continuing to "strengthen," while Alternative C says that the labor market has continued to "tighten." Alternatives B and C characterize job gains as "solid, on average, since the beginning of the year," though Alternative B notes that job gains have "moderated." Alternative A indicates that job gains have "slowed in recent months" and adds that wage pressures "remained subdued."
  - Alternatives A and B indicate that economic activity "has been rising moderately so far this year," while Alternative C states that "growth in economic activity has picked up." With regard to household spending, Alternative C says that it has "strengthened," while Alternatives A and B say that it has "picked up" in recent months. All three Alternatives state that business fixed investment "continued to expand."
  - Alternatives A and B note that inflation, on a 12-month basis, "declined recently." Alternative A indicates that both total and core inflation are "running below" 2 percent, while Alternative B notes that both measures of inflation are "running somewhat below" 2 percent. Alternative C instead reports that inflation has "been running close to" 2 percent "in recent months" and drops the specific reference to core inflation being below 2 percent.

In Alternatives A and B, the description of longer-term inflation expectations is unchanged from the Committee's statement in May, whereas in Alternative C market-based measures of inflation compensation are described as "little changed" rather than "low."

- When characterizing the economic outlook, each Alternative reaffirms the Committee's expectation that economic activity will expand at a moderate pace, labor market conditions will strengthen somewhat further, and inflation will stabilize around 2 percent over the medium term. However, Alternative B acknowledges that inflation "is expected to remain somewhat below 2 percent in the near term," while Alternative C notes that recent lower readings on inflation likely reflect "transitory factors." Alternative A articulates less confidence about the evolution of inflation by stating that the Committee will be assessing whether the recent lower readings on inflation were due to transitory factors.
    - Alternatives A and B continue to condition the economic outlook on "gradual adjustments" to the stance of monetary policy. Alternative C conditions the economic outlook on "further" gradual adjustments.
    - All of the Alternatives retain the assessment that near-term risks to the economic outlook "appear roughly balanced," though Alternative A suggests increased concern about downside risks to inflation by emphasizing that the Committee is "monitoring inflation developments closely."
- Based on their differing assessments of the strength of the labor market and interpretations of recent inflation readings, the three Alternatives contain different policy decisions.
    - Alternatives B and C conclude that the medium-term outlook is essentially unchanged and that it is appropriate to increase the target range for the federal funds rate to 1 to 1¼ percent. Under Alternative A, the Committee would express less confidence in the inflation outlook and therefore maintain the current target range for the federal funds rate.
    - Under Alternative B, the Committee would announce that it expects to begin to reduce the reinvestment of principal payments from the Federal Reserve's securities holdings "this year, provided that the economy evolves broadly as anticipated." Under Alternative C, the Committee would begin to implement the program in July and would emphasize that the program will "begin a gradual decline in the Federal Reserve's securities holdings." By contrast,

Alternative A retains the language regarding reinvestment contained in the Committee's statement in May.

- All of the draft statements continue to indicate that the stance of monetary policy "remains accommodative," and that such a stance supports "a sustained return to 2 percent inflation."
- The prospects for future increases in the federal funds rate differ somewhat among the Alternatives. Alternative B notes that the Committee expects that economic conditions will warrant "gradual increases" in the federal funds rate. Alternative C indicates instead that the Committee expects "additional gradual increases," suggesting that policy accommodation might be removed at a somewhat faster pace than previously expected even after the Committee begins its balance sheet normalization program. Like Alternative B, Alternative A indicates that the Committee expects "gradual increases" in the federal funds rate. However, by emphasizing subdued wage pressures and stating that the Committee will maintain the current target range for the federal funds rate "while assessing whether the recent lower readings on inflation were due to transitory factors," Alternative A suggests a somewhat shallower path for the federal funds rate than the other Alternatives.

May 2017 FOMC Statement

1. Information received since the Federal Open Market Committee met in March indicates that the labor market has continued to strengthen even as growth in economic activity slowed. Job gains were solid, on average, in recent months, and the unemployment rate declined. Household spending rose only modestly, but the fundamentals underpinning the continued growth of consumption remained solid. Business fixed investment firmed. Inflation measured on a 12-month basis recently has been running close to the Committee's 2 percent longer-run objective. Excluding energy and food, consumer prices declined in March and inflation continued to run somewhat below 2 percent. Market-based measures of inflation compensation remain low; 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 views the slowing in growth during the first quarter as likely to be transitory and continues to expect 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 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 the target range for the federal funds rate at 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. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant 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

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

JUNE 2017 ALTERNATIVE A

1. Information received since the Federal Open Market Committee met in ~~March~~ **May** indicates that the labor market has continued to strengthen ~~even as~~ **and that** ~~growth in~~ economic activity ~~slowed~~ **has been rising moderately so far this year**. ~~Job gains were solid, on average, in recent months, and~~ **Although** the unemployment rate **has** declined**, job gains have slowed in recent months, and wage pressures have remained subdued**. Household spending ~~rose only modestly, but the fundamentals underpinning the continued growth of consumption remained solid.~~ **has picked up, and** business fixed investment ~~firmed~~ **has continued to expand**. **However,** ~~Inflation measured~~ on a 12-month basis**, inflation has declined** recently ~~has been running close to~~ **and, like the measure** ~~the Committee's 2 percent longer-run objective.~~ excluding **food and** energy ~~and food, consumer~~ prices, ~~declined in March and inflation continued to run~~ **is running** ~~somewhat~~ below 2 percent. Market-based measures of inflation compensation remain low; 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 ~~views the slowing in growth during the first quarter as likely to be transitory and~~ continues to expect 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 stabilize around 2 percent over the medium term. Near-term risks to the economic outlook appear roughly balanced~~.~~**, but** the Committee ~~continues to closely~~ **is** monitor**ing** inflation ~~indicators and global economic and financial~~ developments **closely**.

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 3/4 to 1 percent **while assessing whether the recent lower readings on inflation were due to transitory factors**. 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. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant 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.

JUNE 2017 ALTERNATIVE B

1. Information received since the Federal Open Market Committee met in ~~March~~ **May** indicates that the labor market has continued to strengthen ~~even as~~ **and that** ~~growth in~~ economic activity ~~slowed~~ **has been rising moderately so far this year**. Job gains ~~were~~ **have moderated but have been** solid, on average, ~~in recent months~~ **since the beginning of the year**, and the unemployment rate **has** declined. Household spending ~~rose only modestly, but the fundamentals underpinning the continued growth of consumption remained solid.~~ **has picked up in recent months, and** business fixed investment ~~firmed~~ **has continued to expand**. ~~Inflation measured~~ On a 12-month basis**, inflation has declined** recently ~~has been running close to~~ **and, like the measure** ~~the Committee's 2 percent longer-run objective.~~ excluding **food and** energy ~~and food, consumer~~ prices, ~~declined in March and inflation continued to run~~ **is running** somewhat below 2 percent. Market-based measures of inflation compensation remain low; 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 ~~views the slowing in growth during the first quarter as likely to be transitory and~~ continues to expect 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 ~~will~~ **on a 12-month basis is expected to remain somewhat below 2 percent in the near term but to** stabilize around **the Committee's** 2 percent **objective** 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 3/4 to 1~~ **to 1-1/4** 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. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant 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 Committee currently expects to begin implementing a balance sheet normalization program this year, provided that the economy evolves broadly as anticipated. This program, which would gradually reduce the Federal Reserve's securities holdings by decreasing reinvestment of principal payments from those securities, is described in the accompanying addendum to the Committee's Policy Normalization Principles and Plans.**

JUNE 2017 ALTERNATIVE C

1. Information received since the Federal Open Market Committee met in ~~March~~ **May** indicates that the labor market has continued to ~~strengthen even as~~ **tighten and that** growth in economic activity ~~slowed~~ **has picked up**. Job gains ~~were~~ **have been** solid, on average, ~~in recent months~~ **since the beginning of the year**, and the unemployment rate **has** declined. Household spending ~~rose only modestly, but the fundamentals underpinning the continued growth of consumption remained solid.~~ **has strengthened, and** business fixed investment ~~firmed~~ **has continued to expand**. Inflation measured on a 12-month basis ~~recently~~ has been running close to the Committee's 2 percent longer-run objective **in recent months**. ~~Excluding energy and food, consumer prices declined in March and inflation continued to run somewhat below 2 percent.~~ Market-based measures of inflation compensation ~~remain low;~~ **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 views the ~~slowing in growth during the first quarter~~ **recent lower readings on inflation** as likely **reflecting** ~~to be~~ transitory **factors** and continues to expect 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 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 3/4~~ to 1 **to 1-1/4** 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. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant **additional** 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~~ **decided today to implement, effective at the beginning of July, a program for reducing reinvestment of principal payments from its holdings of Treasury securities, agency debt, and agency mortgage-backed securities. The program is described in the accompanying addendum to the Committee's Policy Normalization Principles and Plans. This step will begin a gradual decline in the Federal Reserve's securities holdings.**

THE CASE FOR ALTERNATIVE B

Economic Conditions and Outlook

- Available data indicate that the labor market has continued to strengthen. The unemployment rate ticked down to 4.4 percent in April and to 4.3 percent in May. Payroll employment increased by an average of 156,000 jobs per month in April and May, up from a subdued rise in March. Since the beginning of the year, job gains have averaged 162,000 per month.

