

**Meeting of the Federal Open Market Committee on
June 13–14, 2017**

A joint meeting of the Federal Open Market Committee and the Board of Governors was held in the offices of the Board of Governors of the Federal Reserve System in Washington, D.C., on Tuesday, June 13, 2017, at 1:00 p.m. and continued on Wednesday, June 14, 2017, at 9:00 a.m. Those present were the following:

Janet L. Yellen, Chair
William C. Dudley, Vice Chairman
Lael Brainard
Charles L. Evans
Stanley Fischer
Patrick Harker
Robert S. Kaplan
Neel Kashkari
Jerome H. Powell

Raphael W. Bostic, Loretta J. Mester, Mark L. Mullinix, Michael Strine, and John C. Williams, Alternate Members of the Federal Open Market Committee

James Bullard, Esther L. George, and Eric Rosengren, Presidents of the Federal Reserve Banks of St. Louis, Kansas City, and Boston, respectively

Brian F. Madigan, Secretary
Matthew M. Luecke, Deputy Secretary
David W. Skidmore, Assistant Secretary
Michelle A. Smith, Assistant Secretary
Scott G. Alvarez, General Counsel
Michael Held, Deputy General Counsel
Steven B. Kamin, Economist
Thomas Laubach, Economist
David W. Wilcox, Economist

James A. Clouse, Thomas A. Connors, Eric M. Engen, Evan F. Koenig, Jonathan P. McCarthy, William Wascher, Beth Anne Wilson, and Mark L.J. Wright, Associate Economists

Simon Potter, Manager, System Open Market Account

Lorie K. Logan, Deputy Manager, System Open Market Account

Ann E. Misback, Secretary, Office of the Secretary, Board of Governors

Matthew J. Eichner,¹ Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors; Michael S. Gibson, Director, Division of Supervision and Regulation, Board of Governors

Michael T. Kiley, Deputy Director, Division of Financial Stability, Board of Governors; Stephen A. Meyer, Deputy Director, Division of Monetary Affairs, Board of Governors

William B. English, Senior Special Adviser to the Board, Office of Board Members, Board of Governors

Trevor A. Reeve, Senior Special Adviser to the Chair, Office of Board Members, Board of Governors

David Bowman, Joseph W. Gruber, David Reifschneider, and John M. Roberts, Special Advisers to the Board, Office of Board Members, Board of Governors

Linda Robertson, Assistant to the Board, Office of Board Members, Board of Governors

Christopher J. Erceg, Senior Associate Director, Division of International Finance, Board of Governors; Joshua Gallin, Senior Associate Director, Division of Research and Statistics, Board of Governors; Gretchen C. Weinbach,¹ Senior Associate Director, Division of Monetary Affairs, Board of Governors

Antulio N. Bomfim, Ellen E. Meade, and Edward Nelson, Senior Advisers, Division of Monetary Affairs, Board of Governors; Jeremy B. Rudd, Senior Adviser, Division of Research and Statistics, Board of Governors

Rochelle M. Edge, Associate Director, Division of Financial Stability, Board of Governors; Jane E. Ihrig, Associate Director, Division of Monetary Affairs, Board of Governors; Stacey Tevlin, Associate Director, Division of Research and Statistics, Board of Governors

Min Wei, Deputy Associate Director, Division of Monetary Affairs, Board of Governors

Christopher J. Gust, Assistant Director, Division of Monetary Affairs, Board of Governors; Norman J. Morin and Karen M. Pence, Assistant Directors, Division of Research and Statistics, Board of Governors

Don Kim, Adviser, Division of Monetary Affairs, Board of Governors

Penelope A. Beattie, Assistant to the Secretary, Office of the Secretary, Board of Governors

Giovanni Favara and Rebecca Zarutskie, Section Chiefs, Division of Monetary Affairs, Board of Governors

¹ Attended through the discussion of System Open Market Account reinvestment policy.

David H. Small, Project Manager, Division of Monetary Affairs, Board of Governors

Kimberly Bayard, Group Manager, Division of Research and Statistics, Board of Governors

Stephen Lin, Principal Economist, Division of International Finance, Board of Governors; Lubomir Petrasek, Principal Economist, Division of Monetary Affairs, Board of Governors

Achilles Sangster II, Information Management Analyst, Division of Monetary Affairs, Board of Governors

Marie Gooding, First Vice President, Federal Reserve Bank of Atlanta

David Altig, Kartik B. Athreya, Mary Daly, Jeff Fuhrer, and Christopher J. Waller, Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, San Francisco, Boston, and St. Louis, respectively

Spencer Krane and Ellis W. Tallman, Senior Vice Presidents, Federal Reserve Banks of Chicago and Cleveland, respectively

Roc Armenter and Kathryn B. Chen,² Vice Presidents, Federal Reserve Banks of Philadelphia and New York, respectively

Andrew T. Foerster, Senior Economist, Federal Reserve Bank of Kansas City

² Attended through the staff report on the economic and financial situation.

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June 13 Session

CHAIR YELLEN. I think we're ready to get going. Good afternoon, everyone. As usual, this meeting will be a joint meeting of the FOMC and the Board of Governors. I need a motion to close the meeting.

MR. FISCHER. So moved.

CHAIR YELLEN. Thank you. And I would like to note that President Raphael Bostic joined the Federal Reserve Bank of Atlanta last week as its new president, and this is his first FOMC meeting. Raphael, welcome.

MR. BOSTIC. Thank you.

CHAIR YELLEN. We look forward to working with you not only on monetary policy but on other System matters as well.

I'd also like to acknowledge the upcoming departure of Bill English. At the January 2015 FOMC meeting, as he was stepping down from the positions of secretary of the FOMC and director of the Division of Monetary Affairs, I expressed our appreciation for his extraordinary service during a very difficult time. Since then he's made notable contributions on a range of projects as a senior special advisor. For the past year, Bill has been on leave visiting Yale University, his alma mater. And it's my understanding that, starting in August, Bill will return to Yale on a permanent basis. Stan Fischer is working on finding a way to keep Bill involved in the Fed History Vision Project. So there is a chance that we will still get to see him in the halls from time to time. Bill, let me thank you again for your extraordinary service.

Okay. Let's move on to our formal agenda, and our first agenda item is the selection of a Committee officer. At the Committee's organizational meeting in January, I noted that President

Kashkari intended to nominate an associate economist when the new research director joined the Minneapolis Fed. I understand that the new director has started and, indeed, is here today, and that President Kashkari is now prepared to make the nomination. So let me ask President Kashkari to do that.

MR. KASHKARI. Thank you, Madam Chair. I'd like to nominate Mark L.J. Wright as associate economist. He's now the senior vice president and director of research at the Minneapolis Fed. He joined us from the Federal Reserve Bank of Chicago and previously was a tenured professor at UCLA.

CHAIR YELLEN. Okay. Thank you. Consistent with the Committee's practice, the motion is to select Mr. Wright to serve as associate economist until the Committee's first regularly scheduled meeting in 2018. Is there a second?

MR. EVANS. I would like to second the nomination of Mark Wright. Mark's departure from the research department in Chicago is a big loss, but I'm sure it will be outweighed by the gain to the System in Minneapolis.

CHAIR YELLEN. Thank you. Is there any further discussion? [No response] Then without objection, the selection is approved unanimously by the Committee. Congratulations, Mark, and we look forward to working with you in your new role. And now let's move on to "Financial Developments and Open Market Operations," and I'll call on Simon to begin the Desk briefing.

MR. POTTER.¹ Thank you, Madam Chair. Over the intermeeting period, solidifying expectations for a rate hike at this meeting, ongoing focus on risks in China, and diminishing prospects for U.S. fiscal stimulus left little apparent imprint on asset prices, and broad financial conditions continued to ease. One illustration of this easing is the decline in the Goldman Sachs Financial Conditions Index shown by the red line in the top-left panel of your first exhibit. This and other similar indexes that try to measure broad financial conditions all indicate a substantial easing in

¹ The materials used by Mr. Potter and Ms. Logan are appended to this transcript (appendix 1).

conditions since liftoff in 2015. Earlier in the hiking cycle, tighter financial conditions were associated with increases in the amount of policy tightening anticipated by markets over the year ahead, the blue line. However, since the U.S. election, that correlation has broken down, and financial conditions have eased despite expectations of a somewhat steeper policy rate path.

The top-right panel shows the contribution of the changes in the underlying asset prices to the change in the Goldman index from liftoff and the last rate hike in March. Since the March FOMC meeting, declines in longer-dated Treasury yields and the dollar, partly related to waning expectations for fiscal stimulus, have driven the easing in conditions. Over the longer period since liftoff, the easing has been driven primarily by a rise in risk asset prices and valuations. Indeed, the S&P 500 index hit a new nominal high over the intermeeting period. While recent corporate earnings have been strong, valuation metrics have also been elevated, with the Shiller CAPE measure of price to earnings reaching a post-crisis high. The declines in longer-dated Treasury yields over recent months have further supported equity prices.

Easier financial conditions and buoyant equity and credit valuations have been accompanied by historically low levels of realized and market-implied volatility, which encourage investors to reach for riskier and higher-yielding assets and may be a sign of complacency. As shown in the middle-left panel, measures of implied volatility across assets are about one standard deviation below their average levels since 1994. Aside from there being few known event risks over the near term, market participants cite long-term factors pinning down implied volatility that are similar to those underpinning easy financial conditions—namely, improving economic outlooks across advanced and emerging market economies, alongside expectations that some major central banks will continue their accommodative stances.

Investors appear confident that Chinese authorities will manage the economy and financial system to achieve short-term stability ahead of the Party Congress in the fall. However, excessive leverage in the Chinese economy continues to be top of mind for market participants as a medium-term risk. With aggregate credit at roughly 240 percent of GDP, contacts anticipate that Chinese authorities will continue gradually tightening liquidity in order to slow credit growth over the medium term.

Relatedly, Moody's cited the "continuing rise" in leverage in the Chinese economy as potential growth slows as the impetus for downgrading the country's sovereign rating last month. The downgrade had few immediate consequences for global markets, as foreign investment in onshore bonds is limited. Contacts did speculate, however, that partly in response to the downgrade, Chinese officials took precautionary measures to support the RMB, which abruptly appreciated about 1.5 percent against the dollar, as shown by the red line in the middle-right panel. While prior efforts to influence the currency sparked global financial market volatility, these recent developments had limited spillover effects, perhaps because they involved an appreciation, rather than a depreciation, of the RMB.

Political developments in the United States similarly had little observable effect on financial markets, although they reportedly further reduced investors' confidence in the Administration's ability to advance its economic policy agenda. Consistent with this, Desk survey respondents' assessments of the fiscal deficit in 2018 and 2019 declined, although they remain higher since the election, owing largely to remaining expectations for corporate and, to a lesser degree, individual tax cuts.

Anecdotally, market participants suggest that much of the "reflation trade" after the U.S. election has been unwound. As shown in the bottom-left panel, spot and forward inflation compensation in the United States continued to drift toward levels prevailing ahead of the election last fall. The Board staff's measure of the five-year, five-year-forward breakeven rate now stands at roughly 1.8 percent, below its average level of 2.2 percent over the past five years.

Forward measures of inflation compensation are also running well below mandate-consistent levels in the euro area and Japan, and, in response, the ECB and BOJ are continuing to expand their balance sheets. At its meeting last week, the ECB left unchanged the asymmetric language suggesting the purchase program could be expanded if the economic outlook deteriorates. However, the Governing Council adjusted its forward guidance on policy rates, removing language suggesting rates could be lowered from current levels. Meanwhile, the Bank of Japan's yield curve control framework continues to keep the 10-year JGB yield near its 0 percent target, though the Bank of Japan has purchased assets at a slower pace of late. Chris will provide further details on advanced economy central bank policies in his briefing.

Investors continue to note that the FOMC is at a very different point in the monetary policy cycle as it continues gradually removing accommodation. Market participants expect an increase in the target range at this meeting, with the market-implied probability of such an outcome at 95 percent and 50 of 51 Desk survey respondents viewing this meeting as the most likely timing for the next rate hike. Beyond this meeting, the market-implied path of the target rate was little changed over the period, as shown by the blue lines in the bottom-right panel. Unconditional expectations in the Desk's surveys of the path of the target rate, given as the red diamonds, remained very close to the current market-implied path, the light blue line. However, both the survey- and market-implied paths remain below the medians of FOMC participants' target rate projections in the March SEP, the pink circles. This is true even when survey respondents' expectations are conditioned on not moving to the effective lower bound, the gray diamonds. Thomas will investigate these issues further in his briefing.

Most survey respondents indicated modal expectations of no changes to the median SEP target rate numbers at this meeting, and views on the risks associated with that expectation appear to be mixed. Several respondents suggested that the median projections for 2018 and 2019 could decrease due to recent lower-than-expected inflation data, while others suggested that recent changes to the composition of FOMC participants could push the dots higher.

The interaction between target rate increases and a change in reinvestment policy continued to be debated over the intermeeting period. Most market participants expect a short pause in rate increases around the initial announcement of a change in reinvestments. In our surveys, for example, three-fourths of respondents do not forecast a rate hike at the meeting to which they assign the highest probability of a change to reinvestment policy being announced. Lorie will now provide additional details on reinvestments, balance sheet policy, and other money market and operational developments.

MS. LOGAN. Thank you, Simon. I'll begin on exhibit 2. In the Desk's June surveys, the average probability assigned to the Committee changing the reinvestment policy at some point increased to nearly 95 percent for both Treasury and agency securities. Conditional on a change occurring, respondents on average now assign a roughly 85 percent probability to an announcement occurring this year, compared with approximately 35 percent and 60 percent in the March and May surveys, respectively. In explaining the shift in their expectations, many respondents noted that the FOMC May meeting minutes suggested a slightly earlier change to the policy than was anticipated. As shown in the top-left panel, respondents on average assign the highest conditional probabilities to an announcement of such a change occurring at the September and December meetings—a roughly one-in-three chance, each.

Despite the shift in expectations for the timing of an announced change, there was limited price action following the FOMC meeting minutes, and, as shown by the red dots in the top-right panel, the median respondent to the Desk surveys believes that the Federal Reserve's communications regarding potential changes to reinvestment policy have had little effect to date on the 10-year Treasury yield and 30-year MBS option-adjusted spread. Furthermore, many written responses suggest that the future market effect in these asset classes is expected to be modest, so long as the change to reinvestments is gradual and predictable. However, responses regarding both the effect to date and the expected future effect are dispersed, suggesting a wide range of views regarding the consequences of a change in reinvestment policy. A few respondents highlighted that the ultimate effect on Treasury yields would largely depend on the U.S. Treasury's issuance strategies and needs.

With respect to the reinvestment strategy, survey respondents expect a gradual reduction in reinvestments. As shown in the middle-left panel, median expectations are for initial caps of \$5 billion for both Treasury securities and MBS, which would increase to fully phased-in caps of \$25 billion and \$20 billion, respectively. Expectations regarding the length of the phase-in period, shown in the middle-right panel, are centered on 12 months, but, like the fully phased-in cap, expectations are diffuse.

Market participants await further information on the operational approach to reinvestments and generally expect that the Chair will discuss reinvestment policy in her press conference tomorrow.

The Desk's market intelligence suggests that market participants are also attentive to information regarding the Committee's views on the long-run balance sheet, which shape investors' expectations for the ultimate effect of balance sheet normalization on asset prices. The Desk's surveys asked about the expected size and composition of the Federal Reserve's balance sheet, on average, in 2025, conditional on not moving to the effective lower bound at any point between now and then. Respondents had wide-ranging estimates. As you can see in the bottom-left panel, the median respondent expects the total balance sheet to be about \$3.3 trillion on average in 2025, with the interquartile range of responses running from \$2.6 trillion to \$3.9 trillion. On the asset side of the balance sheet, all respondents but one anticipate that the balance sheet will consist of primarily Treasury securities in 2025. Four respondents expect holdings of MBS to decline to zero by that time, suggesting some expectation that there will be MBS sales.

The bottom-right panel drills down into expectations for specific liabilities. The median expectation for Federal Reserve notes outstanding in 2025 is just under \$2 trillion, implying an average annual growth rate of approximately 3½ percent—a notable slowing from the about 6½ percent growth rate seen over the past decade. The median expectation for the level of reserves is about \$600 billion, with an interquartile range of \$400 billion to \$1 trillion. Median responses regarding the TGA, foreign repo pool, and RRP with private counterparties are all in line with their 2016 average levels. With respect to RRPs, nearly all respondents appear to expect the Committee will still use overnight RRPs in some form in 2025.

Regarding open market operations and developments in money markets, the top-left panel of your third exhibit shows take-up at the overnight RRP, which averaged around \$170 billion—little changed from the prior intermeeting period. Operations continued to go smoothly, and with the exception of month-ends, the effective federal funds rate and overnight bank funding rate both “printed” at 91 basis points throughout the intermeeting period, as shown in the top-right panel.

Triparty repo spreads to the overnight RRP offering rate remain somewhat compressed, which market participants continue to attribute to higher demand for safe short-term cash investments by government funds following money fund reform. Recall that in advance of the reform implementation last October, roughly \$1 trillion in assets under management shifted from prime to government funds, as illustrated in the middle-left panel.

This shift has endured, and prime fund AUMs have increased only modestly in 2017. Before the reform, prime funds had been an important source of unsecured lending, in particular to foreign banks, which became willing to pay higher rates to attract new investors as prime funds pulled back. This change initially widened the spread between three-month LIBOR and OIS from about 25 basis points to a peak of 44 basis points, as shown in the middle-right panel.

The three-month LIBOR–OIS spread has since narrowed to 10 basis points—its lowest level since before liftoff. While most Desk contacts expected the spread to

stabilize and perhaps narrow slightly after the passage of the reform implementation date, the spread has tightened by significantly more than what market-forward measures had suggested, illustrated by the red dot. Desk contacts have attributed the narrowing in part to banks' success in attracting new lenders to replace prime money funds and not to changes in perceptions of bank credit risk. Forward measures of LIBOR–OIS suggest spreads will remain around current levels over the next few months.

As outlined in the bottom-left panel, I'd like to note three other operational developments. First, the FX Global Code, which articulates a set of global principles of good practice for market participants in the foreign exchange market, was published on May 25. Along with other BIS central banks, the Federal Reserve Bank of New York intends to publish a Statement of Commitment to implement the code in our FX operations on or around June 1, 2018. We are currently assessing the extent to which our practices regarding FX transactions have any gaps relative to the code and we will remedy those gaps, if appropriate, in advance of that date. We have also communicated to our FX counterparties our expectation that they'll send us a Statement of Commitment to the code by June 1, 2018. The Federal Reserve Bank of New York counterparty policy on the public website will be updated to reflect the new code.

Second, in our euro reserves portfolio, we continue to place incoming proceeds from coupons and maturing securities in cash rather than invest them in short-dated instruments, which have a significant liquidity premium. Relatedly, the Bank of Japan officially communicated to the Desk the implementation of a new two-tiered interest rate remuneration policy, along similar lines to the scheme implemented in the Eurosystem. The implications for the SOMA yen portfolio are fairly minimal, as the tier 1 limits have been set at a relatively high level, and the revised policy shouldn't require any changes to our current investment strategy.

Third, the appendix contains a summary of all operational tests performed over the intermeeting period, including a TDF test operation as well as those planned during the next period. Of note, the Desk conducted its first small-value euro reverse repo since June 2014 as well as its first MBS reverse repo since August 2013. The Desk also plans to execute its first small-value sale of yen-denominated sovereign debt securities later this month.

I'll now turn to a second handout labeled "Desk Material Related to SOMA Reinvestment Policy" to describe how we plan to implement the reinvestment caps if we are directed to do so.² The top panel summarizes the proposed caps. In the case of Treasury securities, the monthly cap on runoffs would initially be \$6 billion and increase \$6 billion every three months until it reaches \$30 billion. For agency securities, the monthly cap on runoffs would start at \$4 billion and increase \$4 billion every three months until it reaches \$20 billion. The caps would reach their maximum

² The materials used by Ms. Logan are appended to this transcript (appendix 2).

levels 12 months after the reinvestment policy is changed and remain at those levels until the balance sheet reaches its normalized size.

The existing policy on reinvestment of principal payments received from Treasury securities—a policy that has been in place for many years—is to roll over maturing Treasury security holdings by exchanging them for newly issued securities at auctions. In practice, these rollovers are accomplished by placing add-on bids for the SOMA equal to the principal amount maturing on the issue date of the securities being auctioned, with bids allocated across the newly issued securities in proportion to the Treasury’s announced public offering amounts.

The planned approach to reinvestments in Treasury securities under a capped regime is similar and is summarized in the second panel. In determining the total amount of Treasury security reinvestments that would be made in a given month, the Desk would subtract the cap from the total amount of SOMA Treasury security holdings scheduled to mature in that month. The amount to be reinvested, if any, would be allocated across the two coupon security issuance dates, which are near the middle and the end of the month, in proportion to the amount of the month’s SOMA maturities on those issuance dates. In line with current practice, the amount to be rolled over on each of those dates would be allocated across all new issues in proportion to the announced public offering amounts.

With regard to agency MBS reinvestments, the existing policy consists of reinvesting all principal payments received from agency debt and MBS into agency MBS. The Desk’s practice is to conduct reinvestment purchases in the To-Be-Announced, or TBA, market, with purchases allocated across agencies, tenors, and coupons on the basis of recent issuance trends. The settlement conventions for the TBA market imply that the settlement of those purchases can occur up to three months later. Further, as directed by the Committee, the Desk also engages in dollar rolls and, much less frequently if at all, coupon swaps to facilitate settlement.

Under the capped approach to MBS, which is summarized in the third panel, reinvestment purchases would continue to be made in the TBA market roughly in line with recent issuance trends, although the size and frequency of individual operations in the month would likely be reduced over time as the total monthly reinvestment amount declines.

The amount of monthly reinvestments would be determined by taking the total amount of principal payments from agency debt and MBS that are anticipated to be received during a month and subtracting the cap. However, unlike Treasury maturities, monthly MBS principal payments are not known far in advance due to prepayment uncertainty.