- Real GDP growth is now estimated to have increased at an annual rate of 1.2 percent in the first quarter of 2017, somewhat better than reported at the time of the Committee's May meeting. Consumption spending has picked up, supporting the Committee's earlier judgment that the first-quarter weakness in real GDP growth was likely to be transitory. The staff expects real GDP growth to exceed 2.5 percent in the second quarter and to average about 2 percent in the first half of the year.

- Although PCE price inflation, measured on a 12-month basis, decreased to 1.9 percent in March and to 1.7 percent in April, these lower readings likely reflect, at least in part, transitory factors such as a sharp decline in prices for wireless telephone services. Additionally, the recent depreciation of the dollar has begun to put upward pressure on import prices. While the low monthly inflation readings in March and April will continue to affect inflation on a 12-month basis through next winter, the staff expects core inflation, on a quarterly basis, to step up to 1.8 percent in the third quarter and has not materially changed its inflation forecast for 2018 and beyond.

- Survey-based measures of longer-term inflation expectations are little changed since April: The median 10-year inflation projection for PCE prices reported in the latest reading of the Survey of Professional Forecasters stayed at 2.1 percent. Median 5-year inflation expectations in the Michigan survey remained at 2.4 percent in May. Market-based measures of longer-term inflation compensation remain low by historical standards.

Policy Strategy

- Policymakers may conclude that the further decline in the unemployment rate and the stronger spending data received over the intermeeting period indicate that, despite recent lower readings on inflation and lackluster real GDP growth in the first quarter, the medium-term outlook for economic activity, the labor market, and inflation is fundamentally unchanged and that another step in the removal of policy accommodation is appropriate in June.

- Reflecting the expectation that tighter resource utilization will help bring inflation up to 2 percent on a sustained basis over the medium-term, policymakers may want to communicate that, although inflation on a 12-month basis has declined and is likely to remain below 2 percent in the near-term, their medium-term outlook for inflation is little changed.
- Policymakers may judge that the neutral rate of interest will rise only gradually toward its longer-run level and they, therefore, might continue to expect that the appropriate pace of further increases in the target range for the federal funds rate will be gradual.
- The faster-than-expected decline in the unemployment rate might make some policymakers concerned that not raising the target range for the federal funds rate in June would increase the probability that they will have to act more aggressively in the future than would be desirable.
- If the economy continues to evolve broadly as anticipated, policymakers may see it as appropriate to begin to reduce the Federal Reserve's securities holdings this year, although not at this meeting. As part of the ongoing communication of this likely change in its balance sheet policy, and to avoid an adverse market reaction, policymakers may regard it as prudent for the Committee's statement to indicate this expectation.
- Accordingly, policymakers may prefer a statement like Alternative B, in which they increase the target range for the federal funds rate to 1 to 1¼ percent, leave largely unchanged their communications about the economic outlook and the likely future path of the federal funds rate, and announce their expectation that, this year, they will begin to implement a balance sheet normalization program that decreases reinvestment of principal payments from the Federal Reserve's securities holdings.
- As shown in figure 1 of the box "Monetary Policy Expectations and Uncertainty," financial market quotes embed an almost 95 percent probability that the Committee will raise the target range at the June meeting. Given current market expectations, the decision to increase the target range in Alternative B is highly unlikely to generate an appreciable response in financial markets. Market participants and commentators generally anticipate that the Committee will release, after it meets next week, additional details about its plan for reducing reinvestment, though not necessarily in the postmeeting statement. Most respondents to the Desk's June surveys see the September or December FOMC meeting as the most likely time for an announcement

Monetary Policy Expectations and Uncertainty

Over the intermeeting period, market participants' perceptions of the probability that the next increase in the target range for the federal funds rate will occur at the June FOMC meeting, as implied by quotes on federal funds futures contracts, rose from 65 percent to almost 95 percent (figure 1). The Desk's June Surveys of Primary Dealers and Market Participants also showed high odds of a rate increase in June (not shown).

Looking further ahead, the probability distribution of the federal funds rate at the end of 2017 that is implied by quotes on federal funds futures options under the assumption of zero term premiums (figure 2) became a bit less diffuse over the intermeeting period, while continuing to show about equal odds of one or two more rate hikes of 25 basis points each this year (including the June meeting). The average distribution from the June Desk surveys (figure 3) was little changed from the May surveys and continues to attach the highest odds to two more hikes in the federal funds rate by year-end (again including June). Similarly, the median of respondents' *modal* expectations (not shown) suggests that respondents view two rate hikes between June and December 2017 as the most likely outcome, unchanged from the May surveys.

Beyond the current year, the expected value of the federal funds rate implied by OIS quotes under the assumption of zero term premiums (the black line in figure 4) rises by about 50 basis points between the end of 2017 and the end of 2020. The implied level of the target rate at the end of 2020, at 1.75 percent, is about 15 basis points lower than at the time of the May FOMC meeting (not shown). While market participants have characterized FOMC communications over the period as reinforcing their views of a high likelihood of an increase in the federal funds rate at the June meeting, they have reportedly marked down their expectations at horizons beyond 2017 as a result of the weak April CPI release, the May Employment Situation report, and reduced optimism about the potential for expansionary fiscal policy.

Relative to the OIS-based path under the assumption of zero term premiums, the staff's term structure model—which takes the effective lower bound into account and incorporates information from Blue Chip survey forecasts of the federal funds rate—suggests that the federal funds rate is expected to rise at a somewhat faster pace of two more hikes in 2017 (including June) and three in 2018, with the funds rate reaching 3 percent by the end of 2020 (the light-blue line in figure 4). The difference between the term premium-adjusted and unadjusted paths widened a bit over the intermeeting period and continues to suggest that forward rates implied by OIS quotes contain a negative term premium. The adjusted and the unadjusted paths remain respectively about 30 and 50 basis points higher at the end of 2020 than their pre-election levels.

As also shown in figure 4, the model-based path for the federal funds rate is roughly consistent with the modal path from the June Desk Surveys (the brown line) and the

Committee's March median SEP projections through 2019 (the dark blue dots).[1] 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 4). The staff's term structure model estimates that the federal funds rate will average about 3¾ percent over the period five to ten years ahead, little changed from the May FOMC meeting. This level remains about ¾ percentage point and 1 percentage points above the median projections for the longer-run federal funds rate from the March SEP and from the June Desk Surveys, respectively.[2]

The June Desk surveys also again asked several questions pertaining to the Committee's reinvestment policy. Respondents on average attached a roughly 90 percent probability to reinvestments being phased out rather than stopped all at once or left unchanged, up from 75 percent in the May surveys, with respondents generally citing the May FOMC minutes as having informed this change. Conditional on the FOMC announcing a set of gradually increasing caps on the maximum allowable monthly declines in the Federal Reserve's holding of Treasury and agency debt and MBS securities, respondents were asked to provide estimates of the most likely initial and fully phased-in levels of these caps, as well as the most likely number of months from when caps are initially implemented until they are fully phased in. Figure 5 shows that the medians of respondents' modal expectations for the initial caps were $5 billion per month for both Treasury and agency securities, rising to fully phased-in levels of $25 and $20 billion per month, respectively.[3] Of note, whereas respondents mostly agreed on the size of the initial caps, they had quite diverse views about the final, fully phased-in levels. As also shown in figure 5, the median of respondents' modal expectation for the length of the phase-in period was 12 months for both Treasury and agency securities, but here, too, responses to the survey indicated somewhat diverse views.

The probability distribution from the June surveys for the timing of the Committee's first announcement of a change in reinvestment policy, shown in figure 6, indicates that respondents, on average, assigned odds of 33 percent each to an announcement occurring at the September or at the December meeting, and odds of only 15 percent to an

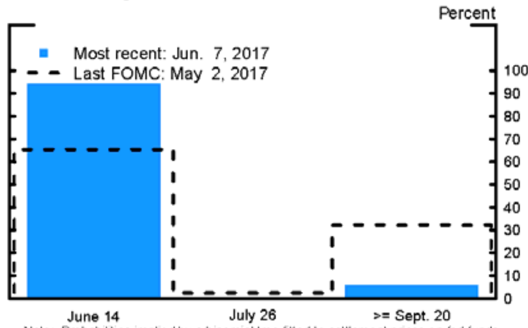
[1] The model-based path is a mean expectation of the federal funds rate whereas the survey-based path is based on respondents' modal expectations. Computing a mean path from the surveys (based on the surveys' conditional probability distribution results) requires making a number of assumptions. Under some reasonable assumptions, the survey-implied mean path would lie noticeably below the modal path.

[2] Median estimates suggested that Desk survey respondents expected little change in the Committee's median June SEP projections for the federal funds rate in 2017–2019, or over the longer run.

[3] In figure 5, the size of the green bubbles represents the number of respondents who indicated the levels shown on the left vertical axis as most likely for the initial and phase-in cap levels for Treasury and agency debt and MBS securities while the size of the light-blue bubbles represents the number of respondents who indicated the duration in months (shown on the right vertical axis) as most likely for the length of the phase-in period. The horizontal dashes show medians of respondents' modal estimates of cap levels and the length of the phase-in period.

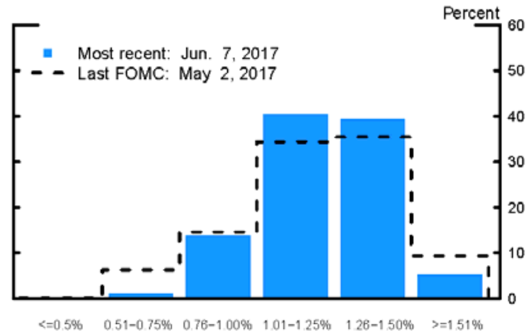
Alternatives

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



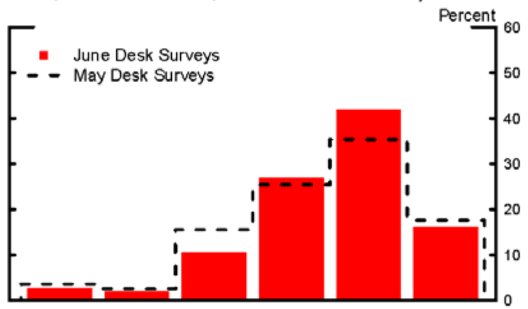
Note: Probabilities implied by a binomial tree fitted to settlement prices on fed funds futures contracts, assuming the next policy action is either no change or a 25 basis point increase in rates and no intermeeting moves. The effective federal funds rate until the next FOMC meeting is assumed to be equal to the observed rate on the previous non-month-end business day. The dashed line shows the probability distribution of the next rate hike after the May meeting.
Source: CME Group; Federal Reserve Board staff estimates.

Figure 2: Market-Implied Probability Distribution of the Federal Funds Rate, Year-End 2017



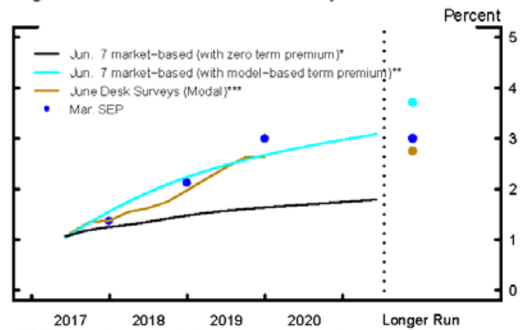
Note: Estimated from federal funds futures options, not accounting for risk premiums.
Source: CME Group; Federal Reserve Board staff estimates.

Figure 3: Probability Distribution of the Federal Funds Rate, Year-End 2017, from the Desk Surveys



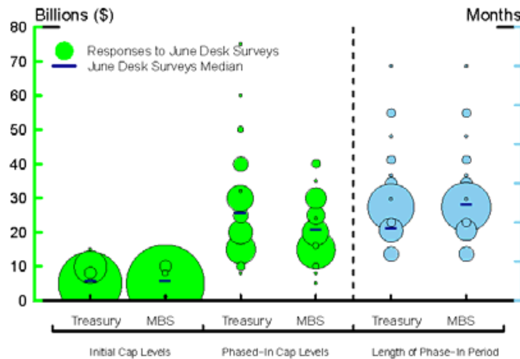
Note: Average unconditional probabilities across the Survey of Primary Dealers and Survey of Market Participants for different ranges of the federal funds rate at the end of 2017.
Source: FRBNY.

Figure 4: Federal Funds Rate Projections



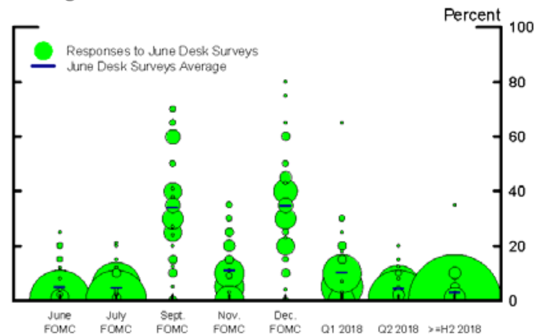
* Estimated using overnight index swap quotes with a spline approach and a term premium of zero basis points.
** Estimated using a term structure model maintained by Board staff and adjusted for term premiums. The longer-run model-implied forecast is for the expected federal funds rate 5 to 10 years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

Figure 5: Expectations of Cap Levels and Phase-in Period



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

Figure 6: Probability Distribution of the Timing of a Change in Reinvestment



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

announcement occurring in the first quarter of 2018 or beyond.[4] These results suggest that respondents have generally pulled forward their expected timing and are now assigning, on average, an 85 percent probability to an announcement occurring this year, compared with 58 percent in the May surveys. Consistent with expectations for a likely earlier announcement of a change to reinvestments, the probability distribution for the level of the federal funds rate at the time of the announcement (not shown) shifted slightly lower, with respondents, on average, continuing to attach the highest probability, about 42 percent, to the federal funds rate being between 1.26 and 1.50 percent when a change in reinvestment policy is announced, while the probability assigned to a federal funds rate between 1.01 and 1.25 percent increased to close to 35 percent. About 75 percent of respondents indicated that they expect the target range to be left unchanged at the meeting at which the Committee first announces a change to reinvestment policy.

[4] The size of the bubbles in figure 6 represents the number of respondents who assigned the probability (as indicated on the vertical axis) to the scenario in which a change in reinvestment policy would first be announced at the FOMC meeting or the quarter indicated on the horizontal axis. The blue horizontal dashes show the resulting average probabilities across respondents.

that the Committee decided to change its reinvestment policy. The reaction in financial markets to language in the Committee's June statement indicating that it expects to begin normalizing the balance sheet this year is uncertain. Including such language in the June statement could lead market participants to assign a greater probability to an earlier start of the balance sheet normalization process. However, the reaction in financial markets could well be muted: Participants in the Desk's surveys already expect an announcement of a change to reinvestment policy this year, and participants' expectations (median) of the caps on redemptions from principal payments are broadly in line with the caps specified in the proposed balance sheet normalization program.

THE CASE FOR ALTERNATIVE C

Economic Conditions and Outlook

- Incoming data indicate that the labor market, already tight at the time of the May meeting, continued to tighten. The unemployment rate declined to 4.3 percent in May—lower than all participants' estimates of its longer-run normal level and below all participants' projections of its level at the end of 2017 under appropriate policy, as reported in the March Summary of Economic Projections. In addition, the broader U-6 measure of labor underutilization fell from 8.9 percent in March to 8.6 percent in April and to 8.4 percent in May. Average monthly payroll gains since the beginning of the year have been well above estimates of the pace needed to maintain a constant unemployment rate over time. Furthermore, the Federal Reserve Bank of Atlanta's Wage Growth Tracker averaged 3.5 percent in the 12-month period ending in April, up from an average of 3.1 percent in the same period one year earlier, and the employment cost index increased 2.3 percent over the 12 months ending in March, up from 1.8 percent over the preceding 12 months.