Information about principal payments to be received during a given month becomes available between the fourth and sixth business days of that month, with our custodian providing a final estimate of anticipated principal payments by noon of the eighth business day. Reflecting the additional complexity associated with MBS

settlement, the actual principal payments we receive in a given month can vary slightly from the estimated amount, typically within about \$20 million. We do not plan to adjust our reinvestment amount for these slight deviations. Using the estimate, the Desk would announce the total amount of monthly reinvestment purchases on the ninth business day of the month and would schedule operations that span the interval from the following business day through the ninth business day of the next month. This is a slight departure from the current practice, under which the announcement about reinvestment purchases is made on the *eighth* business day in order to allow the Desk additional time for prudent operational planning.

Finally, if the anticipated principal payments exceed the cap by only a small amount—for example, around \$50 million or less—then the Desk proposes that it not reinvest that amount. This practice could accelerate the portfolio’s decline very slightly but, reflecting the very small effect, it would not lead to any meaningful response of rates. This practice will reduce the Federal Reserve’s operational costs and risks, in part because our TBA purchases involve the Desk conducting an auction with all eligible counterparties in the secondary market.

These operational details would be announced when the Committee decides to implement the reinvestment caps. The fourth panel lists a set of communications that could be issued by the Desk at that time. Exhibit 2 is a draft of the Desk statement, which would be issued at the same time as the FOMC policy statement, and the accompanying implementation note. The Desk would also release revised FAQs for Treasury security rollover and agency MBS reinvestments. Thank you, Madam Chair. We are happy to take any questions.

CHAIR YELLEN. Thank you. Are there questions for Simon or Lorie? President Rosengren.

MR. ROSENGREN. I have a question for Lorie, and it’s regarding panel 7 on exhibit 2—“Average PDF of Expected Time of First Announced Change in Reinvestment Policy.” When I look to the fall, it looks like there’s likely to be a debt ceiling issue at that time. There’s the potential for, or at least the threat of, a government shutdown in the fall. We’ll have the potential appointment of Governors and the Chair. When you talk to the Treasury about timing, do they raise any concerns if our change in reinvestment policy were to occur in the fall? And, secondarily to that, if we were to move it up a meeting or back a meeting, do you think it would make much of a difference to the market?

MS. LOGAN. In terms of the Treasury, market participants have widely expressed their expectations as seen in the survey results here. They haven't seen these survey results, because they're not released until after the minutes. But they've seen similar surveys that are released publicly, and the Treasury seems comfortable with what they're seeing regarding those market expectations. They're also seeing expectations that those caps will initially be quite small. I think because of the small size in the fall, if they were to start at that time, the Treasury seems comfortable with that timing. In terms of the effect on market prices, moving it up or back a meeting—in view of what we've learned from exhibit 8, I don't expect that that would have a meaningful effect on prices.

MR. ROSENGREN. Thank you.

CHAIR YELLEN. President Harker.

MR. HARKER. Thank you, Madam Chair. Just a follow up on the flip side of President Rosengren's question. So assume none of that happens in the fall and things are going very smoothly, particularly in the case of Treasury securities. Is there any circumstance in which you might consider raising the caps? I'm just curious. If things are going better than expected and there's no debt ceiling crisis, there's no government shutdown, is there an opportunity to revisit the caps or not?

MR. POTTER. I don't think that's a decision for the Desk. That would be a decision for the FOMC. I can imagine circumstances—

MR. HARKER. Well, what are the costs and benefits of that?

VICE CHAIRMAN DUDLEY. Well, remember, the caps are only going to be binding on the midmonth of—

MR. HARKER. Oh, I understand.

VICE CHAIRMAN DUDLEY. So raising the cap doesn't get you that much in terms of—

CHAIR YELLEN. It makes almost no difference in the timing.

MR. HARKER. It doesn't buy you that much early, yes.

CHAIR YELLEN. And I think our intention here is to announce a plan and carry it out, not—

MR. HARKER. That's why I was questioning, Madam Chair, because that's what we've been saying. I just wanted to make sure that once we say it—and we've been saying it's on autopilot—it will remain that way. Or are we revisiting it?

CHAIR YELLEN. It's definitely my expectation that we're putting this on autopilot, that we're going to announce a plan after this meeting at the press conference, and once we start the plan, that it's essentially on autopilot, unless we feel that there's been a sufficient deterioration in the economic outlook that we would want to consider ceasing reinvestment. I think you used the analogy of watching paint dry—

MR. HARKER. Yes.

CHAIR YELLEN. —which was a great one. And that was my understanding.

MR. HARKER. I just wanted to make sure of that. Thank you.

CHAIR YELLEN. Vice Chairman.

VICE CHAIRMAN DUDLEY. I think you could raise the cap, but I think the messaging would be extremely difficult. Like, “Why are you raising the cap? What great benefit are you getting from raising the cap?” And it would be a bit contrary to the idea that it's on autopilot.

MR. HARKER. No, I understand that. I just wanted to make sure before we pull the trigger on this that—

MS. LOGAN. I would want to note, just for everyone's reference, that in exhibit 2 of the second briefing, part of the Desk statement would be to outline the plan as described in the Committee's Policy Normalization Principles and Plans. So, of course, the Committee could decide to make changes and deviate from the plan, but this would be provided in the initial Desk statement. I think there would be some expectation in the market that this would generally be on autopilot through that time period.

CHAIR YELLEN. President George.

MS. GEORGE. Just to clarify another point here related to panel 7—so are the markets expecting that they will get the changes in the statement that we're going to be talking about in this kind of detail? That detail wouldn't change these expectations regarding the actual implementation of the change to our reinvestment policy, would it?

MR. POTTER. I think some people will be surprised, assuming that you go ahead with the plan—it's the next item on the agenda—to see the amount of detail released. My viewpoint is that your addendum to the normalization principles would likely raise the probability on the next few meetings. In particular, the probability of a change at the September meeting would likely increase. There are many people who think it's possible that a lot of detail will be released. So we'll see what effect that has. On my reading, the assumption seems to be that there will be a lot of information in the press conference but not a change in the statement.

CHAIR YELLEN. President Mester.

MS. MESTER. Would it be unreasonable for the modal probability to move to the next meeting, as opposed to September, with the detail you're releasing at this meeting?

MR. POTTER. The probability on the July meeting is 5 percent.

MS. MESTER. At this point. But a lot of times in the past, we've released details, and then it's a trigger like, "Oh, it's going to be the next meeting."

VICE CHAIRMAN DUDLEY. But a lot of people think that we're actually going to release details today. It's not 100 percent, but it's up pretty high.

MS. MESTER. But you still think that the majority of the weight would be on September.

MR. POTTER. If you decide to go ahead, there will be information in the press conference, the principles and plans will be amended, and the statement is changing. That whole configuration suggests the FOMC is ready at any point to make this change. There's no further information that market participants need. They will be trying to look through the approach that you take, given the data that come in and when the appropriate time to take the action is. At that point, all meetings are live.

CHAIR YELLEN. President George.

MS. GEORGE. So in that context, assuming that there could be some debate about future debt ceilings and government shutdowns, is there an advantage to push toward a July implementation—in other words, to begin to frame expectations here? That obviously would be a discussion for the Committee. But I'm just curious, because there could be a chance that you'd be pushing this off even as the economy unfolds broadly as expected—the language we've used here.

MR. POTTER. So that's a question we've been thinking about and other people have been thinking about. And the big unknown is, if there's noise associated with the debt limit, does that mean that market participants get to a point at which they move it two or three years forward or they move it three or four months forward?

MS. GEORGE. Right.

MR. POTTER. If they move it three or four months forward, that makes life really complicated if you start a little bit earlier, because then are they going to keep on doing something like that? But I think our approach, as we've thought about it, is not to try to guess what that's going to be rather than think through the policy choices you have here because, as Lorie pointed out, as long as the Treasury has time, there are things that they can be thinking through.

VICE CHAIRMAN DUDLEY. I think one problem with going earlier—in July—is, you're probably not going to want to say you're going earlier in July because of your anxiety about the debt limit.

MS. GEORGE. No, no. You're right.

VICE CHAIRMAN DUDLEY. So then the question is, well, why is the FOMC going in July—in a non–press conference meeting? It creates a little bit more confusion in the marketplace with, what's the rush?

CHAIR YELLEN. Especially when the draft statement says that we will do this assuming incoming data are in line with expectations, and there would not be much data in that short a span.

VICE CHAIRMAN DUDLEY. So I think the market would be surprised by a July move.

MS. GEORGE. Well, I think without other clarification, that's right. So I think it may seem rushed to us compared with how we've been talking about it, but if you were putting out this detail at this meeting, it might not seem unusual to start at the next meeting, assuming you set expectations—

MR. POTTER. The July probability will go up after this meeting, whatever the decision you make, just because we're getting closer to later this year. It could go up by a lot—it's possible.

CHAIR YELLEN. President Rosengren.

MR. ROSENGREN. So is there a reason after this press conference that there's not an expectation that every meeting is potentially live? To play a little devil's advocate to the Vice Chairman, moving it up or moving it back, if it doesn't make that much of a difference, I'm not sure it's going to seem that different between July, September, or November. But it's not so clear to me, if moving up or back one meeting doesn't make that much of a difference, why we would pick a meeting at which we almost know *a priori* there are likely to be a lot of other factors that we can't control that would be disruptive. So if you're trying to figure out an optimal timing, it seems picking a period when there are other factors would be something to think about.

MR. POTTER. I think four years ago we had a bit of a similar debate. And it's very hard to work out exactly what the reaction will be to any announcement that we give. I don't know whether we can really look in their heads and think exactly like that. This has gone, as Lorie showed, very smoothly so far, and it seems to be because they're following along with the logic, and possibly the logic would say go in July. If there was a push to do that, that might get some of the dynamics we saw in 2013 back into the market.

VICE CHAIRMAN DUDLEY. Yes. If I could interject: What I worry about a little bit is if you move in July, there's going to be a lot of speculation that you're moving in July because you are worried about the debt limit, which in some ways then amps that up as a potential issue for the market. And I think, from our perspective, we should be as far away from the debt limit

issue as we possibly can be in terms of not contributing to speculation that we're doing things because of the debt limit. Just my personal opinion.

CHAIR YELLEN. Governor Powell.

MR. POWELL. I would be reluctant to think of July as a first-order option, because you can go in September with delayed effect if you're terribly concerned about the debt ceiling, which I don't think we should be. But if we were terribly concerned, then we could go in September—announce, but with delayed effect, starting in November or December.

CHAIR YELLEN. Yes. Governor Fischer.

MR. FISCHER. I disagree. I just don't understand this "Let's push it out to where there's going to be more trouble," and we're more likely not to want to go—even if we've got very small actions at the beginning. You're doing this right in the face of a debt ceiling crisis? I think if we got going now, we would just say, "Well, the time is right, and we've got the plans. They're all there. You know what they are, let's go ahead."

CHAIR YELLEN. Other comments? Governor Brainard.

MS. BRAINARD. Yes. I see no advantage at all to moving it to July. I think this is a big deal. I think we do need a press conference. I think this is the kind of thing that you do at a press conference, so that the Chair can explain in great detail and contextualize it. And I think the debt limit is manageable in terms of the timing of when you actually trigger the implementation as opposed to the announcement. So, personally—I think we'll get into this tomorrow—I would not favor July.

CHAIR YELLEN. Other comments? Other questions? President Bullard.

MR. BULLARD. I do, but it's on a different subject. So if anyone else wants to comment, please do. [No response] Okay. Thank you, Madam Chair. My question is about

exhibit 1, figures 1 and 2, about the Goldman Sachs Financial Conditions Index. I just want to make sure I'm understanding chart number 2 here. It's saying that the S&P CAPE is 5 percent of the index, but has been a big factor in driving the Financial Conditions Index.

MR. POTTER. Yes.

VICE CHAIRMAN DUDLEY. I'm happy to explain why. It's the percentage times the amount of movement. So the 10-year Treasury moving 100 basis points would be a big move. Stocks moving 1 percent would be trivial. So those weights don't really mean how important these variables are in the index.

MR. BULLARD. No, I know. But the blue bar shows that it's mostly the stock price movement—coupled with the credit spreads. Why this financial conditions index? Why are you showing me this one as opposed to many others? There are many others in the literature. Is this one judged to be different?

MR. POTTER. So it's pretty similar to all of the other indexes. I got a lot of people asking me this question on the weekend: "Why are you showing this index?" For me, in terms of trying to give you what I viewed as the best description, this was the easiest one. It has these simple components in it. The trade-weighted dollar is a little bit different from the one we use. I think the CAPE is a useful thing to have in here—it basically is looking at earnings over the past 10 years and seeing what valuation looks like.

So in terms of the stories I've been hearing from market participants, who are very happy with where the stock market values and credits are but don't completely understand what has happened, I thought this was the easiest way of giving you that viewpoint. Financial conditions have eased a lot. There was a tight relationship before the election between what was happening in financial conditions and what we saw in the expected forward timing of FOMC policy actions.

That seems to have disappeared right now. And we've definitely seen—even in a *Wall Street Journal* article, which was talking about the same thing—this somewhat conflicting signal.

MR. BULLARD. I guess my issue with this is that we have models. Our models have all of these things in them. They have the federal funds rate, they have the 10-year yield, they have credit spreads, they have equity prices, and they have the value of the dollar. So what are you getting in addition to having all of those variables in your model by combining them all into an index and then showing me that?

MR. POTTER. There are a lot of data I could show you, and I was trying to summarize the overall push of that data since liftoff and try to give you a feeling for what financial market participants are talking about. And they are focused on the fact that the FOMC is tightening. Now the Committee is on a path that looks like the path that was expected in 2016 at first but didn't actually happen. That tightening is happening at the same time that financial conditions are easing—not on this measure, but on all measures. For example, the one the Federal Reserve Bank of Chicago produces, which is a much more sophisticated one than this, in which you adjust for what's happening in growth and other things—that's also showing an easing of conditions. So I don't know whether it's necessarily relevant to you in this room, but it's something that financial market participants are spending a lot of time thinking about.

MR. BULLARD. Okay. So what's different in this era since the election is the prospect of corporate tax reform, which has partly driven equity prices higher, and that's what's having a major effect on this index.

MR. POTTER. There's that. Earnings growth is very strong right now. All the discussion of risks outside the United States as having come down is also there. So there are a

lot of arguments as to why valuations look good. That doesn't completely line up with where the 10-year yield is. And that's an interesting issue for the policymakers around this table.

MR. BULLARD. It has certainly been an interesting issue for this group to talk about, whether there are equity price bubbles and whether we should react to those kinds of bubbles. This seems like a disguised way to talk about that same issue. Why not just talk about the fact that equity prices are high and we're wondering what to do about it, if anything?

MR. POTTER. I think I did talk about the nominal high in the stock market and how low volatility is right now. It's something that we always grapple with—whether prices are reflecting fundamentals or exuberance. And right now I think the perspective we've had on it in the past few months, informed by talking to market participants, is that there's a little bit more weight on exuberance and complacency than you might feel comfortable with. And I was trying to indicate that in an indirect way. I could try and do it more directly next time.

MR. BULLARD. Okay. Thank you.

CHAIR YELLEN. Any other questions? [No response] Okay. If not, we need a vote to ratify the domestic open market operations conducted since the May meeting. Do I have a motion to approve?

VICE CHAIRMAN DUDLEY. So moved.

CHAIR YELLEN.³ All in favor? [Chorus of ayes] Any opposed? [No response] Okay. Thank you.

Okay. So then let's turn to item 3 on our agenda, which is "System Open Market Account Reinvestment Policy." For the past couple of meetings, the Committee has been discussing how to begin the process of reducing the SOMA's securities holdings. Over the

³ The materials used by Chair Yellen are appended to this transcript (appendix 3).

intermeeting period, we made substantial further progress, and I believe that we now have a broad consensus on an approach.

At this point, let me thank the staff for its usual stellar work in formulating and analyzing alternative approaches for the Committee's consideration, and I would like to thank all of the participants for your contributions to the development of this plan.

I think we've arrived at a very sound program. The approach involving increasing monthly caps on redemptions above which principal payments received on holdings of Treasury and agency securities would be reinvested is consistent with the Committee's intention to reduce the Federal Reserve's security holdings in a gradual and predictable manner. The approach will contribute to the attainment of the Committee's longer-run objectives.

As you know, the Committee would communicate the approach by approving and releasing an addendum to the Committee's Policy Normalization Principles and Plans that would include additional bullets setting forth the approach to reinvestment that the Committee intends to follow. The addendum would be released tomorrow at 2:00 p.m., along with the Committee's monetary policy statement, and I plan to discuss it in the 2:30 press conference as well as in my monetary policy testimony in July. Presumably, when the Committee determines that economic conditions appear appropriate, the Committee would announce the timing of the start of the program through the postmeeting monetary policy statement.

Before we turn to adoption of the addendum, I would like to note first that the document to be considered for approval is identical to that distributed on June 2, except that a footnote has been added pointing readers both to the September 2014 Policy Normalization Principles and Plans and to an addendum adopted by the Committee in March 2015 that deals with control of the federal funds rate.

Because this program regarding reinvestment policy will presumably remain in place for quite some time, I think it's appropriate that all Committee participants have the opportunity to express their views on the program in a show of hands. But first, is there anybody who would like to comment further on the proposal? [No response] Okay.

MS. MESTER. Can I just ask one clarifying question about what you said? Your *Monetary Policy Report* testimony will be before the July FOMC meeting, is that correct?

CHAIR YELLEN. Yes, before the July FOMC meeting.

MS. MESTER. All right. Thanks.

CHAIR YELLEN. That's right. Okay. Seeing no further comments, now I'd like to ask all participants who agreed to the addendum to raise your hands. [Show of hands] Thank you. Is there anyone who cannot agree to the addendum? [No response] Okay. Then the addendum is approved, and we will release it tomorrow with the statement. Thanks very much.

Okay. We're making very good progress. Let's move along to our briefings on the economic and financial situation, and Stacey Tevlin is going to begin the series of briefings.

MS. TEVLIN.⁴ I'll be referring to the materials that are titled "Material for Staff Presentation on the Economic and Financial Situation." In my presentation this afternoon, I'll start with a brief overview of the staff projection. Typically, we follow that overview with a discussion of how we have changed key assumptions. But today I'm going to take the opposite approach and tell you about assumptions that we did not change. This focus is to highlight two areas—the natural rate of unemployment and fiscal policy—that the staff discussed extensively over the past few weeks and in which our decisions were a close call. These decisions seem worth highlighting because we will surely be revisiting them again in the months ahead and also because they may be areas in which the Committee disagrees with the Tealbook projection.

First for the overview. As shown in the top-left panel of my first exhibit, we currently project that real GDP growth will rise nearly 2½ percent this year, up from 2 percent in 2016. This may seem like a bold prediction, as the only GDP data we have in hand showed about a 1 percent increase in the first quarter, but as we described in both the April and June Tealbooks, there are a number of reasons to believe that the Q1 weakness was transitory and that a bounceback is under way.

⁴ The materials used by Ms. Tevlin and Mr. Erceg are appended to this transcript (appendix 4).

More generally, though, conditions are favorable for a strong year. After dipping last year, indicators of business investment are looking bullish. Survey data, which are shown in panel 2, indicate that C-suite executives, Wall Street analysts who follow major companies, and small businesses are all decidedly more optimistic than they were late last year. Furthermore, capital goods orders are not only rising but, as shown in panel 3, the increases are unusually widespread. In addition, financial conditions, which are not shown here, remain accommodative. No surprise, then, that business fixed investment, which is shown by the green portion of the bars in panel 1, can account for the pickup this year.

Much of this strength was unexpected six months ago. The bars in panel 4 show our real GDP growth projections compared with our forecast at the time of the December Tealbook, with an adjustment made to keep the underlying fiscal policy assumptions the same. Our forecast for GDP growth in 2017 is about $\frac{1}{2}$ percentage point stronger, and our outlook for 2018 is modestly higher. Not surprisingly, we have lowered our unemployment rate projection, both because of incoming news and to keep it aligned with our more upbeat assessment of spending and production. As shown in the bottom-left panel, at the time of the December projection, we expected the unemployment rate to reach 4.7 percent by the middle of this year and 4.2 percent by the end of 2019. Those figures are now both 0.4 percentage point lower. Payroll employment has come in below our expectations in December. But much of this revision comes from surprisingly weak state and local government employment; job gains on the private side of the economy have been only 7,000 less per month than we expected.

The panel to the right plots unemployment rates broken out by race and ethnicity. The conclusions we have drawn from these data in the past are not much changed with the addition of the May data. Jobless rates for Hispanic and African American workers remain less favorable than for other groups. Nonetheless, the rates have improved more rapidly for these groups over the past couple years as is historically typical during a period of tightening labor markets.

With the labor market estimated to be tight and getting tighter, we would—all else being equal—expect to see price pressures increasing, but that has not been the case, as is shown on your next exhibit. At the time of the December Tealbook, we had expected core inflation to hold about steady this year, at $1\frac{3}{4}$ percent, but that forecast has now been marked down to just $1\frac{1}{2}$ percent, creating a tension with the labor market data received for the first half of the year. Among the possible ways to square these seemingly divergent signals, one would be to lower the number we assume for the natural rate of unemployment.

As shown by the red lines in panel 2, the staff has edged down our estimate of the natural rate 0.1 percentage point since December, and we considered lowering it again this round. One point in favor of lowering our judgmental natural rate is that the estimate from a state-space model that we often consult as we set our judgmental forecast, the green lines, has revised down more than $\frac{1}{4}$ percentage point since December.

However, there were also reasons to stand pat on our estimate of the natural rate. First, the model's downward revision only moves it into line with our judgmental assumption. I should note, though, that state-space models can have different assumptions, sample periods, and solution methods, and thus can yield a wide variety of results. Even for a given model, the natural rate is estimated with a great deal of imprecision.

Second, several other labor market indicators suggest that the labor market is tight and becoming more so. For instance, in panel 3, the share of NFIB survey respondents who reported that jobs were hard to fill and the number of households who reported that jobs are easy to find are now on par with the shares at the peak of the previous expansion.