- Spending data received during the intermeeting period have been stronger than the staff anticipated. Accordingly, the staff continues to see the slowdown in real GDP growth in the first quarter as transitory and projects real GDP growth to be about 2.5 percent in the second quarter and over the year as a whole, a rate that is in excess of growth in potential output as estimated by the staff and FOMC participants.

- Indicators of business sentiment remain upbeat, with the headline indexes of the Manufacturing and Non-Manufacturing ISM reports and the Business Outlook Survey from the Federal Reserve Bank of Philadelphia all signaling expansion. In addition, financing conditions remain supportive of economic activity.

- Recent declines in 12-month headline PCE price inflation appear to be mostly the result of transitory and idiosyncratic factors. The trimmed mean PCE inflation measure published by the Federal Reserve Bank of Dallas did not decline by as much in March and April as the headline PCE price inflation measure, and the recent depreciation of the dollar will continue to put upward pressure on import prices.

Policy Strategy

- Policymakers may conclude that the information accumulated since the May meeting, in combination with earlier data, provides ample evidence that the labor market is tightening more rapidly than they had expected. Policymakers might further judge that recent low readings on headline inflation likely reflect transitory factors and that inflation will move up as resource utilization tightens further and the recent depreciation of the dollar pushes up import prices. As a result, they may conclude that an increase in the federal funds rate is appropriate and, further, that the Committee should begin implementing, next month, a program of gradual reduction in the Federal Reserve's securities holdings.[1]

- Policymakers may feel that there is a risk of the Committee "falling behind the curve" if it fails to raise short-term interest rates at this meeting and to announce steps to start normalizing the size of the Federal Reserve's balance sheet. These concerns may be reinforced by the fact that house and equity prices have climbed substantially in the past few months and indexes of business and consumer confidence are at elevated levels.

- With the unemployment rate below its longer-run normal level, policymakers may be concerned that inflation might move up quickly and rise well above 2 percent. This view is consistent with the possibility of a nonlinear response of inflation to the output gap—a possibility that is explored in the alternative scenario "Stronger Aggregate Demand and Higher Inflation" in the "Risks and Uncertainty" section of Tealbook A.

- Policymakers may also be worried that maintaining the federal funds rate at its current low level, or delaying implementation of the Committee's plan to reduce the

[1] Alternatively, the Committee might view the language in paragraph 5 of the draft statement for Alternative C as premature in present circumstances but might nonetheless discuss whether this language would be appropriate when the time arrives to change the Committee's policy on the reinvestment of principal payments from the Federal Reserve's securities holdings.

Federal Reserve's securities holdings, could promote excessive risk-taking in financial markets and pose risks to financial stability.

- In addition, policymakers might regard it as prudent for the Committee's statement to include language that opens the door to removing policy accommodation at a faster pace than previously expected, albeit still at a gradual pace. To that end, the draft statement for Alternative C contains additions to the May statement's description of the gradual adjustments in the federal funds rate: the word "further" in paragraph 2 and the word "additional" in paragraph 4.

- Both announcing an earlier-than-expected change to the Committee's reinvestment policy and doing it alongside an increase in the federal funds rate would be surprises to financial market participants. Respondents to the Desk's June surveys place no material odds on the Committee announcing an immediate change to reinvestment policy at this meeting. As a result, financial market participants might come to expect a more rapid removal of policy accommodation, which might in turn trigger an increase in medium- and longer-term yields, a drop in stock prices and inflation compensation, and a strengthening of the dollar. Alternatively, to the extent that the statement is interpreted as signaling a more upbeat economic outlook, equity prices could rise.

THE CASE FOR ALTERNATIVE A

Economic Conditions and Outlook

- While the labor market is strengthening and the unemployment rate has decreased, job gains have slowed and wage pressures remain subdued. Average hourly earnings rose by 2.5 percent over the 12 months ending in May, the same as over the same period a year ago. Additionally, compensation per hour in the business sector decreased in the fourth quarter of 2016 at an annual rate of 2.1 percent and increased only 1.6 percent for 2016 as a whole.

- Moreover, the employment-to-population ratio among 25-54 year olds remains below pre-crisis levels, indicating that there might be more "room to run" in the labor market.

- Both the total and core PCE price indexes declined appreciably in March. Although those declines may have been one-time events, on a 12-month basis both total and core PCE inflation declined further in April, with core inflation running at 1.5 percent. As a result, the staff has revised down its forecast for inflation over the

rest of the year and now projects total PCE price inflation to average only 1.6 percent in 2017. Additionally, inflation is expected to reach 2 percent on a sustained basis only in 2019 despite a steeper projected decline in the unemployment rate below its natural rate.

- Market-based measures of longer-term inflation compensation have declined somewhat, with 5-year, 5-year-forward CPI falling by about 15 basis points, to around 1.8 percent, since the Committee's May meeting, even as the unemployment rate declined. Survey-based measures of longer-run inflation expectations remain low by historical standards.

Policy Strategy

- Although the unemployment rate has moved down, policymakers may view the available information on labor force participation, employment rates of prime-aged workers, wage growth, and inflation as indicating that there may be slack remaining along other margins. Additionally, some policymakers may judge that the natural rate of unemployment is likely lower than previously thought. Seeing slack remaining in the labor market, and in light of recent low readings of headline PCE price inflation, the Committee might elect to defer any additional increases in the federal funds rate until evidence emerges of sustained progress toward the Committee's 2 percent inflation objective.

- Some policymakers may be concerned that longer-run inflation expectations could drift down further if inflation does not move toward 2 percent in the near future. They may judge that, to support the credibility of its inflation goal, the Committee should maintain the current target range until it has more confidence that recent low inflation readings were, in fact, due to transitory factors. Additionally, these policymakers may be concerned that tightening policy now, when inflation and far-forward inflation compensation are below 2 percent and declining, could harm the credibility of the Committee's 2 percent inflation goal.

- Because of the uncertainties surrounding the evolution of inflation, these policymakers may also view it as premature to announce a change to the Committee's policy regarding reinvestment of principal payments from securities held by the Federal Reserve.

- Policymakers may also judge that inflation dynamics in recent decades demonstrate that the short-run Phillips curve is fairly flat, implying that greater resource utilization

will generate only a muted response of inflation and allowing ample time to adopt a less accommodative policy stance if one is needed.

- Policymakers may estimate that the neutral federal funds rate is currently well below its likely 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 quickly.
- Both the decision to maintain the target range for the federal funds rate and the downbeat characterization of the recent inflation data offered by Alternative A would come as surprises to financial market participants, who would likely push the expected date of the next rate increase, as well as any change to the Committee's policy on reinvestment of principal payments from the Federal Reserve's securities holdings, into the future. As a result, the expected path for the federal funds rate would likely flatten, leading longer-term yields to decline and the dollar to depreciate. If the Committee's characterization of recent inflation data caused financial market participants to rethink the growth prospects for the economy, equity prices could fall. Alternatively, if financial market participants interpret the Committee's statement as indicating that the economy will strengthen as previously anticipated, but that interest rates will be on a shallower trajectory, then equity prices could rise.

Implementation Notes

If the Committee decides to maintain the current target range for the federal funds rate and to continue reinvesting all principal received on securities held in the System Open Market Account (SOMA), as in Alternative A, an implementation note that indicates no change in the Federal Reserve's 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 instead decides to raise the target range for the federal funds rate but to continue reinvesting all principal, as in Alternative B, an implementation note that communicates the changes the Federal Reserve decided to make to its administered rates would be issued. If the Committee decides both to raise the target range and to begin the process of balance sheet normalization, as in Alternative C, the directive to the Desk would be revised to describe how reinvestments are to be conducted over the intermeeting period.

Draft implementation notes that correspond to these three cases appear on the following pages. Struck-out text indicates language deleted from the May directive and implementation note, bold red underlined text indicates added language, and blue underlined text indicates text that will link to websites.

The draft implementation note for Alternative C includes new language in the domestic policy directive that instructs the Desk about reinvestments during the intermeeting period. The second paragraph of the directive for Alternative C instructs the Desk to continue the current policy of reinvestments until the end of June. The third paragraph directs the Desk to begin, in July, reinvesting principal payments received each month from the Federal Reserve's holdings of Treasury and agency securities only to the extent that such payments exceed $6 billion and $4 billion, respectively.

The reinvestment of principal payments in amounts above the caps would not always occur entirely in the month in which the principal payments are received, particularly for agency MBS. Consistent with the Desk's existing practice, the reinvestment of principal payments on existing agency securities received in a particular month could be reinvested in new agency MBS over the subsequent few months.

As noted in the proposed addendum to the Policy Normalization Principles and Plans, the monthly caps on the amounts by which the SOMA's holdings of Treasury and agency securities are allowed to decline would increase every three months, so the

language in the domestic policy directive will need to be adjusted appropriately over time. At meetings when the existing caps are maintained, the domestic policy directive will instruct the Desk to continue executing reinvestments under the current caps. At meetings when the caps are raised effective in the following month, the directive will instruct the Desk to continue reinvestments under the existing caps through the end of the current month and to conduct reinvestments thereafter based on the scheduled increase in caps. Once the monthly caps for Treasury and agency securities have reached their maximum values of $30 billion and $20 billion, respectively, the domestic policy directive at subsequent meetings will instruct the Desk to continue to conduct reinvestments under those values of the caps.

Alternatives

Implementation Note for June 2017 Alternative A

*Release Date: ~~May 3~~ **June 14**, 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 ~~May 3~~ **June 14**, 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 1.00 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 ~~May 4~~ **June 15**, 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 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 0.75 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 the primary credit rate at the existing level of 1.50 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.

Alternatives

Implementation Note for June 2017 Alternative B

*Release Date: ~~May 3~~ **June 14**, 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 ~~May 3~~ **June 14**, 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 1.00~~ **to 1.25** percent**, effective June 15, 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 ~~May 4~~ **June 15**, 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 ~~3/4 to~~ 1 **to 1-1/4** percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of ~~0.75~~ **1.00** percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
  >
  > The Committee directs the Desk to continue rolling over 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 1.50~~ **to 1.75** percent**, effective June 15, 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.

Implementation Note for June 2017 Alternative C

*Release Date: ~~May 3~~ **June 14**, 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 ~~May 3~~ **June 14**, 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 1.00~~ **to 1.25** percent**, effective June 15, 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 ~~May 4~~ **June 15**, 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 ~~3/4 to~~ 1 **to 1-1/4** percent, including overnight reverse repurchase operations (and reverse repurchase operations with maturities of more than one day when necessary to accommodate weekend, holiday, or similar trading conventions) at an offering rate of ~~0.75~~ **1.00** percent, in amounts limited only by the value of Treasury securities held outright in the System Open Market Account that are available for such operations and by a per-counterparty limit of $30 billion per day.
  >
  > The Committee directs the Desk to continue ~~rolling over maturing~~ **reinvesting in new** Treasury securities at auction **the principal payments from the Federal Reserve's holdings of Treasury securities maturing during June,** and to continue reinvesting ~~principal payments on all agency debt and agency mortgage-backed securities~~ in agency mortgage-backed securities **the principal payments received during June from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities**.
  >
  > **The Committee directs the Desk, effective in July, to reinvest in new Treasury securities at auction only the amount of principal payments from the Federal Reserve's holdings of Treasury securities that exceeds $6 billion during each calendar month, and to reinvest in agency mortgage-backed securities only the amount of principal payments received from the Federal Reserve's holdings of agency debt and agency mortgage-backed securities that exceeds $4 billion during each calendar month.**

> 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. **Additional information regarding the plans for balance sheet normalization is available in the Committee's addendum to the Policy Normalization Principles and Plans (link) and the Desk's operating statement (link).**

- 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 1.50~~ **to 1.75** percent**, effective June 15, 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.

Alternatives

Authorized for Public Release

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Projections

BALANCE SHEET AND INCOME

The staff has prepared a projection of the Federal Reserve's balance sheet and key elements of the associated income statement that is consistent with the economic projections as well as the paths for the federal funds rate and longer-term interest rates in the staff's baseline economic outlook presented in Tealbook A.

In this Tealbook, staff has made changes to a few key assumptions that affect the contour of the projection. These changes are as follows.

- ***Reinvestment policy:*** The staff now assumes that the Committee, when it changes its reinvestment policy, will instruct the Desk to reinvest principal payments received from Treasury and agency securities held in the SOMA portfolio only to the extent that those payments exceed gradually rising dollar caps.[1] The cap on redemptions of Treasury securities is assumed to rise, in quarterly steps, from an initial value of $6 billion per month to a fully phased-in value of $30 billion per month, and the cap on monthly reductions of holdings of agency debt and MBS is assumed to rise from an initial value of $4 billion per month to $20 billion per month. The caps, once they reach their respective fully phased-in values, are assumed to remain in place until the size of the balance sheet is normalized so that the Federal Reserve's securities holdings will continue to decline in a gradual and predictable manner.[2] The change in policy is assumed to be announced at the September 2017 meeting and implemented in October. In contrast, in the April Tealbook balance sheet projection, the staff assumed a shift from full reinvestment to zero reinvestment on October 1.

[1] This revised reinvestment assumption is consistent with the reinvestment plan outlined in the memo, "Reinvestment Policy," distributed to the FOMC on June 2, 2017.

[2] The size of the balance sheet is assumed to be normalized at the point when the Desk is required to resume purchasing Treasury securities so as to attain the desired longer-run level of reserve balances and accommodate the expansion of other key non-reserve liability items such as currency in circulation, the Treasury General Account, and the foreign repo pool.

- ***Liabilities***

    - *Longer-run reserve balances:*[3] The staff has raised its assumption for the longer-run level of reserve balances from $100 billion in the April Tealbook to $500 billion.[4] There is a great deal of uncertainty about the longer-run level of reserves, which could be affected by factors such as structural changes in the banking system, the effects of regulation on bank demand for reserves, and the Committee's ultimate choice of a long-run operating framework. The current level of *required* reserve balances is on the order of $100 billion. That figure could change over time, but assuming that required reserve balances remain close to current levels, the staff's earlier assumption of a longer-run level of total reserves of $100 billion implied a longer-run level of excess reserves of zero. By this same rough accounting, the revised assumption of $500 billion in total reserves would imply a longer-run level of $400 billion in excess reserves—a level that could be consistent with either a floor system or a corridor system depending on a range of factors that could affect bank reserve demand. Of course, the actual longer-run level of reserves may turn out to be appreciably smaller or larger than this revised staff assumption.

    - *Designated Financial Market Utilities' (DFMUs) account balances*: The staff assumes that DFMU account balances, which are part of "other deposits," will remain throughout the projection period (from 2017 through 2025) near their April 30, 2017, aggregate level of about $70 billion. This level includes DFMUs' own holdings as well as customer segregated funds. In the April Tealbook, the staff had projected DFMU balances to be zero throughout the projection period.

[3] Assumptions about a few other key liability items are unchanged. Currency is assumed to increase at the same rate as nominal GDP; the Treasury General Account is assumed to be steady at $150 billion throughout the projection period; repurchase agreements associated with foreign official and international accounts remain throughout the projection period near their April 30, 2017, level of $241 billion; and take-up of overnight RRPs is assumed to run at $100 billion until the level of reserve balances is within $500 billion of its assumed longer-run level, before declining to zero over the course of one year.

[4] The interest rate paths associated with a higher longer-run level of reserves do not significantly differ from those prevailing in a scenario of a $100 billion longer-run level of reserve balances. The January Tealbook presented balance sheet and income projections under a $100 billion and a $500 billion longer-run level of reserves.

Key features of the balance sheet and income projection are described below:

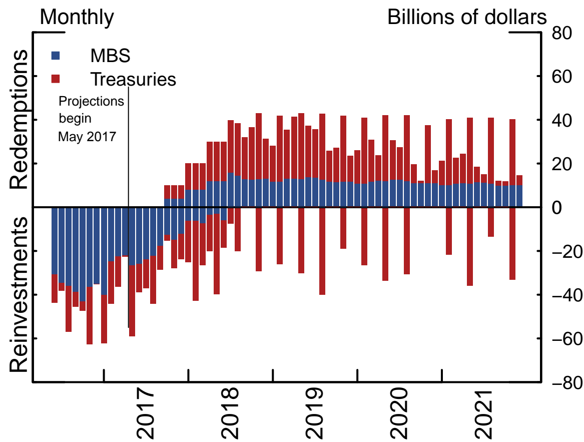
- ***SOMA redemptions.*** The "SOMA Redemptions and Reinvestments" figure in the exhibit titled "Total Assets and Selected Balance Sheet Items" illustrates historical reinvestments as well as the implied monthly runoffs (above the horizontal axis) and reinvestments (below the horizontal axis) of Treasury and agency securities under the 12-month phase-in of dollar caps. The value of Treasury securities maturing each month is known with certainty, varies over time, and is large during midquarter refunding months. The staff assumes the target range for the federal funds rate reaches 1¼ to 1½ percent at the start of the phase-in of the dollar caps in October of this year. Once the fully phased-in cap of $30 billion is in place, reinvestments of Treasury securities would occur only during the middle month of each quarter; those reinvestments would reduce the large runoffs that would otherwise occur during the months in which large amounts of securities held in the SOMA will mature. In contrast, MBS paydowns are uncertain but are projected to run at a fairly steady monthly pace, even though, as shown in the figure, historical MBS prepayments have displayed considerable variability. While the $20 billion fully phased-in cap is not projected to bind, realized MBS paydowns will reflect the evolution of interest rates and other factors and thus could differ significantly from projected values.