In addition, as shown in panel 4, the wage data, on balance, have been rising about as we would expect with a tightening labor market, in light of the low rates of trend productivity growth and our assumptions about trend inflation. However, to be clear, there is little that can be concluded decisively from the recent stretch of wage data because it is contradictory and noisy, and some of it is prone to revision. Of note, the compensation per hour data, the black line, seem especially questionable at the moment because anecdotal evidence suggests that the weak fourth-quarter reading may reflect a shifting of income one quarter later in response to an expected reduction in tax rates this year.

But perhaps the primary reason we didn't interpret the inflation data as signaling a lower natural rate is that we think the recent softness in core PCE inflation will prove transitory, and we've mostly left our subsequent monthly inflation forecasts unrevised.

The 12-month change in core PCE prices, shown by the black line in panel 5, is down 0.2 percentage point since December. Two categories with surprisingly large price declines—wireless communications and prescription drugs—alone can account for *all* of that decline. Core inflation excluding these two categories is shown by the green line. Of course, it is always the case that when you exclude the categories with the biggest drops, you will get a smaller decline or a larger increase in inflation. However, in this instance, the calculation seems appropriate because of the source of the price declines. Cell phone plans are cheaper due to a price war, while prescription drug price declines may reflect the expiration of patents on some popular drugs. These decreases seem unlikely to contain much signal for the position of the business cycle. For those who prefer a more mechanical way of stripping out outliers, the trimmed mean PCE inflation rate produced by the Federal Reserve Bank of Dallas, given in the red line, is down only 0.1 percentage point since December.

A couple of months ago when the March core CPI unexpectedly declined, it was widely noted that the weakness was widespread across price categories. That was true for March. However, looking over a longer period, that does not seem to be the case. In the bottom-right panel, the vertical axis is the recent 6-month change for 37 subcategories of core PCE inflation. The horizontal axis is the change over the

preceding 12 months. Thus, if inflation in a particular category has slowed over the 6 months ending in April, the dots will be below the 45-degree line, and if inflation has picked up in a category, the dots will be above the line. The size of the dot reflects its weight in core PCE. As you can see, the dots are *not* clustered below the line. This suggests that there has not been a widespread decline in core inflation in the recent 6 months of data. Still, that may be cold comfort for policymakers trying to lift inflation, because the dots are also not clustered above the line.

Taken together, all of these considerations pointed against making a further change to our natural rate assumption this round. However, it was a close call, and as we get additional labor market data and readings on inflation and nominal wage growth—starting tomorrow with the CPI release—we will surely be revisiting this discussion and continuing to evaluate other assumptions, such as the rate of trend inflation.

The third exhibit focuses on another key assumption that we did NOT change this round—our fiscal policy assumptions. As shown in panel 1, we continue to include a placeholder tax cut that nudges up real GDP growth next year. However, in addition to the general uncertainty surrounding the efficacy of fiscal policymaking this year, we see two developments that have happened since early May that make the passage of a sizable tax cut this year seem less likely. First, as noted to the right, the passage of the American Health Care Act by the House means the Senate is focused on health-care legislation and not tax reform. Because the health-care bill is being considered under the 2017 budget reconciliation process in order to protect it from being subject to filibuster, Senate rules do not allow a 2018 budget resolution to be finalized until health-care reform is either passed or set aside. Second, the Republican leadership in the Senate has indicated a preference for a deficit-neutral plan.

Prediction markets agree that fiscal expansion has become somewhat less likely. According to betting results shown in panel 3, the odds of a personal tax cut being passed into law this year have declined from more than 80 percent late last year to around 30 percent on Sunday. The odds placed on a corporate tax cut being enacted this year have declined similarly. Though they moved up over the weekend, yesterday's close, which I received too late to include in this chart, is back down around 36. These odds are also in line with the answers to a special question in the most recent Blue Chip survey. Still, 30 percent is not zero, and there are reasons to think that fiscal expansion in some form—perhaps including some additional spending on infrastructure—is still a reasonable modal assumption. And I would point out that a tax cut could be passed early next year and still have substantially the same economic effect we have assumed in the baseline forecast.

We expect to learn a good deal about the likelihood and the shape of tax reform bills in the coming weeks. As the Senate takes up the health-care bill, the fate of that legislation is likely to be clarified somewhat. In addition, although passage of a 2018 budget resolution is delayed while health-care reform is being considered, as

congressional committees begin work on the 2018 budget, drafts of these bills could be quite informative.

Our decision to freeze our fiscal policy assumptions while we await more news was a close one. Consequently, we included an alternative scenario in the Tealbook that used the assumption of no tax cut. In that scenario, the absence of stimulus along with a failure to reduce regulatory burdens leads to a broad policy disappointment that feeds through into much less optimism on the parts of businesses and households than we are seeing this year. As a result, financial conditions tighten materially. If that quite plausible scenario came to pass, our simulation points to an unemployment rate that turns up modestly next year and ends the medium term at about 4½ percent, about ¾ percentage point higher than in the baseline. The federal funds rate would rise much more slowly in this scenario. I would note that if we were to remove just the placeholder fiscal stimulus from the baseline projection and not the sentiment and financial market effects, we would show much smaller effects than are featured in this alternative scenario. Chris Erceg will now continue our presentation.

MR. ERCEG. Thank you. I'll begin on exhibit 4. The output expansion in the foreign economies has become more entrenched since your last chart show in December and appears broad based across advanced and most emerging market economies, panel 1. We're projecting that real GDP in the foreign economies will expand over 2¾ percent this year, line 1 of the table, and then decelerate slightly to a roughly 2½ percent pace over the remainder of the forecast period. Our forecast is considerably stronger than in December, and the ongoing solid growth in the euro area, Japan, and China through the first half of this year has reduced concerns about downside risks facing the foreign economies.

Focusing on the AFEs, we expect that the ECB's accommodative monetary policies and some waning of political risk will help the euro area, the black line in panel 4, grow at a pace well above potential, with domestic demand underpinning much of the expansion. Some of the periphery economies—notably Spain, the blue line—have emerged as the euro area's strongest performers, though Italy has notably dimmer prospects and significant financial vulnerabilities. Japan's accommodative monetary policies have supported growth; as seen in panel 5, exports have strengthened and the unemployment rate, the blue line, has fallen to a 23-year low of 2.8 percent. In contrast, the United Kingdom, line 7 of the table above, may be lucky to eke out even the modest growth we are forecasting in the face of heightened political uncertainty following last week's parliamentary elections and a myriad of Brexit-related uncertainties.

Regarding the EMEs, economic activity in China, line 9, has expanded robustly in the first half of this year, fueling strong import growth, the black line in panel 6, which has contributed to some rebound in global trade. Ongoing credit tightening, the blue line, should help keep growth near potential over the forecast period, with activity decelerating gradually to a still-healthy 5¾ percent pace by 2019. However, a more abrupt slowdown is a key risk. Solid global growth and, in the case of oil, supply limitations agreed to by OPEC members have helped oil and commodity

prices mostly hold their ground, panel 7, improving the outlook for commodity-exporting economies. Diminishing concerns about U.S. trade policy and continued solid growth in Mexican exports should help support a modest expansion of Mexico's economy, line 10 of the table, and we expect Brazil, line 11, to continue to recover gradually from the deepest recession in its history.

In your next exhibit, the broad real dollar, the solid black line in panel 1, has depreciated since the December Tealbook and now lies about 5 percent below our December forecast. The dollar has weakened by somewhat more against EME than AFE currencies, panel 2. The broad dollar's depreciation mainly reflects that the outlook for foreign economies has improved, and their downside risks—including from U.S. trade policy actions—now appear less pronounced. In recent months, diminishing expectations about prospective U.S. fiscal stimulus have also weighed on the dollar. We continue to project that the dollar will appreciate as markets are surprised by the pace of U.S. monetary policy tightening assumed in the staff outlook.

The lower path for the dollar since December was one of the factors leading us to mark up our forecast for real net exports, panel 3. We now project that U.S. real net exports will be a drag of only 0.2 percentage point on U.S. GDP this year, though much of this revision is due to somewhat stronger-than-expected export data in the first four months of this year, and because a pickup in U.S. oil production has restrained oil imports. The smaller drag projected in 2018 and 2019, however, mainly reflects the weaker dollar.

The way in which both the dollar and foreign economies respond to U.S. monetary policy normalization is a key risk to our outlook. As noted in panel 4, the dollar could well appreciate considerably more than in our baseline if U.S. policy rate hikes trigger sizable capital outflows from the emerging market economies and significantly tighten their financial conditions, or if the pace of normalization is faster than in the staff baseline, which could boost the likelihood of financial turbulence abroad.

On the other hand, as suggested by the muted response of the dollar around recent FOMC policy tightenings in December and March, U.S. normalization could be accompanied by a stable or even depreciating dollar if the foreign economies pick up a bit more steam and the downside risks facing them continue to wane. In this case, developments could look more like the last three FOMC policy tightening cycles that began in 1994, 1999, and 2004. Panel 5 shows the cumulative change in the federal funds rate during the first year of each of these cycles, with quarter "0" indicating the period immediately prior to the start of normalization. The dollar, panel 6, remained stable or even depreciated in the first year of tightening in each of these episodes against the backdrop of generally strong foreign growth, panel 7.

I will now turn to your next exhibit. Many foreign central banks, including the European Central Bank and Bank of Japan, face substantial challenges in achieving their inflation targets despite solid expansions in activity and employment. The ECB and BOJ expect that inflation will run well below 2 percent for the next couple of

years, though our staff forecast, panel 1, is even a bit more pessimistic. Additionally, both the ECB and Bank of Japan remain concerned that longer-run inflation expectations, panel 2, continue to track at undesirably low levels. While U.K. inflation, the red line in panel 1, is expected to be above the Bank of England's target over the forecast horizon, even temporarily coming close to 3 percent due to a surge in import prices associated with the pound's depreciation, the BOE sees underlying or "domestic" inflation as likely to run persistently below 2 percent.

To explain weak inflation, much attention has focused on nominal wage growth, which has run low even in economies in which the unemployment rate is low by historical standards. Panels 3 through 5 show wage Phillips curves for the United Kingdom, euro area, and Japan. As seen in panel 3, U.K. wage growth has remained flat at about 2¼ percent since 2015—the red dots, including a forecast for 2017—even though U.K. unemployment is now running at its lowest level in 42 years. The current rate of wage growth is about 2 percentage points below the level implied by a regression fitted over the 2000–14 period and appears unusually low even after accounting for the substantial step-down in U.K. productivity growth since the financial crisis. In the euro area, panel 4, recent nominal wage growth, the red dots, though tepid, seems reasonably in line with the still-high level of unemployment—note that the red dots lie only a bit south of the regression line. Even so, euro-area wage growth has only moved up slightly from its 2013–14 pace, despite considerable progress in reducing unemployment, and ECB officials have expressed increasing concern that sluggish wage growth—should it persist—could keep underlying inflation below target for a long time. I will now turn to Japan in panel 5. While the dramatic fall in unemployment noted earlier has put some upward pressure on nominal wage growth—see again the red dots—decades of very low inflation have shifted Japan's wage Phillips curve down to the left, so that further declines in unemployment may well be needed to generate sustained wage pressures.

The Bank of England, ECB, and Bank of Japan pay substantial attention to wage developments in assessing inflationary pressures. Of course, it's not clear that low nominal wage growth of itself should weigh on price inflation—cost pressures should depend on how wages evolve in relation to labor productivity. In this vein, panel 6 makes some attempt to adjust wages for productivity growth by reporting forecasts of nominal unit labor cost growth for 2017, the red bars, next to their historical averages in the pre-crisis period, the blue bars. The forecast of unit labor cost growth is only about 1¼ percent for the United Kingdom, 1 percent for the euro area, and just a tad above zero for Japan—all well below historical averages except for Japan, whose nominal unit labor costs actually declined prior to the crisis. While unit labor costs have many shortcomings as an empirical predictor of inflation, the concern of central banks is that if wage growth fails to pick up and unit labor costs remain stuck near their current range, inflation could also stay below target for a long time. The Bank of England expects that keeping unemployment near its current low level will eventually boost wage pressures, whereas the ECB emphasizes the importance of pushing unemployment down significantly further. The Bank of Japan faces the most challenging task and seems aimed at keeping labor markets tight for a long time to generate a self-reinforcing rise in wage and price inflation.

In light of these considerations—and turning to your final exhibit—we see the Bank of Japan and the ECB as likely to pursue highly accommodative monetary policies for a long time. For Japan, this means the Bank of Japan will likely keep policy rates, the blue line in panel 1, ultra low into the indefinite future and also continue purchasing assets, panel 2. We do expect that the ECB will wind down its asset purchase program with a gradual taper beginning early next year and follow by slowly raising the deposit rate, panel 1. However, we see the bar as being higher for raising the deposit rate to positive territory or for allowing the balance sheet to decline in nominal terms.

We are also forecasting that the Monetary Policy Committee will keep policy rates very low, panel 3, only raising them once—to 50 basis points—over the forecast period. Our baseline forecast reflects Bank of England communication both about low pressure on wages and domestic inflation and downside risks associated with Brexit. However, financial market participants also seem to put a relatively low weight on the Bank of England raising policy rates even in upside scenarios in which the unemployment rate declines further or in which CPI inflation runs persistently above target. In particular, market participants surveyed by the Bank of England for the *May Inflation Report* indicated an 80 percent likelihood the Bank Rate would remain at or below 1 percent two years hence, even though they saw a roughly one-in-three chance that unemployment would remain below 5 percent or CPI inflation would top 2½ percent at that time. Thank you. Rebecca will conclude the presentation.

MS. ZARUTSKIE.⁵ Thank you. I will be referring to the packet labeled “Material for Briefing on the Summary of Economic Projections.” To summarize: Your projected unemployment rate paths have generally shifted down, and your inflation forecasts are lower in the near term. The majority of you also revised down your estimates of the longer-run unemployment rate, but your projections for the appropriate path of the federal funds rate are little changed. Your assessments of the uncertainty and balance of risks surrounding your projections are also mostly unchanged.

Exhibit 1 summarizes your economic projections, which are conditional on your individual assessments of appropriate monetary policy. As shown in the top panel, the medians of your projections of real GDP growth edge lower over the next couple of years, starting this year at 2.2 percent and then declining to 2.1 percent in 2018 and 1.9 percent in 2019, still slightly above the median pace of 1.8 percent expected in the longer run. One participant did not submit longer-run projections of the change in real GDP, the unemployment rate, or of the federal funds rate.

As shown in the second panel, the median of your projections for the unemployment rate in the fourth quarter of this year is 4.3 percent, below the median projection of its longer-run normal level of 4.6 percent. The majority of you project that, in 2018, the unemployment rate will fall below its projected level at the end of

⁵ The materials used by Ms. Zarutskie are appended to this transcript (appendix 5).

2017, and of those, more than half expect that, in 2019, the unemployment rate will fall a bit further or remain the same as its projected level at the end of 2018.

As can be seen in the third panel, your median projection of headline PCE price inflation moves up from 1.6 percent this year to 2 percent in 2018 and 2019. Half of you see inflation continuing to run modestly below 2 percent in 2018, while only one of you sees inflation above 2 percent in that year, and just modestly in that case. More than half of you project that inflation will be at the Committee's objective in 2019, while three of you project that inflation will continue to run slightly below 2 percent, and four of you see inflation a bit above 2 percent in that year.

In the bottom panel, your projections of core PCE price inflation share a similar contour with your projections for headline inflation, with the median of projected core inflation also rising to 2 percent in 2018 and 2019.

Exhibit 2 compares your current projections with those in the March Summary of Economic Projections and with the June Tealbook. As you can see in the top panel, the median of your forecasts of real GDP growth in 2017 is 0.1 percentage point higher than it was in March, while the median real GDP growth forecasts for 2018, 2019, and the longer run are unchanged. Six of you stated that you included some fiscal stimulus in your baseline projections, one fewer than in March. Two participants indicated that they had marked down the magnitude of expected fiscal stimulus since the March SEP, with one passing that reduction through to GDP growth, and the other anticipating that other factors would provide an offset.

As shown in the second panel, the medians of your projections for the unemployment rate are below those in March. All of you revised down your forecasts for unemployment at the end of this year and in 2018, with many of you citing recent data that surprised to the downside. Almost all of you also revised down your forecast of the unemployment rate in 2019, and the majority of you also revised down your estimate of its longer-run level 0.1 or 0.2 percentage point. As can be seen in the third and fourth panels, the medians of your forecasts for headline and core PCE inflation this year are 0.3 percentage point and 0.2 percentage point lower, respectively, as compared with your March forecasts but are unchanged after this year. Many of you cited recent inflation surprises to the downside as a factor contributing to the revisions in your near-term inflation forecasts.

Compared with the June Tealbook, the medians of your real GDP growth projections are slightly lower this year and in 2018, and slightly higher in 2019 and in the longer run. The medians of your projections of the unemployment rate are above the staff forecast through 2019 but lower in the longer run, with the Tealbook seeing a much more pronounced undershooting of the longer-run normal rate. The medians of your projections of headline and core inflation are closer to those presented in the Tealbook.

Exhibit 3 provides an overview of your assessments of the appropriate path of the federal funds rate. The median of your projections, indicated by the red horizontal

line in the top panel, stands at 1.38 percent in 2017, consistent with three 25 basis point rate hikes this year. Four of you project only two 25 basis point rate hikes this year, and four of you project four such rate hikes. After this year, the medians of your projections are 2.13 percent at the end of 2018, 2.94 percent at the end of 2019, and 3 percent in the longer run. As in March, the large majority of you anticipate that the appropriate level of the federal funds rate at the end of 2018 will remain below your individual judgments of its longer-run level, but many of you judge that the federal funds rate should rise a bit above its longer-run level in 2019. Half of you—one more than in March—mentioned reinvestment policy in your assessments of appropriate monetary policy; all of you who did so anticipate a change in reinvestment policy before the end of this year.

As shown by the red diamonds in exhibit 3, the median prescription for the federal funds rate at the end of this year, using a non-inertial Taylor (1999) rule, given your individual projections of core inflation, the unemployment gap, and the longer-run federal funds rate, is little changed from March, but the medians for 2018 and 2019 are about 50 basis points higher. These sizable upward revisions in the median prescriptions for the federal funds rate in 2018 and 2019 implied by the Taylor rule are driven by the greater projected undershooting of unemployment of its longer-run normal rate in those two years than in your March projections. All of you continue to project levels of the federal funds rate for this year and the next that are well below the prescriptions that result from using your individual economic outlooks as variables in the policy rule. The median of your projections for 2019 is also below the median Taylor rule prescription but significantly closer than for 2017 and 2018.

Exhibits 4.A through 4.C present fan charts at the top, with your current assessments of the uncertainty and risks surrounding your economic projections at the bottom, for real GDP growth, the unemployment rate, and inflation, respectively. The fan charts show the median projections, the red line, surrounded by confidence intervals derived from the root mean squared errors of various private and government forecasts made over the previous 20 years.

As shown in the lower-left panels of exhibits 4.A through 4.C, the large majority of you continue to view the uncertainty attached to your projections as broadly similar to the average of the past 20 years, with three fewer participants than in March seeing uncertainty about real GDP growth, the unemployment rate, and headline inflation as being higher than the historical average. As illustrated in the lower-right panel of exhibit 4.A, most participants judged the risks to real GDP growth as broadly balanced, about the same as in March. One of you now sees the risks to unemployment, shown in the lower-right panel in exhibit 4.B, as weighted to the upside, and three of you see the risks as weighted to the downside. In addition, the balance of risks to your inflation projection, shown in the lower-right panels in exhibit 4.C, has shifted down slightly since March, as two fewer of you now judge the risks to inflation to be weighted to the upside, and two more of you view the risks as weighted to the downside. In your narratives, many of you repeated the view expressed in March that, at this point, uncertainty surrounding prospective changes in fiscal and other government policies is very large or that there is not yet enough

information to make reasonable assumptions about the nature, timing, and magnitude of the changes. In your narratives regarding the risk weighting associated with your projections, some of you noted recent readings pointing to elevated household and business confidence, high equity valuations, and reduced risks to the global outlook.

Your final exhibit shows a fan chart pertaining to your median projections of the federal funds rate, using historical forecast errors for short-term interest rates. It suggests that your assessments of appropriate policy are also subject to considerable uncertainty, reflecting uncertainty about the evolution of GDP growth, the unemployment rate, and inflation over time, in addition to other factors. Under your median assessment of the appropriate path of the federal funds rate, the width of the historical fan chart shown in exhibit 5 implies a 70 percent probability that the level of the federal funds rate will be within a range of 0.7 to 2.1 percent in the current year, 0.1 to 4.1 percent in 2018, and 0.7 to 5.1 percent in 2019. Thank you. That concludes our prepared remarks. We would be happy to respond to your questions.

CHAIR YELLEN. The floor is open for questions for any of the presenters. President Kaplan.

MR. KAPLAN. I guess this question is for Stacey. You were talking about the debate you were having about whether to lower the natural rate of unemployment, and I heard some arguments on both sides. I guess I would ask you, what's the strongest argument, in your view, for not moving the natural rate of unemployment lower?

MS. TEVLIN. If we're looking at the data that we have received since December, which is kind of how I was framing this discussion, the strongest argument is that we don't think that the weak inflation data we are seeing are going to persist. If that were expected to be much more serious, and to last longer in terms of the monthly rates, I think we would take a closer look at that, as well. I think that's probably the strongest argument.

MR. KAPLAN. Okay. Thank you.

CHAIR YELLEN. President Kashkari.

MR. KASHKARI. Just a follow-up. I appreciate the discussion that President Kaplan just asked about on the natural rate of unemployment. What about the neutral real interest rate? Do you have a similar analysis in which you estimate where we are? Because it strikes me that

we might be misunderstanding the natural rate of unemployment, but we may also be misunderstanding the neutral real interest rate. I'm just curious if the staff has a view on that, and is that something you regularly update?

MS. TEVLIN. I'm going to have to turn to one of my colleagues for this one. I don't think I have the—

MR. KASHKARI. It's not in your presentation, so I'm sorry to put you on the spot.

MS. TEVLIN. It's totally fair to ask me questions that are not in my presentation, but that's, unfortunately, not one that I have prepared an answer for. But I can get back to you if we want to do that.

MR. KASHKARI. Or if anyone—David or Thomas?

MR. WILCOX. The reason it's not in the presentation is because it's a concept that doesn't factor directly into the way that we put the forecast together. Let's see, what's the best way to describe this? It's a sort of summary estimate that is backed out implicitly through a different set of machinery. Is that a fair way to describe it? But there's no entry in our judgmental machinery in which we directly plug in an estimate of the natural rate of interest. Now, one way we would know that we are off track is if, for example, we're roughly achieving our projected outcomes on the two legs of the dual mandate, but it's taking a much more accommodative monetary policy to accomplish that objective. That's the kind of signal that, implicitly, would be a basis on which we could say, "Oh, it must be the case that the natural rate of interest is lower than what we had assumed in the projection."

CHAIR YELLEN. President Williams.

MR. WILLIAMS. Actually, I had a question for Stacey, but I'm going to pick up on this theme. Everything you said was right, up to the fact that you used—

MR. WILCOX. There may have been a sign error or two.

MR. WILLIAMS. Yes. [Laughter] No, but you do actually use an estimate of r^* in your Taylor rule, right? Does that come into your policy assumption? Is that right?

MR. WILCOX. We set, as a parameter, the long run—

MR. WILLIAMS. Right. So if you were to reassess that, you would come up with a different path for the funds rate in your forecast?

MR. WILCOX. Correct.

MR. WILLIAMS. Okay.

MR. WILCOX. And so one practical example of that is: Stacey reported an alternative scenario in which we removed the fiscal stimulus that we assumed. When we put that assumed fiscal stimulus in, we boosted our assumed number for the intercept in the policy rule by 25 basis points. If we were to take the plug for fiscal stimulus out, we would take the long-run intercept down 25 basis points.

MR. EVANS. Can I do a two-hander while we're on this particular topic? I guess I was interpreting President Kashkari's question more like, okay, so you think about cases in which you might adjust down the natural rate of unemployment. And if you want to appeal to a theory, you might look at some model or something about labor market dynamics as opposed to just the dynamics of how the data have rolled out. You bring r^* into this, and I start thinking, well, the growth characteristics are probably the first thing I'd start looking at—like growth theory, productivity being lower, if you were reducing the trend growth rate of the economy—those would be factors that would make me think about pushing r^* down. I don't really have a good way to ask President Kashkari's question, but it would be sort of like, is there anything about the

structure of the economy that makes you think about lowering the natural rate? And would that be sympathetic toward lower growth and maybe lower r^* ? I don't know.

MS. TEVLIN. Well, let me try to address your question about, are there things about the structure of the economy that would affect the natural rate? There are all kinds of structural changes that could be happening in—

MR. EVANS. And the fiscal things that you were pointing to as well.

MS. TEVLIN. Yes, right. So aging of the population is one of the things that we have built into our projection for the natural rate. And, as you said, if the matching function has changed—we have seen a shift in in the Beveridge curve over a few decades, and that's something that we have factored into our natural rate. In addition, you could think of a lot of other things that would be factored in there, and our labor economists have spent a lot of time looking at those. The overall structural stuff is not just looking at whether the data is lining up exactly. Because, with a pretty flat Phillips curve, it's hard to pin down a natural rate if all you were looking at is just how the data came in. So we look at all of these different structural pieces in determining where the natural rate likely is. And I just want to be clear that while we look at all of this stuff, we don't have a very strong conviction.

MR. EVANS. Sure. Totally fair.

MS. TEVLIN. This is our best guess. This is where we are for now, but it's not something you can pin down very well. And then the second part of your question—what was that again? Or was that it?

MR. EVANS. That was pretty much it.

CHAIR YELLEN. Back to President Williams.

MR. WILLIAMS. I'll go back to my question. Stacey, going back to this issue of the alternative scenario and fiscal policy assumptions on exhibit 3 in your presentation—so I actually thought this was a tricky scenario to grapple with myself. You have this roughly one-third probability, according to the prediction markets, that there are going to be these tax cuts—and a lot of uncertainty about this. We've seen the markets move since November—the bond market come down, the dollar come down, and stock markets stay high. So when you actually run this scenario, my understanding on the basis of reading the Tealbook and listening to your comments is that what's really driving the scenario is not the change in the formulation of fiscal policy itself—the government, taxes, and things like that—but actually shifts in the sentiment and financial conditions as people decide that this is not going to happen. But the probabilities have already come down a lot. So how do you assess that? You're basically either in your baseline making an assumption that people are going to say, "Oh, it's actually happening," so they're going to be more optimistic than they are today. And in the alternative, you're going to say that they're going to be a little bit more pessimistic, but they're already placing a low probability. That was a long sentence, and it went all over the place, but you're kind of stuck. Your baseline is a probabilistic thing, and this alternative is probabilistic. So how did you come up with these particular numbers?

MS. TEVLIN. So the baseline is a modal assumption.

MR. WILLIAMS. Yes, I know. The baseline is fine. But on this one, you're taking it—

MS. TEVLIN. We are basically assuming that a lot of the strong sentiment in both the households and the businesses in our baseline is not just due to this. But we don't know, right? So we did an experiment in which we said, okay, what if suddenly the fiscal stimulus was in there, and now it's not going to be in there anymore? What's the effect on consumption going to

be? And then the same thing for financial markets. We basically did an experiment in which we hit the excess bond premium and said, “Let’s assume that there’s a lot more in there than we are currently assuming in the baseline, and it comes out.” So we’re changing the story by going to the alternative scenario. Does that make sense?

MR. WILLIAMS. Would you say that the “delta” here is kind of an upper bound to the effects of this fiscal scenario?

MS. TEVLIN. I don’t know if it’s an upper bound, but it’s big, right? We specifically said we’re not just going to pull the fiscal policy effects out. We’re going to imagine a scenario in which we say, wow, we’ve really misinterpreted all of this strength in business sentiment, and we really misinterpreted all of the strength in the stock market, and it’s more tied to fiscal policy than we really understood. And what if all of that came out? And that’s the scenario we ran, because that seems like a possible worry.

MR. WILLIAMS. Okay. Thank you.

CHAIR YELLEN. President Rosengren.

MR. ROSENGREN. I have a question on some of the alternative scenarios. I don’t know if that’s fair game, because I know you only did one of the alternative scenarios, not all of them. But what struck me when I look out at 2019 was a number of them had unemployment rates that were quite low—3.1, 3.4, 3.5 percent—and yet the penalty for getting to very low unemployment rates seems quite low. The highest inflation rate is 2.3 percent. So one question is: Do you think there’s a chance that as we get to very low unemployment rates that we haven’t seen in 50 years that the responsiveness of wages and prices might be a little different? And the second part to that question would be, we don’t really talk about financial stability in the context of these scenarios, but sometimes if we don’t see problems in inflation when we have a very

overheated economy, we do see problems of other kinds, in asset prices. And I wonder, as you think about an increasing number of scenarios that get us to very low historical unemployment rates, how do you think about the financial stability implications of these kinds of forecasts?

MS. TEVLIN. Yes, most of these do not have any nonlinear effects in terms of inflation once you get really low on the unemployment rate. I think one of them actually does. I think the stronger aggregate demand and higher inflation one does, but I might be misremembering that. And that's the one that we get a little bit of inflation out of.

We have looked at the issue of nonlinear effects in inflation, and that is something that we think is a possibility. There are a lot of people on the staff working on that kind of research now, looking across different geographic regions to try to identify it, because it's hard to identify. And I think that we definitely consider that there is some risk of that—that if unemployment gets that low that there could lead to a nonlinear response of inflation. That's not our baseline right now, but I think that's something that we consider a concern.

In terms of the financial stability issues, it's not something we usually take on very seriously here. It's something that's difficult to model, and it's difficult to feed through. It's not in any of these particular scenarios this time. We have occasionally done it in the past, but our particular types of models don't lend themselves to that kind of thing very well.

MR. ROSENGREN. Thank you.

MR. WILCOX. You know, the inflation penalty isn't very large, even in the scenario that Stacey cited—stronger aggregate demand and higher inflation. That one does have a nonlinear Phillips curve. And if you look on page 76, in the lower-left panel, we do manage to get inflation up to about 2.3 percent in the course of that scenario. The inflation result that would

be ground out by our model would be even a smaller increment over the black line without that nonlinearity in the Phillips curve.

CHAIR YELLEN. Additional questions? Let's see, I think I first saw President Evans, and then we'll go to President Bullard.

MR. EVANS. Thank you, Madam Chair. Both presentations had interesting discussions about wages and inflation developments, and U.S. productivity growth has been slower than everybody would have liked. Then you talked about wage struggles and the international economy. What got my attention was the long-term inflation expectations, and in the euro area I was trying to figure out if current inflation expectations are above that 2014 period that got Draghi's attention in the ECB. At any rate, in view of somewhat similar experiences, or at least influences, across all of the economies, is there a common theme or explanation that maybe we should be paying some attention to? It makes me nervous. I guess that's my question.

And President Rosengren asked if something was fair game. I have no idea if this is fair game. I'm just asking. [Laughter]

MR. WILCOX. It's all fair game.

MR. EVANS. Thank you.

MR. ERCEG. In terms of the specific question about where inflation expectations are now in the euro area and Japan compared with several years ago, I think it's quite striking that five-year, five-year-forwards, as shown in exhibit 6, are essentially where they were when President Draghi gave his Jackson Hole speech in August 2014, and then subsequently they engaged in their large-scale QE programs that fall and in the early part of 2015. And similarly with Japan, the five-year-forwards are about where they were when Abe started his program.

I think there are certainly commonalities. The ECB, in particular, in its communications has stressed that wage growth has been very weak. President Draghi mentioned that in his testimony before the European parliament in late May, for instance, and thought that it basically presented a substantial risk to the ECB being able to achieve its price-stability mandate. They've increasingly emphasized how they see "shadow slack" playing out for wages. They've consistently underpredicted how fast unemployment would fall, but still wages have come out very weak. It's been a continual surprise for them. They think that the increase in employment that they have experienced has partly been part-time workers coming back and essentially some fall in labor force participation. So the unemployment rate masks some of the weakness in the labor market that might still persist and has accounted for weak nominal wage growth. The Bank of England has similarly forecast for a long time a pickup in nominal wages that hasn't materialized. They've progressively reduced their estimate of the natural rate. In consequence, it now stands at 4½ percent.

MR. KAMIN. If I could add just—one issue that your question raises is, what is the factor that seems to be depressing wage growth in all of these countries? You know, we don't have a single answer. We have some possibilities. But one of them is certainly the damage done to labor markets after the Great Recession, which hit all of these countries very hard, has had very lasting effects.

A second possibility—and these are all interrelated—is that there's considerable competition. It's been in train for many years from emerging market manufacturing that somehow has either been accentuated or become exposed by the effects of the Great Recession, and that's also put its mark on labor markets.

And then a final possibility is that we notice in all of these countries there's been a step-down in labor productivity growth. And that, too, is probably a factor contributing to the subdued nominal wage growth being seen throughout the advanced economies. But exactly which of these explanations is the right one, and to what extent, is something on which we just don't have a great handle.

MR. EVANS. Thank you. Very helpful.

CHAIR YELLEN. President Bullard.

MR. BULLARD. Thank you, Madam Chair. Stacey, your answer to the question about what's going on with inflation was that it's either noise in the data or we've got the wrong natural rate of unemployment. And I've been concerned about this for the Committee that the natural rate of unemployment is kind of a free parameter, and if inflation is not behaving the way we expect, that we just move the natural rate of unemployment around. It makes it seem like it's not a falsifiable theory. Is there some point at which we would say, "Okay, this isn't working, and maybe we should look at some other model, maybe consider a little bit of weight on other models of inflation"?

MS. TEVLIN. First, where you started was, you said that I gave those two different options, and I just want to make clear that there are other options as well. It's not an either/or there. There are other things that could be going on. And particularly, we have assumptions about the trend rate of inflation and how we interpret inflation expectations. Now, that doesn't really help you, because that's like another free parameter, and you can imagine we could use the two of those to make our Phillips curve fit and continue to say that the Phillips curve is working because we're moving two parameters around.

I think there is still evidence that the Phillips curve is working, it's just very flat. The noise that is in the inflation data unfortunately can swamp the signal given by the slack variable because the Phillips curve—particularly the price Phillips curve—is so flat. But it is still significant in a regression, and you also see stronger evidence of the Phillips curve with the wage data, and in cross-sectional data you see it as well. I would argue that we're sticking with the Phillips curve for right now. If there were a great other model, maybe we would throw it over, but I'm not aware of a model that we think is as sensible and fits the data as well as the Phillips curve right now.

MR. BULLARD. Well, you could look at a leading theory, like New Keynesian-type Phillips curves in which the gap term would be the gap between the flexible price level of unemployment or the flexible price level of output and the actual level of output. There are other things to look at that would stay consistent with the tradition of the Committee.

MS. TEVLIN. I feel very confident that my colleagues have looked at all of those various different types of Phillips curves, but we can certainly evaluate them again.

CHAIR YELLEN. Are there other questions? [No response] Seeing none, I suggest we take about a 20-minute break. There's coffee outside.

[Coffee break]

CHAIR YELLEN. Okay. I think we're ready to begin our economic go-round, and let me call on President Rosengren to start us off.

MR. ROSENGREN. Thank you, Madam Chair. The Tealbook forecast for the end of 2018 has the unemployment rate at 3.9 percent and both total and core PCE inflation rates at 1.9 percent. Is this a reasonable forecast, under the monetary policy assumption? And, if so, should we be comfortable with that monetary policy assumption? While I am uncomfortable

with the monetary policy assumption, I believe that, under the policy assumption, the Tealbook forecast for this year and next is reasonable.

However, I believe the outcome is less than desirable, as I doubt—with the unemployment rate projected to go far below its equilibrium level—that it will then be possible for monetary policy to achieve a soft landing. As a result, I would advocate a policy even tighter than that imbedded in the current Tealbook. The Tealbook policy assumption has the federal funds rate at 151 basis points at the end of this year and 273 basis points by the end of 2018. This monetary policy assumption is, of course, derived from a policy rule and is not assumed necessarily to be consistent with appropriate monetary policy. It is worth noting that the assumed policy rate path is tighter than the median SEP in March and, apparently, at this meeting, implying four, not three, increases in the federal funds rate this year and five 25 basis point increases in the following year.

Despite tighter policy than implied by the March SEP rate median and the median that's going to be coming out of this meeting, the unemployment rate still reaches a low of 3.8 percent over the forecast horizon. This is a modal forecast, but, presumably, the probability-attached outcomes in which the unemployment rate is less than 3.8 percent is nonnegligible. Of the six Tealbook alternative scenarios, four feature a lower unemployment rate than the baseline by the end of 2019, although in one of them the lower unemployment rate is also associated with a lower natural rate of unemployment.

During the tech bubble in 2000, the unemployment rate fell to a low of 3.8 percent, which was the low point right before the recession began. The previous instance of the unemployment rate falling to 3.8 percent is 1969, with the expansive war effort and the effects of easy monetary policy. That this Tealbook forecast has us reaching an employment rate associated with two

periods that, in their own ways, required costly reversals, should give us significant pause. How much we should worry about the Tealbook outlook depends on whether one finds it a likely outcome. So is it realistic? Other very credible forecasters have similar forecasts.

Macroeconomic Advisers has the unemployment rate falling to 4 percent by the end of next year. Larry Meyer has the unemployment rate falling below 4 percent in 2019. The Federal Reserve Bank of Boston model is at 4 percent at the end of next year and would be lower but for the monetary policy assumption that is tighter than that found in the Tealbook.

I assume that an appropriate monetary policy would avoid such a large overshoot of full employment. In my own forecast I assume that we begin shrinking our balance sheet after the July meeting, with four funds rate increases this year and six increases next year in order to prevent a more dramatic decline in the unemployment rate. That monetary policy assumption reflects my view that only one more federal funds rate increase after this meeting and further delays in shrinking our balance sheet will significantly increase the risk that we need to abandon the normalization principle of gradual by next year, which would certainly increase the risk of a monetary policy–induced recession.

What is the risk of overshooting on the real side, given we are still missing our inflation target? Monetary policy affects inflation with long and variable lags. Thus, I would not place much emphasis on the current undershooting of our inflation target. While we could, of course, be wrong about this, our analysis suggests that the inflation undershoot largely reflects idiosyncratic shocks to wireless pricing strategies as well as the lingering effect of a depreciated dollar. If one removes the effect of cell phone price changes, core PCE inflation is still below our 2 percent target, but not by that much. As confirmation of the view that recent inflation dips are transitory, one might ask, “How much did the recent inflation information affect private

forecasters' views of future inflation?" Work by my staff suggests that the answer is, "Not much." The effect of recent data on private forecasters' near-term estimates of inflation was to lower forecasts of future total PCE inflation 5 basis points, with no change at all in the forward estimate of core inflation forecasts.

My weighting of this information would be similar. The SPF forecast expects 2 percent core inflation by the end of 2018. My forecast also has us reaching 2 percent core inflation next year but has the unemployment rate at 4 percent, even with more rapid policy tightening. Such a path risks the buildup of macroeconomic imbalances, particularly if wages and prices respond more than they have to date, as one would expect to occur as the unemployment rate falls further below the natural rate of unemployment.

Of additional concern is the fact that, despite our December and March increases and despite the additional increases that are already incorporated in market expectations, many financial conditions have eased. Stock prices have risen further. Long-term bond rates have fallen further since our last meeting. The 10-year Treasury rate has recently hovered at or below 2.2 percent. While this likely reflects the diminished likelihood of fiscal policy actions, it may also reflect the effect of our still-swollen balance sheets. If we think monetary policy primarily affects the economy by influencing long-term rates and other asset prices, low long rates and generally easier financial conditions may indicate a need to provide more of the reduction through shrinking our balance sheet by initiating the change in our reinvestment policy soon—perhaps as soon as the July meeting—rather than delaying until later in the year.

A potential problem with the July announcement might be that we would surprise the markets and risk taper tantrum behavior. However, our tapering strategy is quite gradual and

more gradual than what many forecasters have predicted, which makes an overreaction to the announcement of an earlier date to shrink our balance sheet relatively unlikely.

There are other costs to delaying the beginning of a slow shrinkage of our balance sheet. Sectors of both the stock market and real estate markets are arguably becoming frothier. Higher long rates may be helpful in reducing the risk that these markets become too ebullient. In view of the limited movement of longer-term Treasury yields to date, this would seem to be an ideal time to take actions consistent with a steeper yield curve.

The likely decision for this meeting is clear. However, we are now at 4.3 percent unemployment, and I expect that real GDP growth will be above its potential rate over the next two years. Consistent with the Tealbook forecast, my forecast now has to confront the risks associated with running an overheated economy, even with tighter policy. Raising rates too gradually and delaying the initiation of our process of gradual balance sheet shrinkage will increase the risk that we will have to abandon our principle of gradual monetary policy normalization later. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. All signs point to an economy on a moderate growth trajectory. Output growth has rebounded sharply from its first-quarter lull, and I expect real GDP growth to be slightly above 2 percent this year. This is well above my estimate of trend real GDP growth of 1½ percent. I should note also that anecdotal reports received from my District this morning indicate there has been a surge in apparel sales with the number 35. [Laughter] Couldn't stop myself.

The labor market has maintained its momentum as well. Over the past six months, job growth has averaged 160,000 jobs, well above the sustainable pace. Solid job growth has driven

down the unemployment rate to 4.3 percent, leaving little doubt that we have reached, and indeed have overshot by a significant amount, our maximum employment mandate. And an array of other labor market indicators tell the same story—a labor market that’s attained or even surpassed pre-recession peaks—and this is undeniably good news.

Another positive sign is that the number of involuntary part-time workers has dropped precipitously this year. While this measure is still a bit higher than its pre-recession low, recently updated research by my staff indicates that this isn’t a symptom of additional labor market slack. In particular, using state-level panel data, they find that slow-moving compositional features of the labor market have increased employers’ use of involuntary part-time workers during the past decade. Most notably, there has been a shift toward low-skilled service sector jobs, such as hotel and restaurant jobs, that typically use more part-time schedules. And these compositional changes account for the entire excess of involuntary part-time employment work last year.

The sharp drop thus far in 2017 suggests that employers are adding hours any way that they can as it becomes increasingly difficult to find qualified new workers, and that is just another sign of a hot labor market. Looking ahead, I expect the unemployment rate to edge down a little bit further and then to remain near 4 percent for the next two years before gradually returning back to its long-run value of 4.8 percent. This represents a substantial and sustained overshooting of full employment.

Regarding inflation, the price data have come in a little softer than expected, pulled down by several transitory factors. Still, the “hot” labor market gives me confidence that with the dissipation of some of these factors we will continue to move toward our 2 percent target, which I expect to reach next year.

Overall, I view the risks to the outlook as balanced and not unusually large relative to the past 20 years. I do think that one thing worth watching is the very low levels of indicators of financial market volatility such as the VIX, noted in the Tealbook box “Drivers of Recent Movements of Implied Volatility,” which suggests a degree of complacency that is hard to explain completely and may be contributing to elevated asset prices of equities, real estate, and corporate bonds.

In preparation for this SEP round, I revisited my assessments of the longer-term normal values of key macroeconomic variables, including unemployment, growth, and interest rates. First, I marked down my estimate of the natural rate of unemployment, or u^* , from 5 percent to 4.8 percent. Like all of the other so-called “star” variables, the natural rate of unemployment is hard to pin down, as our discussion earlier today indicated, and it can only be inferred indirectly. Of course, we use a lot of different models in order to do that, including Phillips curve models and models of demographics. They generally suggest a value of the natural rate of unemployment between 4½ and 5 percent—Stacey discussed this—as does the Tealbook.