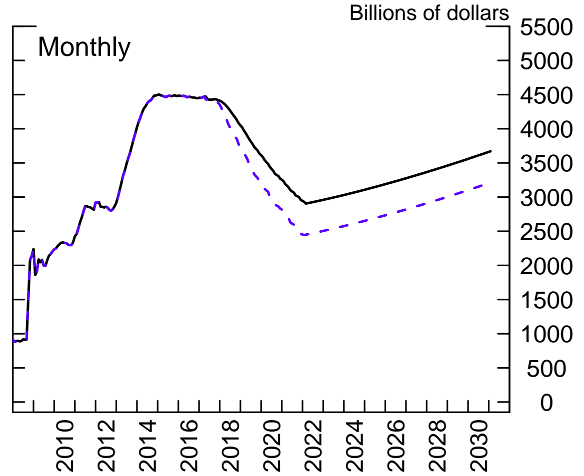
  Total redemptions during the first 12 months after the implementation of the revised policy (October 2017 to September 2018) are projected to be $256 billion. Cumulative redemptions from the onset of the phase-in until normalization are $1.5 trillion, of which $914 billion is in Treasury securities and $556 billion is in agency securities.

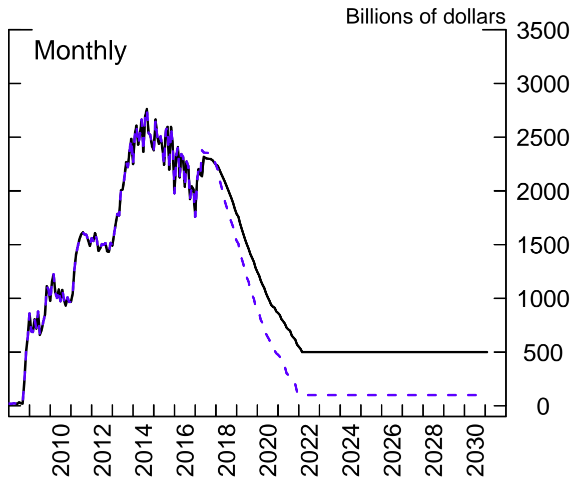
- ***Balance sheet.*** Normalization of the size of the balance sheet is projected to occur in the first quarter of 2022, when reserve balances reach $500 billion (see the exhibit titled "Total Assets and Selected Balance Sheet Items" and the table that follows the exhibit). At that time, total assets are projected to stand at roughly $2.9 trillion, equivalent to 13 percent of nominal GDP, with about $2.7 trillion in total SOMA securities holdings composed of $1.5 trillion of Treasury securities and $1.2 trillion of MBS. The size of the balance sheet is larger than in the April Tealbook, reflecting the revised assumptions about longer-run reserve and DFMU balances. The normalization date, however, is roughly unchanged from the April Tealbook baseline scenario, reflecting the offsetting effects of two assumptions that pull the timing of normalization in opposite directions: The higher assumed level of longer-run reserve

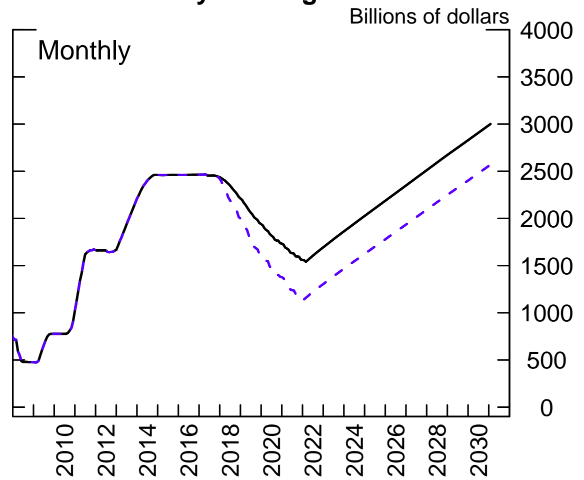
Total Assets and Selected Balance Sheet Items

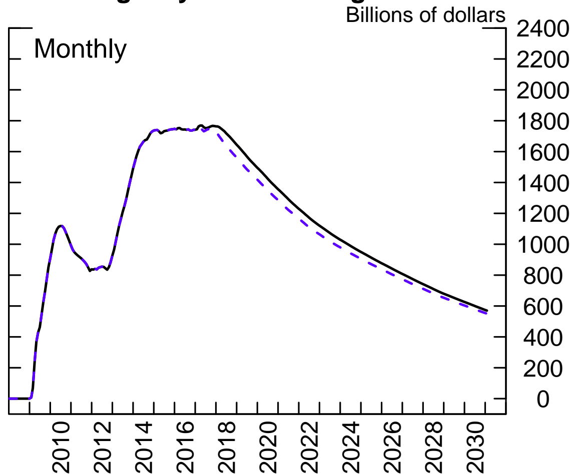
June Tealbook — April Tealbook baseline

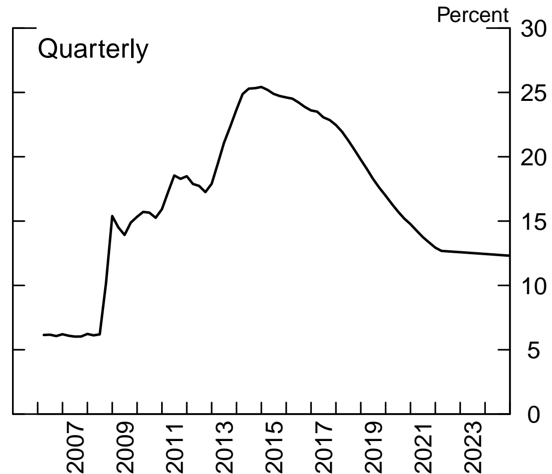












Balance Sheet & Income

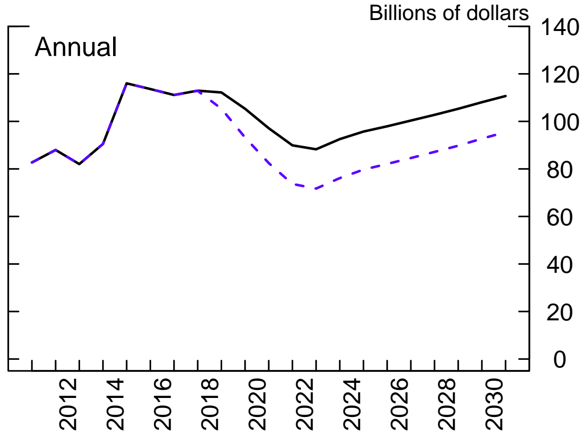
Federal Reserve Balance Sheet
End-of-Year Projections -- June Tealbook
(Billions of dollars)