Although this analysis is useful, as I have mentioned before, I do think there is a simpler way to think about this question, and that is simply to ask people. The Conference Board does this. They have been asking households, “How easy or hard is it to find a job?” every month since 1978. Responses to this question are highly correlated with labor market slack as measured by the CBO, and recent readings of job market perceptions from this survey are consistent with a natural rate of unemployment of 4.8 percent. I view this as a reasonable estimate. It is also right in the middle of the range that comes from other methods.

In terms of trend potential GDP growth, I’ve edged down my already very pessimistic estimate a bit: 1.6 percent to 1.5 percent. I should note, that’s just a few tenths lower than the

Tealbook, and this change is trivial. Still, I recognize I am at the bottom of the range of the SEP, and I have been there for some time, so I'd like to just reiterate some of the reasons for that. The first is standard growth accounting. Trend real GDP growth of 1.5 percent is consistent with a decade of slow productivity growth and projections of very slow trend labor quality and hours growth, so I think that, just from a bottom-up growth accounting view, that is a reasonable benchmark. Second, statistical models like the one developed by Kathryn Holston, Thomas Laubach, and myself and other time-series models that people have used also point to a roughly 1½ percent trend growth rate, and that's what I put into my SEP submission.

Getting to President Kashkari's question, I have been reexamining the issue of r^* , the long-run value of the real federal funds rate, and I have lowered that again by ¼ percentage point to ½ percent. Because I am, again, on the bottom of the range here, I thought it was worth explaining that a little bit.

For one thing, there has been a lot of research in the past few years, both at the Federal Reserve and at other central banks, that has looked at the natural rate of interest, and they are using a variety of models and methods, and there is a growing consensus that r^* has fallen over the past two decades. For example, I looked at an average of r^* estimates coming from many different models, including vector autoregression models, the Federal Reserve Bank of New York's DSGE model, and other models, and the average has fallen from around 2 percent in the early 2000s to ½ percent in 2016, with a range of roughly 0 to 1 percent. Estimates from other advanced economies, including the work by Kathryn Holston, Thomas Laubach, and myself, and other work, also point to a significant decline in r^* across the globe.

My staff has recently added to this evidence by developing a new approach to estimate the equilibrium interest rate, and here they are using a term structure model of inflation-indexed

Treasury securities that takes account of liquidity and real-term premiums. This is not a macro model-based approach but a purely term structure, TIPS-based approach.

So it really is more a measure of what the market perceptions of future real interest rates will be, and they're looking at the real interest rate 5 to 10 years in the future. Their resulting estimates show a decline in r^* of about 2 percentage points since the late '90s to close to zero today—again, consistent I think with the findings of many other approaches.

There is also a growing body of research indicating that the global factors that have driven r^* down are likely to stay for the foreseeable future. These include the productivity slowdown not only in the United States, but in many advanced economies; the demographic waves of longer life expectancy and lower birth rates; and the elevated demand for safe assets. For all of these reasons, I fully abandon the “headwinds” story in which r^* is temporarily depressed and will eventually somehow recover with the passage of time. I am convinced by the evidence pointing to a persistently very low level of r^* of around $\frac{1}{2}$ percent. I am SEP Respondent Number 15. Thank you.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. Eighth District economic activity continues to increase at a modest pace, and contacts continue to hold a generally optimistic outlook for the remainder of 2017. However, the rise in business and consumer optimism witnessed in recent District surveys appears to have abated. It now seems that much of that optimism was tied to election and post-election exuberance. Actual sales data from business contacts in the District have been relatively weak, on balance, in recent months. District labor market conditions continued to improve, with modest employment growth and moderate growth in wages. The

most recent reading on the District unemployment rate measured as a weighted average of District MSAs is 4.2 percent.

Nationally, I continue to believe that real GDP growth in the first half of 2017 will be about 2 percent at an annual rate, virtually identical to the Q4/Q4 real GDP growth rate for both 2015 and 2016. I see little reason to believe that there are any remaining cyclical dynamics in the U.S. economy with respect to real GDP growth that would make me think that output was growing at a pace meaningfully above the trend pace.

I think the most reasonable conclusion on which to base U.S. monetary policy is that the U.S. economy has simply converged on a 2 percent growth regime that shall now remain in place until a major unanticipated shock occurs. This conclusion is bolstered by relatively weak productivity growth in recent years and also by demographic factors.

National labor markets may appear to be stronger, but the growth rate of payroll employment measured from one year earlier peaked in early 2015 at 2.3 percent and has been declining ever since. It is currently about 1.6 percent. The growth in the labor input measured by total hours is increasing at about this pace as well.

One conclusion I draw is that the labor input is growing at a pace roughly consistent with 2 percent real GDP growth, if we assume a $\frac{1}{2}$ percent annual labor productivity growth rate, which is what it has been over the past several years. Accordingly, I am hesitant to interpret recent labor market data as indicating that the economy is growing faster than it ordinarily would at the trend pace.

The unemployment rate has fallen to 4.3 percent nationally. I do not regard this as a harbinger of higher inflation ahead. The most recent research of which I am aware suggests that any linkage between relatively low unemployment and inflation is empirically very minor in

recent years. Even if unemployment went to the mid 3 percent range, it would only mean adding a tenth or two to the U.S. inflation rate, according to the empirical estimates. In addition, we remain below our inflation target as of today, so some movement toward our inflation target would be appropriate.

The financial market reaction to our March rate increase has been characterized by lower long-term yields and lower inflation expectations. The 10-year nominal yield has declined on the order of 40 basis points. I take the message from the bond market to be an indication that there are few inflation worries, nor are there many worries that the U.S. economy is about to boom. Inflation expectations measured from the TIPS market, which were already arguably soft, have drifted lower. These developments have made me worry that the Committee's plan for policy rate normalization may be overly aggressive relative to incoming macroeconomic data. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Bostic.

MR. BOSTIC. Thank you, Madam Chair. Reports from contacts in the Sixth District suggested that business activity is expected to continue at a moderate pace. This is consistent with our assessment that the tepid spending numbers we saw in the first quarter were likely an aberration. This assessment notwithstanding, feedback from the District suggested that there were some growing clouds on the horizon. Sentiment from our contacts in the auto industry was particularly dour. Auto sales have slowed recently, and most of our contacts do not expect that trend to reverse anytime soon. District automakers reported a material decrease in production, citing high and rising inventory levels. At least one large District manufacturer has begun to cut staffing levels, and other contacts suggested that they may follow suit.

One director representing a large nationally based retail auto organization cited three indicators of concern regarding the health of the new-autos market. Incentives on new vehicles are very high. Leasing rates, as a fraction of sales, are much higher than normal—30 percent versus the typical 20 percent. And those leases are apparently exclusively financed by the manufacturers themselves. As the director suggested, banks wouldn't touch them. Combining this with the high inventory levels, the view is that further production cuts are likely, perhaps by the end of the year.

Similarly, the recent turnaround in business fixed investment over the past two quarters has been encouraging. However, a sizable share of that turnaround in the first quarter was tied to a rebound in the oil and gas sector, and our industry contacts suggested that some of that increased activity was due to the need for companies to punch a hole in order to avoid loss of leased drilling rights. The inference was that we shouldn't expect continued strength in the sector absent an unexpected rise in oil prices.

As I understand it, one theme around this table for the past few rounds has been the apparent disconnect between sentiment, sometimes referred to as soft data, and behavior, which is tied to hard data. To that end, I and my staff asked contacts and directors about their current level of optimism and, more importantly, how business decisions are being affected by any changes in sentiment. The response was that businesses are still somewhat optimistic with regard to the prospects for expansionary fiscal and government policies, but that the euphoria has died down as skepticism has grown about the prospects for legislative action.

I was particularly interested in whether continued waning of enthusiasm would trigger a hard data response, implying that the hard–soft data disconnect is asymmetric. I couldn't find one director or report of a firm actually changing their current business or investment plans. My

directors argued that deteriorating sentiment is not likely to have too much of a downside consequence, in large part because businesses have yet to incorporate changes in government policy into their business plans in the first place. I gather that this has been the pattern in anecdotal reports since the November election.

I have to confess that I am a bit less sanguine about the potential for a negative shock. There is considerable evidence that people have a heightened sensitivity to potential negative outcomes, and I can envision a scenario similar to the Tealbook's "Broad Policy Disappointment" scenario should the fiscal and regulatory changes that businesses are hoping for not come to pass. As an aside, I do think there is also some value in distinguishing between fiscal changes and other regulatory changes that might take place. I think that the probability of those is not the same, so we might incorporate that into our models.

Following my predecessors in Atlanta, I have not incorporated any material changes in fiscal or other government policies into my forecast. My growth forecast implies roughly 2 percent growth throughout the forecast horizon. Although there remains some, albeit diminishing, upside risk associated with the possibility of expansionary fiscal and regulatory policies, I do consider the Tealbook's "Broad Policy Disappointment" scenario to be a material countervailing downside risk.

On prices, while I expect inflation to converge to the Committee's target by the end of next year, the recent weakness in the retail price data is concerning. As I see it, it is possible to tie some of the recent softness to the outsized price declines in a few components, as was noted by Stacey earlier, but not all of the softness, I believe, can be attributed to this.

With resource gaps that appear to be closed or closing, tightening labor markets, and a recent reversal in import prices, long-run inflation expectations should be emerging as the

dominant determinant of inflation dynamics. For the time being, I accept that they are well anchored at the Committee's 2 percent objective. The readings received from the Federal Reserve Bank of Atlanta's business inflation expectation survey and market-based expectations calculations support this conclusion. However, with five straight years of core inflation underperforming the target and headline PCE inflation averaging just 1.6 percent over the balance of the recovery, I worry about the possibility of erosion in our nominal anchor.

Nonetheless, while I am concerned, I am maintaining the view that the risks to the inflation outlook are roughly balanced. However, an accumulation of soft reports—and I'm hoping we don't see a continuation tomorrow with the May CPI release—would lead me to reconsider my priors. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. The U.S. economy continues to perform well. First-quarter real GDP growth and first-quarter productivity growth both looked especially poor when the first GDP estimates were published, but the extent of that problem was reduced by the second estimates of both real GDP growth and productivity growth, which returned to the vicinity of what, despite efforts to find the right seasonal adjustments, now appears to be normal for the first quarter. Second-quarter growth has been high enough to produce a 2 percent GDP growth rate for the first half of the year, and the staff are forecasting a Q4/Q4 growth rate of GDP of 2.4 percent, well above estimates of potential growth.

The economy has continued to surprise on both halves of our dual mandate. The positive surprise comes from the unemployment rate, which is now down to 4.3 percent. Two remarks on that achievement. First, the staff forecast is now that the unemployment rate will once again decline below 4 percent next year and remain in that range well into 2019. Second, staff

estimates using projections of labor force participation are that a rate of job creation of around 100,000 per month will suffice to keep the unemployment rate from rising.

The second point is important because the media, and it has to be admitted also our staff, tend to judge economic outcomes as surprisingly good or bad relative to their forecasts rather than relative to an absolute standard. We should not allow that behavior to have a negative effect on consumer and investor sentiment.

The negative surprise comes from the behavior of the slumbering giant, or perhaps it is a mouse: inflation. Despite the arrival from time to time of e-mails announcing that the kink in the Phillips curve has been reached, the inflation data have so far behaved in a perverse, rather than a positively kinky, way. [Laughter] The staff argues that the recent declines in the inflation rate are mostly idiosyncratic and transitory and see inflation moving back to 2 percent over the next year or two. That is certainly plausible, and I hope it will also turn out to be right.

Two additional comments on inflation. First, it is interesting to note that the dual mandate has, in the current situation, resulted in a monetary policy that is most likely less expansionary than we would have had if we had only an inflation target. Second, earlier staff work showed that our flat Phillips curve in which aggregate demand has only a very small effect on inflation has the property that the great bulk of the variation in inflation is due to the disturbance term. I believe this is based on a report that was presented to the FOMC in 2005 and 2006.

This second feature means that opportunistic re-inflation is likely to be an attractive strategy for increasing the inflation rate. Productivity growth remains disappointing, and this has been holding back both growth and wages and also depressing r^* . On this topic, too, I would like to put in my two cents' worth of comments. First, the fact that the November election

results appeared initially to lead to a significant increase in r^* reminds us that r^* is determined not only by technical factors, but also by animal spirits and thus warns us that the increasing uncertainty about what U.S. government economic policies will be poses a serious threat to the growth of the economy. Second, when appraising the risks facing the forecast, we must include the increased uncertainty about government policy in many dimensions, not only fiscal and regulatory, and not least in the financial system, but also with regard to the United States' commitments to the international economic and security framework that it has put together so successfully over the past 70 years.

Regarding the financial situation, as Simon notes, since we began tightening monetary policy in December 2015, financial conditions have eased. Herewith, some details. The 10-year yield is down about 10 basis points—this would have said “20” two days ago—with real yields down more than twice that amount. This is in part a reflection of lower term premiums despite the coming balance sheet normalization.

As noted in the Tealbook, the equity risk premium has fallen, and stock prices are up almost 20 percent since December 2015. And corporate bond yields are down significantly, more than a percentage point for the yields on high-yield securities. And the final factor, the stronger outlook abroad, especially in the euro zone, has kept the exchange rate of the dollar about unchanged over the past 18 months.

President Bullard asked, “Why do we focus on financial conditions indexes rather than the whole model?” The answer must be that if you’re trying to isolate the effects of a particular set of conditions, you don’t want to combine them with all of the other things going on in the model, which could completely obscure what has been happening there, and these indexes are reasonably useful—at least they have been over many years.

Some veterans have told me that the current situation feels a bit like 2005 in that many other factors that influence financial conditions have offset the effects of our tightening. They add that our emphases that we will move gradually and provide information about policy in advance may be leading investors to mark down the risks they associate with taking positions. Of course, risks are always large, as can be seen in the fan chart for the federal funds rate in the SEP. I hope that market participants continue to understand the risks they take, a factor that would stabilize the market reaction if you need to raise rates significantly faster than currently anticipated.

I have, in past meetings, talked about the unease I feel about setting out on a long voyage on a path that takes the economy far below the natural rate of unemployment in order to generate relatively few tenths of a percentage point of inflation. This is essentially the same point made by President Rosengren. This is, of course, a consequence of the flatness of the Phillips curve or the fact that it requires a lot of overemployment to get the inflation rate up. And, by the way, we are already on such a path. The December 2015 SEP showed only a slight undershoot of the natural rate of unemployment, but by now the staff anticipates that the unemployment rate will have to decline to a level more than 1 percentage point below the natural rate of unemployment to take us to the economy's bliss point.

The worrisome aspect of this situation could be seen if we were to find ourselves a year from now with still highly accommodative financial conditions, an unemployment rate below 4 percent, and the economy growing at around 2 percent but inflation moving rapidly to, or perhaps even beyond, our 2 percent target. What would we do then? Well, as the IS curve is steep, we may need much higher interest rates than we now anticipate to move the economy back to potential with reasonable speed, if that proved necessary. That could have significant effects

on financial markets and on the credibility of the FOMC. It is surely not a situation in which we would like to find ourselves. More on these concerns tomorrow. Thank you.

CHAIR YELLEN. Thank you. First Vice President Mullinix.

MR. MULLINIX. Thank you, Madam Chair. My outlook for economic activity has not materially changed since our previous meeting and is similar to the outlook presented by the staff. I expect GDP to continue to grow at roughly 2 percent per year, about the same rate we have seen in recent years. This growth rate is quite a bit lower than the average growth rate for the U.S. economy in the years prior to the 2007 recession, but it is not much higher than the underlying trend determined by productivity and labor force growth. For now I am looking through the weak March reading for inflation, and I continue to view inflation as not being too far from our 2 percent inflation target.

For me, the most important characteristic of the economy is that labor markets are tight. This assessment is supported by almost all available indicators. Unemployment is well below estimates of its natural rate. Labor force participation rates are above estimates of their long-run trend, and we continue to hear reports from employers in our District that job openings are hard to fill. So why then are wages not increasing at a faster rate? Well, I agree with the staff that compensation growth numbers between 2½ and 3½ percent are actually consistent with the tight labor market, as labor productivity growth is relatively low and inflation expectations are stable. With employment growth continuing to run above growth in the working-age population, I expect that labor markets will tighten even more.

For real GDP growth, weak business fixed investment in 2016 had been a cause for concern, although that concern was tempered by strong consumption growth. The fact that

strong business fixed investment compensated for the apparent temporary weakness in consumption in the first quarter of this year looks like a nice exchange.

I am, like President Bostic, not so sure how much signal we should take from the recovery of business fixed investment, but for a different reason. When we asked contacts in our region about their capital spending plans and how these plans might be affected by the evolving news about tax reform, we received two very different kinds of responses. Most small firms said that their cap-ex plans are set and do not depend on political news, but our contacts among large corporations stated that they had curtailed their capital spending plans for next year in part because of uncertainty about tax policy. As an aside, I have not included fiscal policy assumptions in my forecast.

Otherwise, the news from our District is positive. Our service survey indicated robust activity in May, with strong increases in revenues and hiring. And while our manufacturing survey was somewhat weaker, this followed four months of very strong readings.

For the labor market, we continue to hear concerns regarding labor availability and, in some cases, firms having to increase salaries or benefits to attract or keep workers. For example, a steel manufacturer reported 3 percent wage increases for most employees and quarterly bonuses and additional PTO days to line workers in order to keep them from moving. Other contacts also reported that they were responding to increased labor mobility and the difficulty of finding workers by giving bigger and more frequent bonuses, more training opportunities, and reimbursement for relocation or even student loan expenditures or debt. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Thank you, Madam Chair. We're seeing signs of synchronized expansions at home and abroad, and the global balance of risks has become more favorable. Financial conditions have eased. Recent data suggest the domestic expansion remains solid in the second quarter, and the progress in bringing Americans back into productive employment is especially heartening. There's one discordant note in this otherwise benign picture. I see some tension between signs that the economy is in the neighborhood of full employment and signs that the tentative progress we had seen on inflation may be slowing, and I would be concerned if we saw indications of this softness persisting.

The latest readings on the labor market suggest continued improvement at a somewhat slower pace consistent with a gentle landing. Payroll growth has averaged 160,000 since the start of the year, still more than sufficient to absorb new entrants into the labor market. Although the U-3 unemployment rate was running ahead of broader indicators of slack early in the recovery, more recently it's been encouraging to see other margins of slack being drawn down. At 4.3 percent, the unemployment rate is just below the cyclical low reached in 2006 and 2007, and unemployment was at or below this level much of the time from the middle of 1998 to the middle of 2001.

Some have voiced concerns that in the past the economy has proven unable to sustain its expansion when the unemployment rate has fallen below these levels. I believe it is important to be vigilant for any signs of accelerating inflation or financial stability risks. But it's hard for me to see compelling evidence of such risks at present. If anything, the puzzle today is why inflation appears to be slowing at a time when most forecasters place the economy in the vicinity of full employment.

Perhaps most puzzling—even nominal wage growth, which is most tightly connected to labor market slack, shows little sign of heating up. Overall, wages are increasing a bit more rapidly than they were a few years ago, but the latest data on wages, however you measure them, do not show much progress over the past year.

As to overall inflation in the April report, core PCE prices had increased only 1.5 percent on a 12-month change basis. This marks a considerable shortfall below the Committee's 2 percent objective, and it shows no progress over the past year or so. Although the past two monthly readings have been held down in part by idiosyncratic factors, the apparent lack of progress in moving core inflation back to 2 percent should be a source of concern.

Can we be confident that the Phillips curve will restore inflation to target in the medium term? Since 2012, over a period when the unemployment rate has fallen from 8.2 percent to 4.4 percent, core inflation has undershot our 2 percent target for 58 straight months. Indeed, the Phillips curve, as was discussed earlier, appears to be flatter today than it was previously not only in the United States, but also in a number of advanced foreign economies.

With an extremely flat Phillips curve, the anchoring role of inflation expectations is especially important in moving inflation back to target if the latest readings have been on the soft side. The Federal Reserve Bank of New York's measure of three-year inflation expectations moved down in May to a 16-month low. The May reading of the Michigan measure of longer-term inflation expectations remained near its all-time low, and, although market-based measures of inflation compensation have improved from their lows in the middle of last year, they're still below the average level in the period from 2010 to 2014.

Of course, a breakout in inflation was also not a primary concern following the past two times the unemployment rate dropped as low as it is now when recessions followed within two or three years. Instead, both episodes were preceded by elevated financial imbalances.

Today financial conditions appear to be more balanced. In most markets, house prices seem fairly well aligned with rents. While equity market valuations, as we heard earlier, appear somewhat elevated, earnings growth has been robust even as tax cut expectations have receded. Relative to fundamentals, equity market valuations don't seem to be near the dizzying heights of 1999 and 2000. Leverage and maturity transformation are much lower than pre-crisis, and the large banks at the center of the system are much better capitalized and appear to be managing their risk exposures and liquidity much more carefully than before the crisis, in large part due to critical financial reforms and changes in risk appetite.

Obviously, we need to remain vigilant. Eight years into recovery, financial conditions can change rapidly. There are already areas that are under heightened monitoring, such as rising levels of corporate debt, CRE lending, and rising delinquency rates in subprime auto. Measures of volatility are also exceptionally low, but so far these risks don't appear to be a threat to the broader system. Of course, it's also possible that the natural rate of unemployment has moved lower, and I have put some reduction into my latest projections. Furthermore, the prime-age employment-to-population ratio remains more than 1 percentage point below pre-crisis levels, and further improvement would be welcome.

Attaining the Committee's symmetric target for inflation on a sustainable basis is especially important in the current environment, with the neutral real interest rate at historically low levels. While import prices and diminishing slack should lead inflation to resume moving closer to its goal, currently I'm more concerned about the Committee's ability to guide inflation

back up to its symmetric target after falling short for five years than to respond to an acceleration of inflation, which is well-known territory.

Tomorrow morning we will receive May readings for consumer prices, and I'll be particularly attuned to any confirmation that the downside surprises on inflation were, indeed, transitory. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. My directors and other contacts continue to be upbeat about business conditions, pretty much as they were in May. Many industries reported improvements in activity, and contacts with international operations were similarly positive about business worldwide.

In the auto sector, whose sales have fallen off their peaks, our contacts still characterize the business environment as “fairly good.” Automakers believe sales have leveled out and that they will be able to keep inventories under control with the modest production declines that are scheduled for the third quarter, and I heard many similar comments, as President Bostic just reported.

I continue to hear positive reports from several manufacturers who sell equipment and materials to the energy sector, but not from domestic steel makers. Interestingly, they were grousing that imported steel products were being used to meet much of their increased demand for OCTG and pipe products—that’s “oil country tubular goods,” and the United States has become an oil country in that characterization.

Regarding the labor market, what contact report would be complete without the obligatory recitation that finding qualified workers continues to be difficult? Despite this long-running labor shortage saga, I still hear only limited stories about wage gains running above

modest rates. Even the financial market contacts we talked to each round drew attention to the lack of wage increases or other inflationary pressure. For example, one large private equity firm opened their commentary with the observation that none of their portfolio companies—that's the companies that they owned—were experiencing wage pressures, and this was unprompted.

For the national outlook, we made only minor changes to the growth projection this round. The economy appears to be bouncing back from the first-quarter lull pretty much as expected. Even though job gains have slowed some, they are still running higher than our estimate of the underlying trend, which we think is in the 70,000 to 100,000 range, and most other indicators are also pointing to a healthy labor market.

Like the Tealbook, we were surprised by the sharp drop in the unemployment rate in April and May, and we, too, have revised down our path a couple of tenths throughout the projection period. However, I remain uneasy about the outlook for inflation. At the last round, I was willing to write off the low March number as an aberration. But I have to say that April didn't provide much relief. Year-over-year core inflation has retreated to 1.5 percent. This is disconcerting. We'll see tomorrow morning if the May CPI brings better news—I guess we all said this, didn't we?

In any event, like the Tealbook, we marked our projection for inflation this year down to 1.6 percent. Forecasts beyond 2017 were more difficult to think through. Even with the flat Phillips curve, the very low unemployment rate in this forecast ought to provide stimulus to inflation, but wages don't seem to be showing much evidence of this yet. Furthermore, the inflation expectations that anchor our projections remain too low, and I agree with Governor Brainard's comments on this point. To reach our objective, we are going to have to see wages and inflation move up soon. Simply reiterating the Committee's expectations of higher inflation

over the medium term is unlikely to generate higher private-sector inflation expectations and inflation outcomes.

Putting this all together, and in contrast to the Tealbook, we lowered our inflation projections for 2018 and 2019 by one-tenth, and we now just reach 1.9 percent at the end of the projection period. In my view, accommodative policy still has a decent amount of work to do to achieve our symmetric inflation objective. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Harker.

MR. HARKER. Thank you, Madam Chair. Over the intermeeting period, payroll employment growth has turned negative in our region. However, other regional labor market indicators appear quite healthy, which leads me and the staff to discount the payroll numbers to some extent. And most other economic indicators point to continued modest expansion. For example, household employment has been growing robustly, and the discrepancy between the two series is at or near historic highs.

Over the three months ending in April, employment grew by 3 percent at an annualized rate according to the household survey, while it declined by 2.2 percent in the establishment survey. With unemployment insurance claims remaining at relatively low levels and with survey evidence indicating that firms in my District are hiring, it appears that our labor market is most likely growing at a modest clip. That said, the weakest sectors appear to be retail, arts and entertainment, and construction, in which District activity lags the nation. Geographically, the Philadelphia suburbs appear to be exerting the largest drag.

Our manufacturing index bounced back strongly in May to 38.8, its second-highest reading in the history of the series, but dropped to 27.6 in the June report to be released on

Thursday. This is still significantly above its pre-recessionary average. Both current and future prices received remain above their pre-recessionary averages as well.

In the service sector, our survey's readings were very close to their non-recessionary averages, and both manufacturers and nonmanufacturers remain optimistic. Additionally, median one-year-ahead inflation expectations remained stable at 2 percent for manufacturers and 3 percent for participants in our service sector.

The housing sector remains less robust than the nation's. Although it suffered a notable drop in April, the longer-run picture shows a sector whose activity is relatively flat. So although there are a few pockets in which we are seeing a bit of weakness that bears watching, on the whole our regional outlook is relatively healthy, and I continue to look for continued modest growth in the future.

Regarding the nation, my economic outlook is little changed from that of my previous projection. I expect economic activity to evolve a bit more strongly than the staff does, and my view of appropriate policy is a bit more accommodative than the Tealbook baseline. Incoming data support the notion that first-quarter weakness will be transitory and that some of that weakness was due to the recurrent problems in seasonal adjustment, as others have mentioned.

In addition, the latest quarterly survey suggests yet another slight upward revision to first-quarter real GDP growth. I am anticipating growth of around 2.2 percent this year, with growth of 2.1 percent in 2018 and '19 before returning to trend, which I consider to be roughly 2 percent. Due to a large amount of uncertainty, I continue not to factor in any prospective changes in fiscal policy or other related policies, such as immigration or trade.

With respect to unemployment, I project an unemployment rate falling to 4.2 percent by year's end and then reaching a low of 4 percent in 2018 before gradually rising. However, I

project that the unemployment rate will remain below its natural rate by the end of my forecast horizon. On the inflation front, I, like many others, have downgraded my forecast regarding both headline and core PCE inflation rates this year, to 1.6 percent and 1.8 percent, respectively. I then see both series returning to target.

Finally, with respect to monetary policy, I anticipate that it will be appropriate for us to raise rates at this and one other meeting this year and to follow a gradual path that slightly overshoots the neutral rate of 3 percent by the end of 2019. My somewhat more accommodative path, at least compared with the Tealbook, is informed by taking into account some downside risks to the neutral real rate and acknowledging, like others have, that inflation has remained stubbornly below target. My very gradual upward path for the funds rate reflects those concerns. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. Since the last SEP round in March, growth has continued at a moderate pace. While job growth has slowed, the unemployment rate has fallen faster than anticipated, but inflation has made less progress than expected toward 2 percent. Overall, the outlook for me remains about the same: moderate but above-trend growth of about 2 percent, with further declines in the unemployment rate and, thus, tightening resource constraints. On this path, inflation should resume its gradual upward rise to 2 percent, and I see the risks to this forecast as roughly balanced.

Payroll employment growth has been slowing for some time. In May 2015, employment was rising about 250,000 payroll jobs per month. A year ago it was increasing 200,000 per month, and now it's growing at about 150,000 per month, still easily fast enough to produce a

falling unemployment rate unless the participation rate moves up from its recent levels, which would be a most welcome development were it to occur.

I see the unemployment rate declining a bit over the rest of the year and remaining below the natural rate for some time. Although I recognize there are risks to that, on balance, I think that the potential benefits are higher, including higher wages, perhaps increased participation, and perhaps increased investment as the relative price of labor rises.

Aggregate demand, despite the weak first-quarter reading, has not slowed, and I see growth this year of 2 percent, a bit below the Tealbook estimate. Looking forward, I see demand continuing to expand at a 2 percent pace. There are some upside risks, including stronger foreign real GDP growth and real, if diminishing, prospects for fiscal expansion. In addition, financial conditions have become more accommodative since late last year, with higher stock prices and lower long-term rates despite our rate increases.

Inflation has surprised to the downside over the past 2 months, with 12-month core dropping from 1.8 percent in January to 1.5 percent today. While a good part of the weakness may be due to transitory factors, the softer readings could also be seen to suggest that a portion of the step-up in inflation last year was noise from idiosyncratic market factors. Wage data have softened a bit this year as well, with gains in average hourly earnings looking back a bit. So my “takeaway” is that wage and price pressures are a little less than I had thought, which has implications for the level of the natural rate of unemployment.

The flatness of the Phillips curve implies that small changes in underlying inflation pressures can imply large changes to the assessment of the unemployment gap and thus the natural rate. And I did reduce my estimate of the natural rate down to 4.5 percent, effectively assigning a tiny portion of the downward revision of my inflation projection to a reassessment of

slack, although what I take away from Stacey's presentation and other things is that it's not wise to have a lot of conviction about that.

As I will discuss tomorrow, as long as growth remains solid and the labor market continues on a healthy path, I would be reluctant to see the recent inflation readings we have seen so far as having important implications for the path of policy. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Madam Chair. I expect the U.S. economy to grow at just over 2 percent in 2017. This forecast continues to be underpinned by the expectation of a relatively strong consumer, as well as stronger nonresidential fixed investment.

Nonmonetary policy changes could provide upside to this forecast if they address slowing labor force growth in the United States or improve the level of productivity growth or both. So while I see potential upside from potential fiscal policy and structural reforms, I am not yet unduly optimistic about the sustainable positive effect of likely actions on real GDP growth. Growth of 2 percent certainly is sluggish by historical standards but should be sufficient to remove remaining slack in the labor market. Recent improvements in U-6 unemployment to 8.4 percent are to me significant and evidence of continued reduction in labor slack. I'm mindful that the pre-recession low in this figure was approximately 8.1 percent and that the level of discouraged workers is highly correlated with lower levels of educational attainment.

Regarding inflation, I believe that the weak March and, to some extent, April readings were transitory. For example, as has been cited by several here, telecommunication weakness was more likely due to a strategic battle between two major carriers rather than some fundamental trend. April PCE inflation figures give me some comfort in this regard. Although the Dallas trimmed mean slipped on a trailing 12-month basis from 1.8 percent to 1.7 percent, it

was really 1.78 percent to 1.75 percent, and we rounded up the first number and down the second. So it wasn't even as big as it looked, and it was really more due to an unusually strong April 2016 1-month reading dropping out of the trailing 12-month calculation rather than a weak April 2017 1-month reading.

Having said all of this, I'm going to continue to carefully monitor upcoming data releases to confirm that recent weakness is transitory rather than part of a fundamental trend, but in the meantime, my fundamental view is that an increasingly tight labor market will likely, with a lag, exert upward pressure on wages and prices.

My contacts with business leaders in the Eleventh District suggest a continuing labor shortage among skilled workers and now also growing shortages among unskilled. Several of our District business contacts report they are seeing increasing churn—that is, turnover—among unskilled workers, which tells them they need to increase wages in order to keep these employees from leaving for higher-paying jobs.

My overall assessment continues to be that inflation will gradually reach our 2 percent objective over the medium term. In that assessment, I continue to believe we should continue to patiently and gradually remove accommodation. “Patiently and gradually,” because I do believe that the secular headwinds are significant. Slowing labor force growth due to demographic trends is the foremost among these headwinds.

I'm also carefully watching the shape of the yield curve, though. With the 10-year Treasury rate at approximately 2.2 percent, my own view is that debt markets are reflecting the sluggish outlook for economic growth. I'm a little less of the view that it's because of a large Federal Reserve balance sheet, although I would be glad to be proven wrong about this. I think, unfortunately, the 10-year is more about the outlook for economic growth, and I'm very mindful

that if the 10-year rate stays where it is or even slips lower, this is going to likely flatten my outlook for the path of the federal funds rate. In this regard, I did lower in my SEP my r^* estimate from 3 percent to $2\frac{3}{4}$ percent.

Regarding the energy industry, we've seen recent weakness in the price of oil. I think part of this, though, is due to uncertainty regarding continuance by OPEC of production cuts of approximately 1.8 million barrels a day, particularly in 2018 and beyond. In addition, all of our contacts and the data we analyze suggest that shale production is on a substantial incline in the United States. U.S. production is at approximately 9.2 million barrels per day today, and at the Dallas Fed we forecast it will likely move up to just under 10 million barrels per day by the end of 2017—a big jump. This obviously is a big increase, although one thing that could slow it is shortages of work crews, which is becoming a real constraint for drilling.

Our bank's energy survey suggests that breakeven price levels are sufficiently below market prices in many locations, particularly in the Permian, to raise the level of increase in activity. I continue to believe that we're moving into oil supply–demand balance globally, and we should start to see a more sustained decline in excess oil inventories worldwide.

In the meantime, my economic team believes that the market equilibrium is going to be fragile for the next year or two due to OPEC and other oil-producing nations continuing to reevaluate their willingness to continue production cuts. Our near-term judgment is that for several reasons—probably foremost among them is the upcoming Aramco IPO, which is scheduled for the first half of 2018—OPEC is going to continue to extend these production cuts for some length of time.

In the longer run, assuming global demand growth continues at 1.3 million barrels per day, we believe we are more likely to be in a global undersupply situation within the next five

years, with price risks weighted to the upside. The fact is, the next couple of years are going to be volatile, though. The reason for the five-year and beyond view about upside is that, despite the great upside for shale, new production has a very rapid decline curve and is unlikely to be sufficient to offset the absence of investment and long-lived production projects, which have the fundamental ability to increase the supply of oil on a sustained basis. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. President Williams noted an increase in apparel sales of jerseys with the number 35 on them? Let me assure the Committee that this will be transitory. [Laughter] No longer than a year, at the outside.

Contacts in the Fourth District continue to report that conditions improved at a moderate pace over this intermeeting period. But in our board meeting last Thursday, several directors reported that confidence shown earlier in the year in many sectors has tempered to optimism. Several contacts expressed concern that political and fiscal policy uncertainty may weigh on activity.

A director from a large regional bank said that some of his customers are taking a wait-and-see attitude before moving ahead on some projects. Another banker reported that business loan demand was slightly better than in the second quarter, but not as strong as he had hoped. In contrast, the third banker, who heads a small community bank in Ohio, said his customers remain confident and that the bank is exceeding budgeted loan growth so far this year. One director summed things up by saying that, although the fiscal policy landscape remains unpredictable, there is confidence in business leadership's ability to work their way through the uncertainty.

The June reading on the Federal Reserve Bank of Cleveland staff diffusion index, which measures the percentage of business contacts reporting better versus worse conditions, moved

down to 25 from a reading of 41 in April. But the level exceeds readings recorded over most of 2016.

A reduction in motor vehicle production has affected the District's large network of parts suppliers. A director who is in the auto industry seems more optimistic than President Bostic's contacts. He said that, although auto sales are down from earlier in the year, longer-range projections put sales at about today's levels, although there is some uncertainty associated with that projection.

There is a continuing shift from passenger cars to light trucks, including SUVs, which have higher profit margins. The contact said that managing the shift is the main struggle for auto producers, accounting for some of the downtime at plants.

District contacts in the construction sector remain optimistic. In the multifamily housing sector, supply and demand are equilibrating. As more multifamily units have been completed, multifamily construction has started to slow, and vacancy rates have risen from the low levels seen over the expansion. As a result, rent increases are slowing in much of the District, and rents are declining in Pittsburgh.

One contact from a large regional bank said loan-to-value ratios for commercial real estate lending are at what he considers much more sensible levels than they were a few years ago. Construction of other types of commercial structures and single-family homes remains strong.

Conditions in District labor markets continue to be strong, with above-trend payroll growth and a steady unemployment rate. Most contacts report relatively steady hiring. A director who leads a large workforce development agency reported high employment demand

and aggressive hiring. Another director reported high demand for data scientists and cybersecurity experts.

Regarding the national economy, first-quarter growth was weak, but incoming information points to a pickup in the second quarter. The rebound in consumer spending may not be as strong as it was in the second half of last year, but investment in equipment and intangibles has accelerated considerably this year, and I view that as a positive development that may result in productivity growth rising from its anemic level.

Labor market conditions remain strong. Payroll growth over the past three months has averaged 121,000 jobs, which is at or above estimates of trend. Although the pace is slower than last year, a slower pace of job growth should be expected, taking into account earlier gains. The unemployment rate continues to decline, and, at 4.3 percent, it is below the lowest level seen over the previous expansion and stands at the lowest it has been since 2001.

Other indicators also suggest tighter labor markets. The broader measures of unemployment continue to decline, and the JOLTS job openings rate is at its historical high. Contacts continue to cite labor shortages, and some are raising wages in order to attract and retain talent.

Nevertheless, there has been only a gradual acceleration in wages in the aggregate data. While we might prefer to see a stronger pickup in wages, the pace is consistent with the low productivity growth we have seen over the expansion. Overall, I view the evidence as suggesting that the economy is at or somewhat beyond maximum employment with respect to the cyclical dimension that monetary policy can address.

The inflation readings in March and April were softer than expected, but they haven't materially changed my inflation outlook. Some of the weakness reflects some special factors,

including a drop in prices of prescription drug and cell phone service plans. According to the Cleveland Federal Reserve staff, because of the way the underlying price indexes are constructed, the declines in cell phone plans in mid-February weighed on inflation readings in February, March, and April. Depending on when in the month they occur, one-time price changes like this can affect monthly inflation rates for up to three months. It is still a transitory effect, but it is a longer transition than one might have thought.

The published core PCE inflation measure stood at 1½ percent in April, down from 1.8 percent in January and February. The Federal Reserve Bank of Dallas trimmed mean measure and a new median PCE measure constructed by the Federal Reserve Bank of Cleveland staff are higher, at 1.8 percent and 2.2 percent, respectively, and each has declined only 0.1 percentage point since the start of the year.

Although I did make some slight adjustments to my SEP submission in response to incoming data, the narrative of my forecast has changed little since March. The fundamentals supporting the expansion remain favorable. These include accommodative monetary policy and financial conditions, improved household balance sheets, the strong labor market, and improved growth abroad. I expect real GDP over the forecast horizon to grow somewhat above trend, which I estimate at 2 percent. I expect some fiscal policy package will be passed, but the composition, timing, and magnitude of the package remain uncertain. And my modal forecast incorporates only a modest addition to growth from fiscal stimulus over the forecast horizon.

Growth somewhat above trend is sufficient to keep the unemployment rate below its longer-run level over the forecast horizon. Because inflation and nominal wage growth have remained moderate even as labor markets continue to tighten, in this SEP I reduced my estimate of the longer-run unemployment rate to 4¾ percent from 5 percent, although I recognize that

such a change is not statistically significant in view of the wide confidence bands surrounding such estimates. I have also lowered my path of the unemployment rate to reflect the lower readings we have been getting. The size of the undershoot I'm projecting is little changed since March.

With inflation expectations reasonably stable, labor market strength continuing, and the economy growing at a moderate pace, I continue to project that inflation will rise gradually over time to our 2 percent goal. Reflecting the recent weaker readings on inflation, I have edged down my inflation forecast for this year compared with my March SEP submission. I note that in March it was the opposite: The inflation data had been a bit stronger than anticipated, and I had revised up my inflation projection for 2017 compared with my December SEP submission. So I should take my own long-standing advice and read even less into short-run movements in the data.

In my outlook, I continue to view a gradual upward federal funds rate path as appropriate. Reflecting incoming data, my path is a bit shallower than in my March SEP but ends 2019 at the same level, which is slightly higher than my longer-run estimate of 3 percent. Compared with the Tealbook, I expect less of a drop in the unemployment rate but somewhat more inflationary pressure. This results in our policy rate paths being similar over this year and next. I anticipate that we will change our reinvestment policy later this year to begin normalizing the balance sheet, and I view this as appropriate.

I see balanced risks to my forecast. Fiscal and other government policy changes are uncertain at this point and pose upside and downside risks. One thing I will be watching is whether the high degree of political uncertainty both here and abroad starts to manifest itself in a postponement of investment and reduced spending.

I am also watching financial stability risks. I have been somewhat surprised at how easily the financial markets seem to be shrugging off some of the political developments we have seen. On the one hand, it's good that these developments have not engendered sharp movements, but, on the other hand, the low level of market volatility, coupled with a low equity premium, suggests that financial stability risk could be building. This suggests that minor disappointments in the data shouldn't take us off the normalization course on which we have set out. Only a material change in the outlook should affect the course we have carefully charted.

I am continuing to monitor inflation developments. My modal forecast is that inflation will rise, but the Phillips curve is apparently flat at this point, and we don't know the dynamics of how it will steepen. So we need to consider how we would raise inflation should it begin to materially reverse course. Admittedly, we don't know precisely where the long-run level of unemployment is, but attempting to run the economy hot to test this level seems excessively risky, as the slope of the Phillips curve may adjust in a nonlinear fashion.

If we attempt to push the unemployment rate considerably below its estimated longer-run level, it could take quite a large undershoot of the unemployment rate before the Phillips curve steepens and we see inflation rise. If the slope of the Phillips curve steepens in a nonlinear way, then the inertia we see in the inflation process today could end quickly, and inflation may rise significantly faster than expected. At some point we would need to correct these imbalances. Past history suggests that it is difficult to manage getting the economy back to a sustainable place without risking a recession or having a period of slow growth.

The Board staff memo from December reminds us that soft landings have been hard to achieve. In the couple of examples they find, we were lucky that the shocks that hit the economy were either small or beneficial, and monetary policy was preemptive and began to tighten before

the unemployment rate fell below real-time estimates of the natural rate. This argues against trying the “some like it hot” strategy to try to raise inflation up to our goal. In a world characterized by an apparently flat Phillips curve with unknown dynamics, should our forecast of inflation over the medium-run deteriorate, it might be more effective to work directly on inflation expectations. But what’s the best way to do that? Perhaps this issue should be incorporated into our future discussions of the longer-run monetary-policy-setting framework.

Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. The Tenth District economy has expanded at a moderate pace since the previous meeting, and labor markets have tightened further.

Unemployment rates are below the national average in each of our states, with the exception of New Mexico. Wage pressures have risen in most industries this year following sluggish wage gains over the past two years.

Our business contacts remain optimistic, even as their uncertainty has grown, related to expectations for fiscal policy changes. Across key sectors, District energy and manufacturing activity continues to rebound from declines in recent years. On the other hand, state and local government budget cuts are an increasing drag to growth, uncertainty persists in the energy sector, and farm incomes remain depressed.

From our energy contacts, considerable hedging activity likely ensures further near-term drilling expansion, pushing production higher and supporting structures investment. Beyond 2017, however, the increase in domestic production could create a more challenging price environment for oil producers, especially if OPEC’s production cuts fail to offset U.S.

production or if cartel compliance erodes, either of which may result in prices falling below breakeven levels.