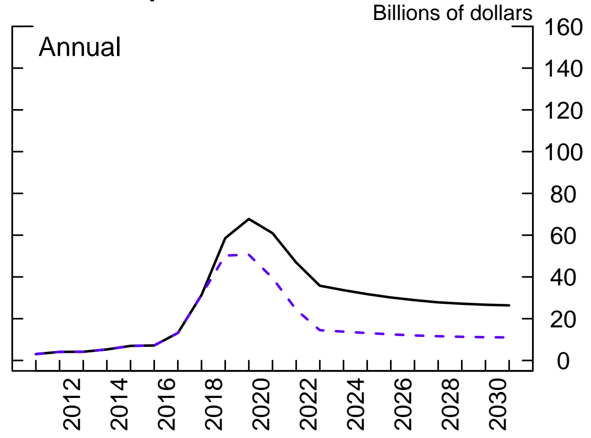
	Apr 30, 2017	2017	2019	2021	2023	2025	2030
Total assets	4,471	4,411	3,613	2,944	3,030	3,189	3,661
Selected assets							
Loans and other credit extensions*	2	0	0	0	0	0	0
Securities held outright	4,246	4,206	3,438	2,792	2,894	3,066	3,564
U.S. Treasury securities	2,465	2,438	1,940	1,560	1,863	2,187	2,987
Agency debt securities	12	4	2	2	2	2	2
Agency mortgage-backed securities	1,769	1,763	1,495	1,230	1,029	877	574
Unamortized premiums	168	159	126	101	83	69	42
Unamortized discounts	-15	-14	-11	-8	-7	-6	-4
Total other assets	51	52	52	52	52	52	52
Total liabilities	4,431	4,369	3,569	2,896	2,978	3,132	3,590
Selected liabilities							
Federal Reserve notes in circulation	1,496	1,555	1,751	1,874	2,006	2,160	2,619
Reverse repurchase agreements	423	341	341	241	241	241	241
Deposits with Federal Reserve Banks	2,505	2,469	1,472	776	726	726	726
Reserve balances held by depository institutions	2,136	2,243	1,246	550	500	500	500
U.S. Treasury, General Account	273	150	150	150	150	150	150
Other deposits	96	76	76	76	76	76	76
Earnings remittances due to the U.S. Treasury	2	0	0	0	0	0	0
Total capital**	41	41	44	48	52	57	71

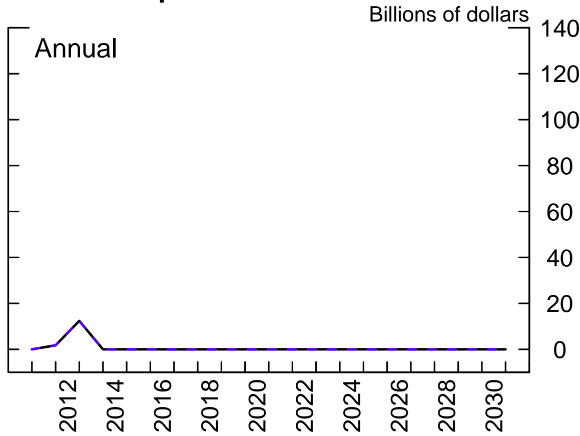
Source: Federal Reserve H.4.1 statistical releases and staff calculations.
Note: Components may not sum to totals due to rounding.
*Loans and other credit extensions includes primary, secondary, and seasonal credit; central bank liquidity swaps; and net portfolio holdings of Maiden Lane LLC.
**Total capital includes capital paid-in and capital surplus accounts.

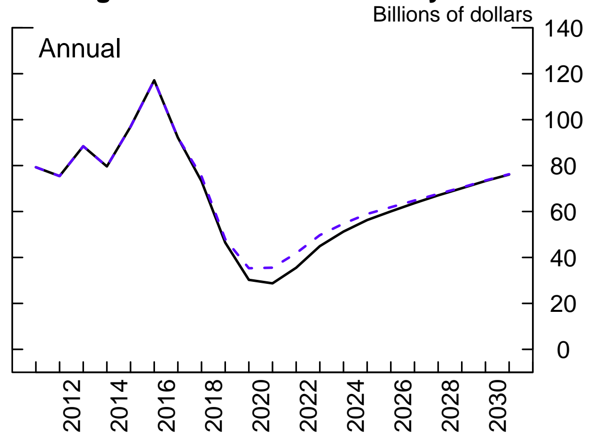
Income Projections

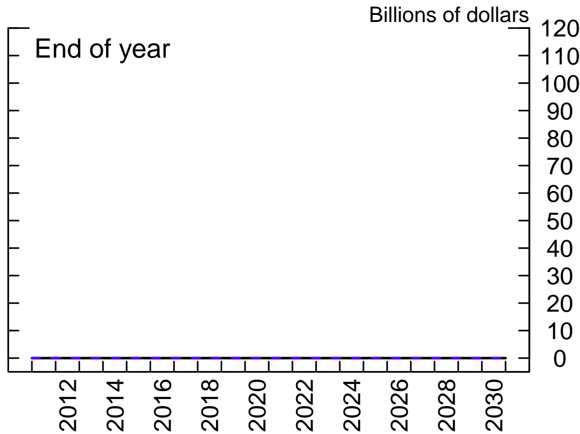
June Tealbook
April Tealbook baseline

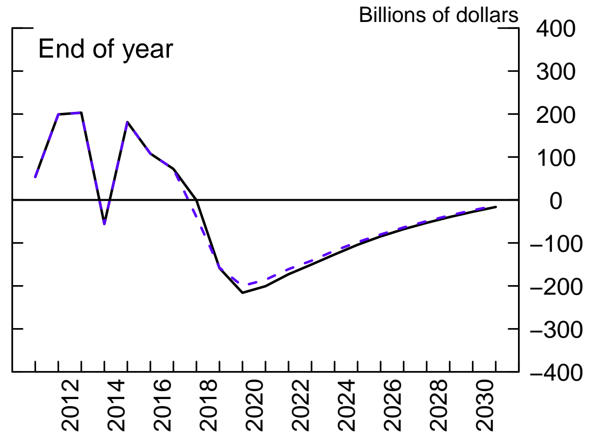












Balance Sheet & Income

balances that pulls the timing of normalization forward is offset by the delay in normalization implied by the more gradual reduction in the Federal Reserve's securities holdings that results from phasing in the caps rather than bringing reinvestments to a sudden stop.

- ***Federal Reserve remittances.*** The exhibit "Income Projections" shows the implications of the balance sheet and income projection as well as the interest rate assumptions for Federal Reserve income. Remittances are projected to decline from $92 billion in 2016 to about $80 billion this year. The step-down reflects higher interest expense resulting from the increase in the target range for the federal funds rate in March and the assumption of further increases this year.[5] Remittances are projected to continue to decline in coming years, reaching a trough of $29 billion in 2020, as the size of the SOMA portfolio decreases 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 Federal Reserve's cumulative remittances from 2009 through 2025 are about $1.1 trillion.

  Compared with the April Tealbook baseline, projected remittances for 2017 are nearly unchanged and cumulative remittances over the projection period are about $35 billion lower. This decrease in cumulative remittances primarily reflects the larger interest expense arising from the slightly higher projected level of the federal funds rate during the period in which reserve balances remain elevated. No deferred asset is projected under this scenario.[6]

- ***Unrealized gains or losses.*** The staff estimates that the SOMA portfolio was in a net unrealized gain position of about $90 billion at the end of April.[7] The net unrealized gain or loss position of the portfolio going forward will depend primarily on the path of longer-term interest rates. In the June Tealbook, these rates are expected to rise over the next several years, and as a result, the portfolio is projected to shift to an

[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 and the offering rate on overnight reverse repurchase agreements (ON RRPs) will be set at the top and the bottom of the range, respectively.

[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.

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

Date	June Tealbook	April Tealbook baseline
Quarterly Averages		
2017:Q2	-95	-83
Q3	-91	-79
Q4	-88	-75
2018:Q4	-75	-61
2019:Q4	-64	-50
2020:Q4	-56	-42
2021:Q4	-49	-36
2022:Q4	-44	-33
2023:Q4	-41	-30
2024:Q4	-37	-26
2025:Q4	-34	-24
2026:Q4	-31	-21
2027:Q4	-29	-19
2028:Q4	-27	-17
2029:Q4	-24	-15
2030:Q4	-23	-14

unrealized loss position at the end of this year. Going forward, the portfolio is expected to record a peak unrealized loss of roughly $220 billion at the end of 2019. This is about $20 billion higher than in the April Tealbook baseline as a result of the more gradual reduction in the SOMA securities holdings in the current projection. Of the overall projected peak unrealized loss, about $80 billion is attributable to holdings of Treasury securities and $140 billion to holdings of agency MBS. The unrealized loss position subsequently narrows through the remainder of the projection period because the value of securities previously acquired under the large-scale asset purchase programs (LSAPs) returns to par as those securities approach maturity.