Finally, the farm economy remains under stress, as farm incomes continue to decline from a year ago. However, the effect on farmland values has varied. For areas with the most productive cropland, farmland values have fallen less than 5 percent, while areas with less productive ground have seen declines of about 30 percent from peak values in 2013.

My outlook for the national economy is little changed since the March SEP, and it does not include fiscal stimulus assumptions. I expect growth to bounce back in the second quarter before resuming a moderate pace in the second half of the year, with consumption continuing to be the main driver of growth and investment increasing its contribution.

One of our District contacts reported that rail shipment of automobiles had significantly slowed, and he concluded that the automobile party is over, but a few are still sipping their drinks. With more commentary from our business contacts about difficulty hiring and wage pressures, I have interpreted the May jobs number as a natural and expected slowing in job growth, reflecting a tight labor market.

The Kansas City Fed's Labor Market Conditions Indicators shows that the labor market continued to tighten through the first half of this year. Using a wide range of some 24 labor market variables, this measure of the level of activity in the labor market has increased over the past 12 months at the same rate as the past two years. In addition, this indicator of momentum remains well above its historical average, pointing to further improvement in labor markets in the period ahead.

While labor market conditions have improved, most measures of nominal wage growth have increased only modestly over the past year. In order to examine this issue, my staff used a

wage Phillips curve model that relates the quits rate to job switchers' and job stayers' wage growth. The analysis suggests that wage growth is in line with the current level of the quits rate, which has been flat over the past year.

Looking forward, as labor markets tighten and high-quality workers become increasingly scarce, firms will turn to poaching quality workers from their competitors, and this should contribute to a boost in the quits rate. Reports received from my business contacts suggest that this is becoming more prevalent. To the extent this dynamic continues, my staff's analysis concludes that a persistent rise in the quits rate of even a few tenths would lead wage growth for both job switchers and job stayers to rise significantly over the subsequent year.

Financial conditions also remain supportive of growth. The modest reduction in monetary accommodation over the past 18 months appears to have had a minimal effect. As others have noted, despite three increases in the funds rate and a fourth fully priced in at this meeting, broad financial conditions have eased since December 2015. In particular, term premium estimates have declined, on net, and corporate bond spreads have narrowed.

Finally, my forecast for inflation is little changed over the medium term. With a moderate real growth forecast, tightening labor markets, rising core import prices, and easy financial conditions, I do not view the soft readings in recent PCE reports as portending a loss of inflation momentum.

Recent data will certainly continue to hold down PCE inflation on a year-over-year basis. But I anticipate a resumption of nearly 2 percent inflation on a monthly basis in the near term. Recent readings on core inflation have been unusually volatile. For example, in March, the difference between the month-over-month core PCE inflation rate and the Federal Reserve Bank

of Dallas trimmed mean PCE inflation rate was the largest, other than in recession periods, in nearly 20 years.

Survey-based measures of longer-term inflation expectations are largely stable during this intermeeting period. And while inflation expectations remain near historical lows, according to the University of Michigan Survey of Households, this outcome does not appear to signal a loss of confidence in achieving our price stability objective.

According to work by my staff, this decline in recent years reflects a drop in the number of households having high inflation expectations along with an increase in the number of households who have low inflation expectations. This shift, however, is not coupled by greater dissatisfaction for policymakers' handling of unemployment and inflation.

In fact, households who have inflation expectations below 2 percent give policymakers a higher approval rating than those having inflation expectations above 2 percent. If households who have low inflation expectations perceive recent inflation outcomes as inconsistent with the Committee's longer-run inflation objective, then these households might arguably give policymakers low marks on their handling of the economy. Thank you.

CHAIR YELLEN. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Madam Chair. The Ninth District economy continues to experience modest growth, a continued strong labor market with reports of poor labor availability, and moderate—and, in some cases, strong—wage growth. As many of you do, whenever I hear from business contacts that they can't find workers, I always ask them, "Are you raising wages?" And the answer still most often is "no."

Wage growth seems to be varying from around the 2 percent we're hearing anecdotally in food processing to around 3½ to 5 percent in construction, IT, and finance. Notably, both St.

Paul and Minneapolis are about to start requiring paid sick leave, and Minneapolis is proposing a five-year transition to a \$15 minimum wage, something that could put some pressure on wages.

Still, price pressures are only moderate.

Manufacturing, professional services, and mining sectors are strong. Agriculture remains weak. The Bakken oil field continues to expand in North Dakota, while the rest of North Dakota is growing more slowly.

Regarding the national economy, economic growth is sluggish to moderate. The Board staff is forecasting 2.4 percent growth for 2017 as a whole. This might materialize, but this forecast seems to rely pretty heavily on a strong rebound in consumer spending over the rest of the year.

The very latest data are not great. If we look at the Atlanta Fed GDPNow forecast for Q2, as of a few days ago it has slipped to 3.0 percent from 3.8 percent, as of the time of Tealbook A. In the national labor markets, as all of you have indicated, there are a lot of interesting developments since we last raised rates in March. Most notable to me is the 0.4 percentage point drop in the headline unemployment rate. Prime-age labor force participation dropped 0.2 percentage point. The labor market is clearly tighter than it was. But as you've indicated, this is not showing up in nominal wage growth. Average hourly earnings rose only 2.5 percent in the 12 months to May, unchanged from a year ago.

So why aren't we seeing more rapid nominal wage growth? As I've said before, we're very uncertain about the natural rate of unemployment. It may be lower than we think it is, and, in the presence of only modest economic growth, many firms seem to be willing to be patient in hiring workers. Labor demand might also be more wage sensitive than in the past, in a situation of greater opportunities for capital–labor substitution and for offshoring. Looking at inflation

over a longer horizon, I really don't see any progress toward our target. Core 12-month PCE inflation of 1.5 percent, in my view, is a significant shortfall below our 2 percent target.

Governor Fischer mentioned the dual mandate and whether the existence of the employment mandate is putting downward pressure on inflation. I actually had this exact same discussion with my staff a couple of weeks ago. It was interesting. They told me I was wrong, and I told them we could agree to disagree. I think from a human behavior perspective, we now have this ability to anchor ourselves to maximum employment and declare victory, whereas if we only had a single mandate it would be harder for us to declare victory. I think it would be staring us in the face that we're coming up short repeatedly on inflation.

Since 2012, core PCE inflation has been very stable at around 1.6 percent. It has actually been stable around 1.6 percent on average over the past five years. So do measures of expected inflation show more evidence of progress? The answer is "no." Since the March meeting, 10-year Treasury yields are down about 40 basis points, and the 10-year, 2-year differential is now only 86 basis points. Inflation breakevens are also down since March and, at face value, indicate future PCE inflation of well below 2 percent. Survey-based measures have not changed much, but they remain near the very bottom of their historical ranges.

Why is this? As we talked about, slack might still be large, or perhaps the power of anchored inflation expectations may just be overwhelming the signal from slack. The bottom line is, we don't really understand inflation dynamics very well, and I don't think we should yet be confident that inflation will soon return to target. So, in conclusion, these are interesting times: a strong labor market but weak inflation, and worrying signs that inflation might not be on track to hit our target. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. I'd sum up my views with five observations. First, the economic growth trajectory still appears to be around 2 percent annualized, looking through some of the quarter-to-quarter volatility.

Second, there are a few reasons to expect that to change in the near term. In fact, despite the apparent weakening of some activity metrics recently, the outlook still looks quite positive, with household balance sheets in good shape and, I think, importantly, international activity on a sturdier trajectory and a more solid footing than we've seen in some time.

Third, despite our efforts to remove accommodation, financial conditions, broadly defined, have continued to ease and are at a very accommodative level. Long-term Treasury yields have declined, the dollar has weakened, and the stock market continues to rise. Although credit spreads have been relatively stable recently, they're also very narrow. The fact that financial conditions remain very easy should provide support to economic activity, and, to me, this development implies that we have more to do, not less to do, in terms of monetary policy tightening. After all, at the end of the day, it's overall financial conditions that influence economic activity much more powerfully than the level of the federal funds rate.

Fourth, while inflation has softened a bit recently, the labor market continues to tighten, albeit perhaps at a somewhat slower pace. Unless we've decided to adopt an alternative framework with regard to inflation that ignores the level of resource utilization, I think we have to remain confident that inflation is likely to move higher over the medium term.

Fifth, when I assess the inflation data, I do see that the year-over-year measure of core inflation is very heavily influenced by some sharp price-level adjustments, so I took a deeper look at the price of cell phone services in the CPI. A 10 percent decline in the price of cell phone services over the past three months has a weight of about 2 percent in the core CPI. So, for the

CPI, about one-half of the 0.4 percentage point decline in core inflation from the peak of 2.3 percent in January is all due to the cell phone services price decline. In the core PCE deflator, the price of cell phone services receives a lower weight. So the effect is considerably smaller, but still large enough, I think, to be noteworthy in terms of how you're looking at the inflation data.

One fly in the ointment is the evolution of inflation expectations. Market-based measures have drifted lower again after rising sharply after the election. So the five-year, five-year-forward measure has declined about one-fourth of a point so far this year. It's at 1.8 percent for the Board's measure, as Simon Potter mentioned earlier. Furthermore, the most recent Federal Reserve Bank of New York survey of consumer expectations showed a sharp drop in inflation expectations in May, with a three-year median expectation falling to 2.5 percent from 2.9 percent in April. This most recent reading is at the very bottom end of the range it's been in over the past few years.

Now, it's true, inflation expectations do bounce around month to month. But the drop in May is large, and, when we looked at it, it wasn't just the median that moved down. The whole distribution shifted lower. We also looked at people who respond to the surveys on a repeat basis, and they also showed similar declines. So it's not just noise in the sampling. It looks like something more serious. I put all of this stuff together, and I definitely favor raising our federal funds rate target by 25 basis points at this meeting.

Now, one thing that we've been talking about around the table is this issue of the data on inflation and wages, on the one hand, versus the tightness of the labor market on the other. Obviously, there are several competing explanations. One simple one is obviously that the natural rate of unemployment is lower than we anticipated. If that were the case, that would

obviously be a very welcome development, because it would indicate that we had a labor market with fewer frictions that could employ a greater proportion of those looking for work without generating inflation.

But a competing explanation is that the Phillips curve is just very flat in the vicinity of the natural rate of unemployment, and, with inflation expectations likely to be somewhat lower than 2 percent currently, there just isn't much force actually pushing inflation higher. It will happen—it's just going to take some time for that to occur.

Now, I don't know which of these explanations is the correct one. I've leaned a bit in the direction of a lower natural rate of unemployment in my SEP submission, but I don't really have a lot of conviction about that. Even accepting the fact that we don't really know what's going on here—which of these competing explanations is the correct one—I still think there's a good case for tightening monetary policy further.

First and foremost, it seems to me that we should tighten, because we should want to tighten financial conditions somewhat both to restrain economic activity and also—from a financial stability perspective—to lean against some of the “frothiness” that at least I see in financial market valuations. Looking at financial market valuations, I continue to be puzzled by the low level of long-term Treasury yields. If you'd told me five years ago that we'd see a 10-year Treasury yield below $2\frac{1}{4}$ percent at a time that the economy is growing at an above-trend pace, the unemployment rate was close to our estimates of the natural rate of unemployment, we were tightening monetary policy, and it was broadly anticipated we'd soon begin to normalize the balance sheet, I'd say that is not possible. But that's where we are.

I'm also perplexed by the extremely low level of market volatility in an environment in which policy uncertainty is quite high. So my market concerns also push me in the direction of

wanting to remove accommodation. Some might argue that tightening monetary policy at this meeting is inappropriate. When inflation is below our objective, we shouldn't be preemptive. We should wait for higher inflation before moving further. But I think this ignores the fact that our actions haven't actually been preemptive yet—because we haven't yet tightened financial conditions.

In addition, I think there's a good reason to be preemptive. Monetary policy works with a lag. If we don't continue to move to withdraw accommodation and return to a more neutral monetary policy setting, we might have to tighten much more aggressively later, and I think that would increase the risk of a hard landing for the economy. So my bottom line is this: With financial conditions extremely accommodative and few significant downside risks to growth being visible, I don't think a rate hike at this meeting significantly increases the risk of being stuck in a world of 1½ percent inflation indefinitely.

In terms of our SEP submission, we haven't made significant changes. We've lowered our unemployment rate path a little bit and our estimated level of the natural rate of unemployment slightly. We raised our long-run federal funds rate projection by 25 basis points. We were at the low end, so we raised it 25 basis points to 2¾. But our interest rate trajectory is unchanged from our March SEP submission: We have one more rate hike this year—25 basis points—not counting this meeting's move, three in 2018, and three in 2019.

We made one other set of changes, though. We moved our assessment of the level of uncertainty down from “higher” to “broadly similar” for the four categories of real GDP growth, the unemployment rate, inflation, and core inflation. While I agree that there's considerable policy uncertainty, I think the probability of a major policy action does seem to have diminished compared with earlier. Also, the international outlook seems less uncertain—Great Britain

excepted perhaps—and this is also a factor in the shift that we implemented in this round in terms of the level of uncertainty. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. And thanks, everyone, for an insightful discussion of the outlook and the important risks affecting it. I would like to conclude this round with a few observations of my own on recent economic developments, their implications for resource utilization, and the tradeoffs among various risks that we face in setting policy.

Starting with the spending data we have received since our March meeting, and smoothing through the quarterly ups and downs: It looks like the overall economy is continuing to expand at a moderate pace. As we anticipated, growth in consumer spending has bounced back after the Q1 dip, although growth for the first half as a whole is still relatively modest at about 2 percent.

In contrast to last year, business investment appears to be expanding at a solid pace. It has been boosted in part by the ongoing recovery in drilling activity, and the drag from net exports during the first half now appears to be somewhat less than previously projected, although international factors continue to restrain domestic activity.

All told, the staff estimates that real GDP this quarter will be up about $2\frac{1}{4}$ percent over a year earlier, much like the average growth rate of the past three years. I anticipate that growth will probably remain moderate, as the fundamentals driving aggregate demand haven't really changed: Population and productivity growth continue to be slow. Access to mortgage credit remains restrictive for many households. Capital utilization rates continue to run below historical averages, limiting firms' incentives to invest. Global economic activity has strengthened but remains moderate, and the dollar is still quite elevated.

Finally, the Congress appears unlikely to pass any stimulative fiscal measures this year. Of course, the persistent post-election gains in the stock market, house prices, and consumer and business sentiment could still be a harbinger of stronger growth to come. But as each month passes with few signs of any persistent acceleration in household and business spending, I place increasingly low odds on this possibility. For these reasons, I anticipate that real GDP growth will come into line with potential next year as we continue our gradually tightening of the stance of policy.

Importantly, the moderate overall growth that we have seen over the past few years has been accompanied by a gradual deceleration in employment. Monthly payroll gains have averaged 160,000 since the turn of the year, down from 187,000 per month in 2016, 226,000 in 2015, and 250,000 in 2014. To be sure, the slower pace seen so far this year is still well above the range that is likely to be consistent in the longer run with the stable unemployment rate, but the gap has narrowed appreciably, and it should gradually close as we bring the federal funds rate into line with its neutral rate. My expectation is that this closure will occur quickly enough to cause the unemployment rate to bottom out at just above 4 percent next year. Of course, it could end up somewhat lower or higher even if growth remains moderate, depending on movements in the labor force participation rate, productivity, and other hard-to-predict factors.

Does this forecast mean that I anticipate a red-hot labor market? Well, no, because I think labor utilization is currently close to its sustainable longer-run level. Of course, the flatness of the Phillips curve makes it difficult to pin down the natural rate of unemployment with any precision, and so the Tealbook could well be right that it is close to 5 percent. But my assessment is that the natural rate is probably appreciably lower.

I base that judgment on estimates I recently reviewed that are derived from several different state-space models. These models all incorporate a Phillips curve and use trend-cycle decomposition techniques to infer changes over time in the natural rate and in potential output from co-movements among a variety of output, labor, and inflation series.

Estimates of the current value of the natural rate vary across these models, with some as low as 4 percent and as high as 5 percent. But, in general, they are centered on 4½ percent. This figure strikes me as more consistent with the subdued wage growth we continue to see as well as with research suggesting that increases in the average age and education of the labor force have pushed down the natural rate in recent years.

Importantly, these estimates of the natural rate are all conditioned on the assumption that long-run inflation expectations have been running at 2 percent for some time. Admittedly, one might, as the staff does, interpret the data as indicating that expectations have been anchored at a lower level, and under that assumption, the data should instead be interpreted as indicating that the natural rate is greater than estimated by the state-space models. Otherwise, it would be difficult to reconcile the average historical levels of inflation and the unemployment rate. The medium-term policy implications of this alternative interpretation, however, are not very large, because the higher resource utilization implied by a higher natural rate would be needed to get inflation back to 2 percent, taking into account the lower level of inflation expectations.

Based on these econometric results, I have lowered my SEP forecast of the longer-run unemployment rate to 4½ percent. As a result, I view 4 percent unemployment as indicative of a merely “warm,” and not a “hot,” labor market. With inflation still running noticeably below our 2 percent objective, I see such labor market conditions as appropriate, especially in view of that progress on reaching our inflation objective has been slower than I anticipated earlier in the year.

Core CPI prices were surprisingly weak in both March and April, and excluding the erratic nonmarket component, core PCE prices were low in both months as well. The trimmed mean PCE index was also weak. I agree with the staff judgment that these surprises are most likely one-off developments that have few implications for inflation over the medium term. But I don't think we should dismiss out of hand the possibility that they may be a harbinger of something more persistent. Tomorrow's CPI release may provide some clues on that score. In any event, the recent weakness will arithmetically hold down inflation measured on a 12-month basis for some time to come, thereby posing some communications challenges.

To be sure, allowing unemployment to run in the vicinity of 4 percent poses risks. It could give rise to greater resource pressure than I anticipate, conceivably causing inflation to persistently overshoot our 2 percent objective and inflation expectations to begin ratcheting up. But in light of the stability of inflation expectations over the past 20 years, and with little evidence that the slope of the Phillips curve steepens much, if at all, at high levels of resource utilization, the emergence of a persistent inflation problem would likely be a slow process, affording us ample time to take corrective action. We should also have time to take corrective action if we see signs of rising leverage or other emerging financial vulnerabilities—again, something I don't expect. We also have to bear in mind that a policy designed to keep unemployment at 4½ percent or higher could pose its own risks, as the natural rate may well be lower. Such a policy would not only unnecessarily harm many workers, it would also slow the return to 2 percent inflation, and this might even cause inflation expectations to begin ratcheting down.

A somewhat different concern is that by allowing the unemployment rate to fall below the natural rate, we will inevitably cause a recession when it is necessary to tighten policy to

prevent an overshoot of our inflation objective. However, the historical evidence in support of this claim is mixed at best, and I am less pessimistic about our ability to achieve a soft landing from below for the unemployment rate. And the odds are considerable that we won't even have to try, because some unexpected development may push the economy into recession on its own well before inflationary pressures become a problem. That said, if signs emerge that the labor market has become seriously overheated and that inflation is in danger of materially overshooting our 2 percent objective, then we will have to act. A symmetric conclusion applies if inflation remains stubbornly low.

So what are the policy implications of these observations? For me, they imply that our long-standing strategy of gradually removing accommodation remains appropriate, as it balances the various risks we confront. Anticipating tomorrow's discussion, I view that strategy as consistent with raising the target range for the federal funds rate 25 basis points at this meeting. And assuming that economic conditions evolve as expected in the coming months, we could announce the start of our portfolio normalization program in, say, September, allowing us the option to raise the target range again at our December meeting if a further increase looks to be warranted.

Of course, other sequencing approaches are possible, and I wouldn't rule out simultaneously raising the federal funds rate and announcing the start of the portfolio normalization program if that looks to be appropriate. I assume we will discuss these possibilities tomorrow, and I look forward to your thoughts. Let me stop there. And I think we still have plenty of time, so let me turn the floor over to Thomas for his policy briefing.

MR. LAUBACH.⁶ Thank you, Madam Chair. I will be referring to the handout labeled "Material for the Briefing on Monetary Policy Alternatives."

⁶ The materials used by Mr. Laubach are appended to this transcript (appendix 6).

Under alternatives B and C, the Committee would announce that the evidence accumulated since it met in May warrants another 25 basis point increase in the target range for the federal funds rate. In contrast, with alternative A, the Committee would maintain the current target range while it assesses whether the recent lower readings on inflation were due to transitory factors. As Simon mentioned, the perceived probability of a rate hike at this meeting reported in the Desk surveys rose over the intermeeting period to about 80 percent, and the probability implied by financial market quotes climbed to about 90 percent.

Beyond this meeting, however, the path implied by OIS quotes, shown by the black line in the upper left panel, suggests that market participants expect a slower pace of rate hikes over the medium term than they did at the time of the March meeting, the red line, when you last raised rates and market participants assigned about even odds to a June hike. A straight reading of current OIS quotes points to a cumulative increase of only 50 basis points in the federal funds rate between the end of 2017 and the end of 2020. The OIS-based path, repeated as the black line in the panel on the right, is also well below the trajectories suggested by the median response in the June SEP—the blue diamonds—and the modal path from the most recent Desk surveys—the tan line—with the OIS-implied rate lying up to 125 basis points below those estimates by the end of 2019.

How should we interpret these notable differences? In particular, does the flatter OIS path signal disagreement with the SEP outlook, *in extremis* an expectation of a recession not too far into the future, or some other considerations that would lead you not to deliver as many funds rate hikes as the median SEP path suggests? The next three panels discuss two possibly complementary answers to this question, derived from survey data as well as from the staff's OIS term structure model that accounts for the effective lower bound. The first possibility, to which Simon already alluded, is that investors see risks to the outlook as being skewed to the downside; the second is that investors are willing to accept low *expected* returns on assets such as OIS contracts because they want to insure themselves against a weakening economy or declining inflation, circumstances in which these contracts deliver relatively high returns.