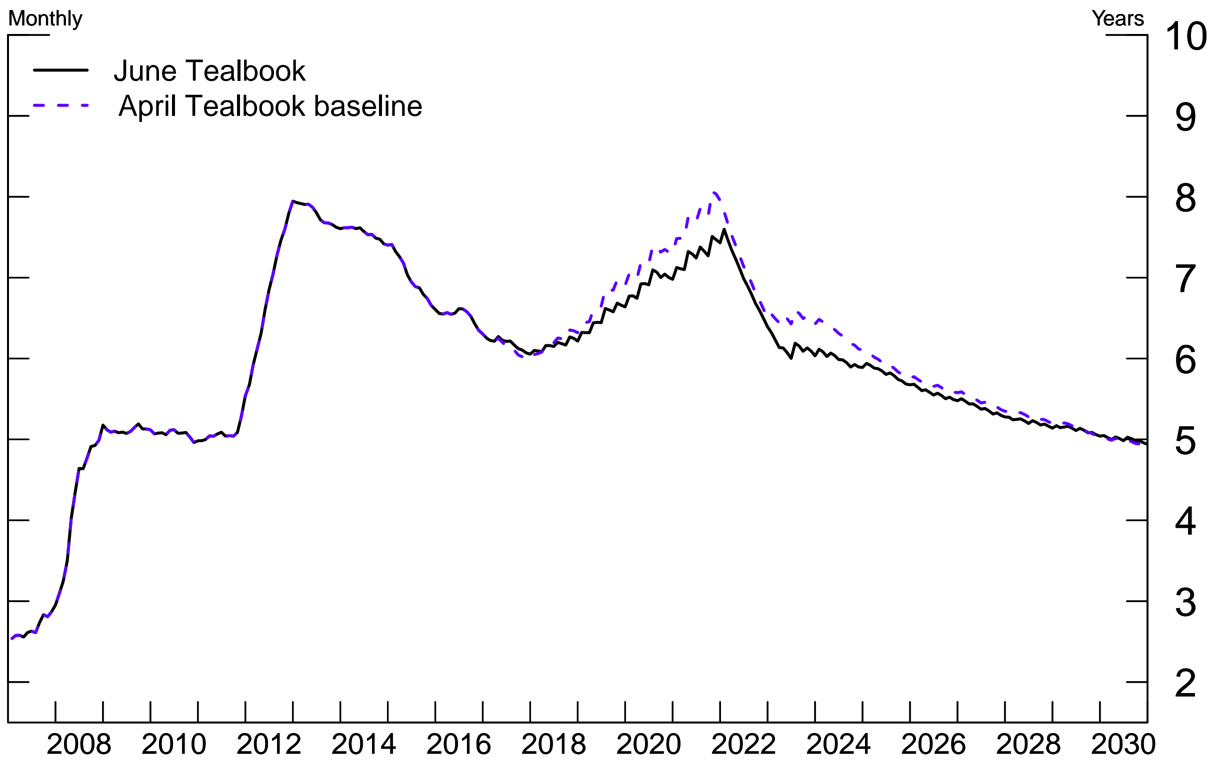
- ***Term premium effects.*** As shown in the table "Projections for the 10-Year Treasury Term Premium Effect," the $4.2 trillion of securities held in the SOMA as a result of the Federal Reserve's LSAPs are estimated to be currently reducing the term premium in the 10-year Treasury yield (and thus the level of that yield) by 95 basis points. That term premium effect is projected to become gradually less negative over time.[8] However, relative to the April Tealbook baseline projection, the estimated term premium effect is, on average, a little more than 10 basis points more negative throughout the projection period, with the difference reflecting two sources of downward pressure on the term premium embedded in longer-term Treasury securities. The first is the slower future pace of reduction in the securities portfolio implied by the new assumption about reinvestment policy. The second is the fact that the assumed size of the securities portfolio permanently held by the Federal Reserve, once the size of the balance sheet normalizes, is larger than in the April Tealbook.

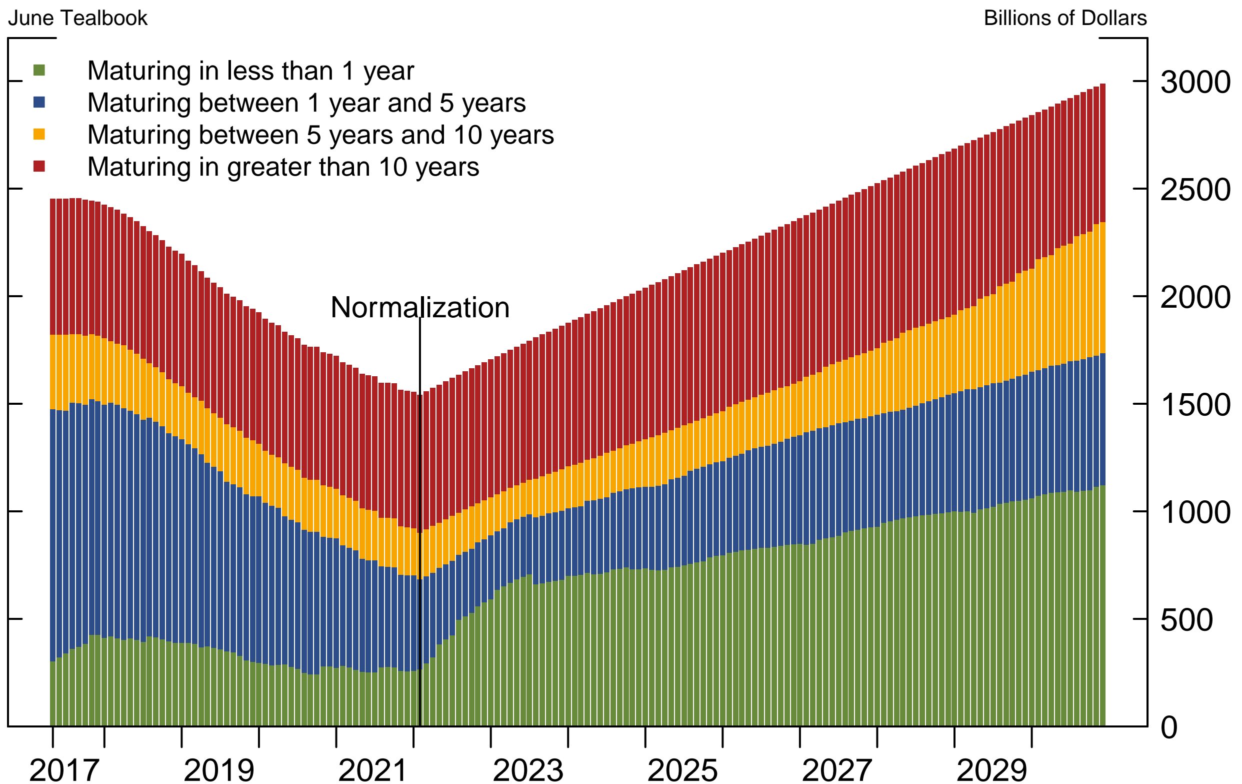
- ***SOMA characteristics.*** The weighted-average duration of the SOMA Treasury portfolio is currently about 6¼ years (see the top panel of "Projections for the Characteristics of SOMA Holdings" exhibit). The weighted-average duration is projected to decline slightly this year as the securities in the portfolio approach maturity, and to rise subsequently until early 2022.[9]

[8] The evolution of the estimated term premium effect depends importantly on how the expected path of the Federal Reserve's balance sheet in coming years departs from a benchmark counterfactual projection for the balance sheet that excludes the effects of asset purchases. In the benchmark counterfactual balance sheet projection, staff continues to assume a longer-run level of reserves of $100 billion.

[9] The rise in portfolio duration starts in 2018 when the pace of runoffs picks up and longer-tenor securities account for a larger share of the remaining portfolio; duration increases until the size of the balance sheet is normalized.

Projections for the Characteristics of SOMA Holdings





After reaching its peak, duration is projected to resume its decline as the Desk resumes 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 later 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 its pre-crisis composition (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").[10]

[10] We assume no purchases of agency MBS after reinvestments of principal from such securities cease once the size of the balance sheet is normalized.

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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
DFMU	Designated Financial Market Utilities
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

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GSIBs	globally systemically important banking organizations
HQLA	high-quality liquid assets
IOER	interest on excess reserves
ISM	Institute for Supply Management
LIBOR	London interbank offered rate
LSAPs	large-scale asset purchases
MBS	mortgage-backed securities
MMFs	money market funds
NBER	National Bureau of Economic Research
NI	nominal income
NIPA	national income and product accounts
OIS	overnight index swap
ON RRP	overnight reverse repurchase agreement
PCE	personal consumption expenditures
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