The upper three rows in the middle-left panel show that the modal views of the median SEP respondent, the average Blue Chip respondent, and the median Desk survey respondent are quite similar. The subsequent two rows provide evidence from the Desk surveys in support of the first view that I discussed. That is, much of the difference stems from the fact that the market-implied path, which reflects mean expectations across possible outcomes, is pulled down substantially by investors placing greater odds on events that will lead to the federal funds rate running below their modal path. Specifically, Desk respondents' mean expectation for the funds rate at the end of 2019, shown in line 5, is about 85 basis points below their modal expectation, line 3, and is only about 25 basis points above the unadjusted OIS quote shown in line 7. This suggests that the lion's share of the gap between unadjusted OIS quotes and modal expectations from the Desk surveys may reflect the difference between the mean and mode of the distribution of outcomes for the funds rate.

Interestingly, this mean-mode difference is only in part driven by the possibility of returning to the effective lower bound, an event to which respondents' attached roughly 20 percent odds in the June Desk surveys. That is, even conditional on not returning to the lower bound, the mean, shown in line 4, is substantially below the mode, suggesting that survey respondents place substantial odds on a more gradual path than the SEP median even in benign scenarios. In this sense, as we heard recently from some market participants, the SEP path may be viewed as “aspirational,” a best-case scenario.

The reasons for this pessimism are, at least to this observer, a bit of a puzzle. Arguably, the labor market has recently tightened more than expected. True, recent inflation readings have missed to the downside. But the indicators we follow suggest that the recent lower readings reflect, at least mostly, temporary factors, consistent with the Committee's assessment in alternatives B and C and your SEP submissions that the medium-term outlook for inflation is little changed. And, as shown in the middle-right panel, market-based probabilities of possible outcomes for CPI inflation over the next five years have shifted down only slightly toward lower values since March.

An alternative explanation for the flatness of the market-based curve is offered by the staff term structure model of the OIS curve, which takes the effective lower bound into account and incorporates information provided in Blue Chip survey forecasts of the federal funds rate. This model reverse-engineers expectations embedded in market prices by recognizing that these prices reflect in part negative term premiums, effectively insurance premiums paid by investors *ex ante* who value positive returns *ex post* more in some eventualities than in others. In the upper right panel, the red line shows the path implied by the staff model, which lies substantially above the raw market-based path because of an estimated large negative term premium. As shown in line 6 of the table, the model-implied path for expected rates is not much below the modal paths given in both the SEP and the Desk surveys. The difference between this interpretation and the mean-mode differential is that, here, investors do not necessarily assign higher probability to a substantially lower path for the federal funds rate. Instead, they are willing to accept a negative term premium on fixed-income assets like OIS because the value of these assets is expected to rise in the event of adverse outcomes, such as a recession that is accompanied by low inflation. In this way, OIS contracts offer portfolio insurance for which investors are willing to sacrifice some yield.

Two estimates of the time series for this term premium are shown in the lower left panel. Whether measured using the staff's OIS term structure model—the light blue line—or forecasts from the Blue Chip survey—the dash-dotted line—the estimated term premium has been negative since 2010. Notably, the OIS model-implied term premium has fallen by about 20 basis points since March. The persistently negative estimates may be a harbinger of the “new normal” in a low- r^* world, which changes the hedging properties of OIS contracts.

What messages might these results carry for your policy decisions today and at future meetings? As summarized to the right, under either interpretation of the low OIS path, investors seem to view the predominant risks to the outlook as those that counsel caution and patience in removing accommodation. They seem to place little weight on concerns that would necessitate a steeper path for the federal funds rate, such as a sudden outbreak of inflation. This may reflect complacency on the part of investors or a view that the most pertinent macroeconomic risks are no longer related to inflationary pressures emerging from a tight labor market. Of course, we should be quite humble regarding our ability to extract information about market expectations from market quotes or surveys. Strong—some might say heroic—assumptions underlie much of the analysis in my presentation. One important caveat is that responses from the Desk or Blue Chip surveys may not coincide with the expectations of the marginal OIS investor. Another is that the model could be misspecified or subject to parameter instability. The appropriate modeling and interpretation of market quotes form an active area of research by the staff within the Federal Reserve System.

The May statement and the draft alternatives and implementation notes are on pages 2 to 14 of your handout. Thank you, Madam Chair. That completes my prepared remarks, and I will be happy to take questions.

CHAIR YELLEN. Thank you. Are there questions for Thomas? President Kaplan.

MR. KAPLAN. I'm glad you're talking about this today, because there's a dilemma: tight labor market, very accommodative financial conditions, equity investors, volatility is very low. On the other hand, fixed-income investors I talk to and you talk to are very concerned, very worried, very pessimistic, very willing to buy insurance. And the 10-year Treasury rate being at 220 basis points does bother me significantly, because it may be extraneous factors—the trick is, I know the market is telling us something, I'm just trying to figure out what it's telling us.

And maybe as we start unwinding our balance sheet and other things happen, we'll see this back up. But I do think, if the July meeting is a quiet time, I would actually love—maybe in conjunction with the Open Market Desk—to go a little bit deeper into some of the thinking of fixed-income investors out there and a little bit more in depth about this 10-year issue. With the federal funds rate at 100, 125 basis points—it doesn't bother me that much. At 125, 150, it bothers me a little bit more. At 150, 175, I start to think, if the 10-year doesn't back up, we're

getting in a very awkward situation that's not very far away. So if we have a little spare time in July, I'd love to dig a little deeper and talk about this more.

CHAIR YELLEN. Good suggestion. Vice Chairman.

VICE CHAIRMAN DUDLEY. I have a question. I get this story about the people with these big portfolios, and they are doing this to buy insurance. But there's a lot of speculative capital, too, whose managers aren't thinking about a big portfolio. They are just thinking about how to make money. Why doesn't someone come in on the other side that's not managing money for an institutional type of fund and just say, "This is a surprise"?

MR. LAUBACH. Sadly, I don't have the golden investment strategy to offer here. Returning to this theme, in recent conversations, I was struck by the commentary among these types of investors we were talking to in terms of the absence, really, of much upside risk to inflation. The tenor there was, you will have a very difficult time returning inflation to 2 percent. Nobody in this group wanted to take the other side of that. On the other hand—

VICE CHAIRMAN DUDLEY. I just think there's a lot of speculative capital, that's basically just very opportunistic.

MR. LAUBACH. You have obviously, a buoyant stock market, so it's a little hard to reconcile all of these things.

MR. POTTER. The worst-case scenario is, all the people who bet on the higher federal funds rate for all those years, when they go to their boss and say, "I want to make that bet again," they say, "You can't do it because you've perpetually lost money for the last five or six years. So we're not going to let you do it." That's scary, because we could get to a point at which their boss suddenly says to them, "Oh, yes, you should be putting this bet on. You should have come to me." And it would look like 2013, when we saw that big change. If people were convinced

rates were going to be low, then within a few weeks they thought they're going to be high, then you get this massive uptick. I think Governor Fischer spoke about this six or seven weeks ago.

VICE CHAIRMAN DUDLEY. I think partly what's going on is, we thought we were going to raise rates faster and we didn't, so that just sort of got embodied in market expectations. Now, maybe this year we'll start to undo that, but I'm really quite worried that there is going to be a very sharp snapback at some point.

MR. FISCHER. And what conclusion do you draw from that for policy?

VICE CHAIRMAN DUDLEY. I think we have to keep stressing that we are pretty confident that we are going to do quite a bit more. The bigger the gap between where we think we're going and where the market thinks we're going, that is sort of a potential vulnerability. We'd like to have a smooth ride rather than a bumpy ride.

MR. POTTER. The other issue is just where rates are in the rest of the world. So we'll constantly hear that the U.S. 10-year can't get much higher than this unless we see it higher elsewhere.

MR. KAPLAN. That makes sense.

MR. POTTER. The thing that's confusing is, the dollar has sort of moved in the opposite direction for that.

VICE CHAIRMAN DUDLEY. Yes. You could tell that story coherently if money flowed into the 10-year, which then pushed the dollar up, which then slowed down the U.S. economy, which then helped hold down long-term credit yields. But that is actually not what we are seeing right now.

MS. BRAINARD. I think, in addition to the international environment, which is weighing on the long end of the curve, all of the earlier movement that we saw seemed to be very

much associated with the election and expectations of this. So you really had two things pushing down the long end in the intermeeting period.

MR. POTTER. But we couldn't explain the 10-year when it was at 1.6 percent. We can't explain it at 2.2, so—

MS. BRAINARD. No. But I think you can understand why, at the same time as we're talking about balance sheet roll-off, the markets are moving in the other direction, because there are these additional factors that seem to be very powerful.

CHAIR YELLEN. Other questions?

MR. ROSENGREN. Wouldn't all this discussion imply an earlier start to balance sheet normalization if you're worried about why the 10-year is so low? One of the answers is that during normal times when we're raising the short-term rate, we don't have a big balance sheet. This time around we have a big balance sheet, so I think it's partly a policy choice that we have made about starting at the short end and not moving the long end until this point in the cycle. So we have a yield-curve-flattening strategy. We not usually suppressing the long end of the yield curve with a big balance sheet. That is one of the differences this time.

CHAIR YELLEN. Neel.

MR. KASHKARI. One other interpretation, though, is, maybe we should wait to see inflation actually move in the right direction before we act.

VICE CHAIRMAN DUDLEY. Take it outside. [Laughter]

CHAIR YELLEN. Okay. We'll continue this discussion tomorrow, 9 o'clock.

[Meeting recessed]

June 14 Session

CHAIR YELLEN. Good morning, everybody. We're going to start off this morning by asking David to discuss this morning's releases.

MR. WILCOX.⁷ Thank you, Madam Chair. This was another weaker release than we had expected. There is a summary table that provides results to you to one digit. Because this is an issue of some precision, I'm going to give you some figures to two digits. Top-line CPI prices declined 13 basis points. We had been expecting a decline of 6 basis points—so a difference of 7 basis points on the top-line CPI. Of greater concern, though, is the fact that the core CPI index increased 6 basis points, whereas we had expected an increase of 18 basis points—so a difference in core CPI space of 12 basis points.

On preliminary inspection, three categories stand out as especially weak. Apparel prices declined for a third month. They were down 0.8 percent, not at an annual rate, in May.

Medical services prices also were weaker than we had expected. That's a category that we focus on because medical services prices figure into the CPI. But in constructing the PCE price index, the BEA does not port over medical services prices from the CPI into the PCE index. Instead, they use components of the PPI in constructing the PCE price index, and medical services prices were not as weak in the PPI as they were in the CPI. Yesterday we got the PPI, and we were not surprised by the medical services prices.

Airfares declined in both the PPI and the CPI. They were weaker than we had expected, but they were essentially equally weak in both the PPI and CPI relative to our expectations.

I don't have a good translation yet because we're having some mechanical difficulties getting the data loaded into the system. I'm hoping and expecting to have that in about 10 or 20

⁷ The materials used by Mr. Wilcox are appended to this transcript (appendix 7).

minutes. All told, as I mentioned, there's a surprise of about 12 basis points on core CPI prices. Our rough guesstimate—and I'd like to have the ability to refine this later on this morning—is that the surprise in terms of the PCE price index will be about two-thirds of that. So, for purposes of discussion right now, let's call it an 8 basis point surprise weaker on the core PCE price index. What that means is an increase in May in core PCE prices of about 8 basis points rather than the 15 or 16 that we had been projecting in the Tealbook.

An obvious next question is, what are some hypotheses about the economic mechanism that could be at work here? There are a variety of possibilities. One is that it could be that there's a little more slack in the economy—as Stacey indicated in her discussion yesterday, particularly, I believe, in response to a question from President Kaplan. The Phillips curve is flat enough that even if we were to mark down our assumption about the natural rate of unemployment by a couple of tenths, that would account for essentially nothing of the surprise this morning in the CPI.

I think likely more empirically important is some possibility that maybe there's something going on with regard to the pass-through of import prices into domestic consumer prices—that the timing or magnitude of that pass-through may be different than what we had assumed. We've seen a turnaround in import prices this year over last year. Last year, in 2016, import prices declined. This year, they're up—not robustly, but they're in positive territory. So we've been expecting some greater support for core goods prices domestically. But, nonetheless, I think that's an area that we'll be having a close look at.

There could be something about the pass-through of the enormous energy price declines into core prices that we don't have right. Another possibility that isn't very satisfying but that I think needs to be taken seriously is, there is random variation even ex post. The residual in any

econometric equation for inflation accounts for a large amount of the total variation. That said, this is another in a sequence of generally downward misses. We've been, in some sense, reserved in our expectations about how quickly inflation was going to come up, and, even so, we have tended to be wrong to the downside. So I think, in light of this release, I'm less confident in asserting that these are transitory factors with a lot of crispness, and I think we have to be open to the possibility that there's something a little more going on here that we don't understand.

CHAIR YELLEN. Did you want to also comment on retail sales?

MR. WILCOX. Oh, the retail sales release. Again, I have a very preliminary translation of that, and I have nothing that incorporates the price news into its implications for real spending, because that will be the combination of the two releases that we received this morning.

Nominal sales were pretty close to our expectations. The components that the BEA uses to construct real PCE spending were revised up one-tenth in March and two-tenths in April. They were three-tenths weaker in growth rate terms in May than what we had expected. The pretty rough translation that I had the opportunity to do thus far suggests that in nominal terms—again, not taking account of the price news—this would imply just a very marginal upward revision to our projection for second-quarter spending and a very equally marginal downward revision to real spending in the third quarter. I'm guessing that the weaker-than-expected price news will probably—logically, it's got to offset some of that, basically on consumer spending. For purposes of the accuracy that I can bring to the table this morning right now, I'd say it's likely, I'm guessing, about a wash.

CHAIR YELLEN. Are there questions for David?

MR. KAPLAN. I guess I might ask one, but it's not really a question. There are two big trends going on globally that we've talked about. One is technology-enabled disruption, which is

clearly affecting apparel, but it's affecting lots of industries and limiting pricing power. And then the other big trend is global overcapacity, particularly because of the growth in China. You have a tight labor market domestically. Inflation may be more affected by global factors even with a tight domestic labor market. I just wonder how you factor in those two trends.

MR. WILCOX. Let me take the import competition first. In some sense, we cheat a little bit because we put import prices directly into our equation as a right-hand-side variable. It's an explanatory variable for domestic inflation. And we had seen some turnaround, as I mentioned, in import prices. So it's not that there isn't anything to that story. But one needs to refine the story so that the competitive margin is greater than otherwise and the timing of the pass-through is a little different than what we had anticipated.

In the past, we've observed that the pass-through is quite quick from import prices into domestic prices—generally speaking, within a quarter. So, in light of the modest turnaround in import prices in the first quarter and what we think will be a more substantial increase in the second quarter, we had assumed that the import-induced weakness in domestic goods prices was pretty much done. Now, it may be that that factor is a little more persistent than what we wrote down.

MR. KAPLAN. I'm wondering, do you look beyond import prices? For example, a number of the industries—energy is a great example—compete in a global market. It's having an effect even though it may not be showing up in import prices. But it may be showing up, nevertheless, because it's a global market, and I wonder how that factors into your thinking.

MR. WILCOX. Again, in an effort to explain domestic core goods—that is, non-energy and food prices—we do use energy prices as an explanatory variable, because energy items are an input into the process and we think that influences the price-setting behavior of domestic

producers. So those relationships evolve, for sure, over time. The pass-through from energy prices into the core has changed over time, and it could be that we're undergoing another evolution in the structure of that relationship with respect to either timing or magnitude. But we do try to take account of that.

On the global overcapacity hypothesis, we've looked in the past at this and have not found—our ability to measure global overcapacity is pretty darn imperfect probably, to put it charitably. That having been said, we have excavated like crazy in the past, and we've not found any additional explanatory power for global measures of resource utilization once we control for the items that you were highlighting—energy prices, commodity prices, and import prices. Once we got those variables in on the right-hand side, we can't find anything. Now, my recollection is that a coauthor is sitting on my direct left. So, would you elaborate on that?

MR. KAMIN. Actually, I wouldn't add much. That pretty much says it, which is, we ran Phillips curve-type regressions for the United States that were augmented by measures of global slack, like global output gaps, and they did not add much explanatory power to our straight Phillips curves.

I would also note that, as far as the overcapacity you've referenced is concerned—right now, some of the concerns are very focused on metals, steel, and other areas of heavy industry in which China has overinvested. And I guess, just on the basis of the readout that David provided on the recent CPI, that was not where the price dips were most concentrated, right? You mentioned apparel and other areas in which there's probably a little bit less overcapacity because there's more of an ability to focus the production capacity on current needs.

MR. KAPLAN. I'll make one more point, and I'll stop the questioning and be quiet. Returning to the disruption, I take it measuring that is very hard. It's hard to run models to map

what's going on, as it's changing so rapidly. I assume that five years from now we'll be able to look back more easily, but it's hard to judge currently what the effect of that is.

MR. WILCOX. It is. It's even hard to assert with confidence what the sign is of disruption, and let me try to give one piece of intuition for that. A commonplace observation is that business dynamism is down, and some metrics of that are that fewer new firms are being created. Job churn has trended down, so, in the labor market, it remains the case that an astonishing number of jobs are both created and destroyed every month. My recollection is, something like 4½ or 5 million jobs are created or destroyed every month. However, that's always been true, and it's a little less true now than it was a decade or two ago. Because of the prevalence of anecdotes in this regard, my conviction is, there's got to be something to it, but it's pretty hard for us to get a handle on it.

MR. KAPLAN. Thank you.

CHAIR YELLEN. President Evans.

MR. EVANS. Well, I think, more generally, President Kaplan raises a very interesting point here. David, I think of you as really an expert on this, thinking back to your mid-1990s opportunistic disinflation research in a different environment—the question of whether there's some type of underlying secular trend, perhaps in pricing power, for whatever reason: technology, global competition, or whatnot. And the question was, back in the '90s, “Well, this could be an opportunity to get inflation down closer to what we always wanted it to be,” so you'd run policy somewhat tighter. You'd have, if we were doing it back then, some measure of equilibrium r^* that would tell us whether we're running tighter.

Now, we're in a different environment in which, in my opinion, inflation is lower, and the question still is, what's the stance of monetary policy that gives rise to the lift in inflation?

Do you think there's anything to that type of thinking at this point, or are these more transitory headwinds? That's really the big question.

MR. WILCOX. There may be something to it, but I think it's going to be extremely difficult for us to discern that in real time.

I did get an update, and, on the basis of what we know right now—on the basis of a complete loading of the data into our system, but, again, it does not include non-market-based prices because we won't know those until the BEA publishes the monthly PCE price index at the end of the month. Taking that on board, we estimate the shortfall in core PCE prices to be 9 basis points, so that was pretty close to the 8 basis points that I mentioned earlier this morning. Of that, apparel accounts for about 3 basis points. There's some weakness that we don't understand in other durable goods that accounts for about 2 basis points; airfares and other services, about 3 basis points. So it's a little of this and a little of that, but reasonably close to what we had guesstimated on a rougher basis earlier.

CHAIR YELLEN. Any further questions for David? [No response] Okay. Before we begin our policy round, let me say that, these data do seem to me to be a significant enough surprise on inflation that it might warrant a modest adjustment to the statement of alt-B—not a change in the policy actions, but I would like to propose and then get your reactions to a wording change in alt-B. What I would propose doing is taking the final sentence of the second paragraph in alt-A and substituting that sentence for the final sentence in the second paragraph of alt-B.

MR. LAUBACH. The final two sentences.

CHAIR YELLEN. The final two sentences. The end of paragraph 2 in alt-B would read as follows: “Near-term risks to the economic outlook appear roughly balanced, but the

Committee is monitoring inflation developments closely.” We have had wording there about closely monitoring inflation and global economic and financial developments. I think we’ve concluded in recent meetings that we’re less concerned about global economic and financial developments. And, in a sense, that sentence has become “boilerplate.” We continue in paragraph 3 to highlight international developments as being relevant to our evaluation of the economy.

So, at the end of paragraph 2, which is really related to our assessment of near-term risks, if we get rid of the global developments piece and leave it as a statement about inflation, it’s a relatively small change. But I think it would highlight that we are monitoring inflation developments closely without affecting, really, in any significant way our overall evaluation of the economy or the proposed policy actions. So I would like to put that on the table as a proposal for a change in alt-B and ask your reaction to it.

MR. EVANS. I’m sorry, Madam Chair. Could you just repeat that? I had trouble finding my handout.

CHAIR YELLEN. Yes. I propose that the last sentence in the second paragraph of alt-B would be altered to read as follows: “Near-term risks to the economic outlook appear roughly balanced, but the Committee is monitoring inflation developments closely.”

Let me say that there have been no changes in the SEP submissions. Conceivably, some of you might have wanted to make some modest revisions on the basis of this news. I don’t know if that’s true or not. But if I am asked in the press conference about it, I will simply say that the SEP does not incorporate this morning’s readings.

MR. WILCOX. Madam Chair, having read the sheet more carefully, could I give just two additional pieces of information? In April, the estimated increase in core PCE prices was

15 basis points before. It remains 15 basis points, but there was a small downward surprise in PPI prices yesterday that will account for less than 1 basis point. You're not going to believe this, but although it will still round, on our estimate, to 15 basis points, it will show up to one decimal as one-tenth on the core PCE price index for April rather than two-tenths before, despite the fact that it's a revision of less than 1 basis point. So I won't be surprised if there's some commentary when that's published at the end of the month: "Oh, core PCE prices were revised down one-tenth in April." Less than a basis point is the measure there.

The other thing I thought I should mention is that, on our estimate, 12-month core PCE prices, we now think, will show an increase over the 12 months ending in May of 1.4 percent rather than the 1.5 percent that we had in the June Tealbook. We continue to think the top-line PCE prices will increase 1.5 percent. That's unrevised from the June Tealbook. Thank you.

CHAIR YELLEN. Okay. So, yes, the proposal substitutes the final two sentences in paragraph 2 of alt-B. Question.

VICE CHAIRMAN DUDLEY. I'd like to say, I think what you're proposing makes a lot of sense, because if you look at the first paragraph of alt-B, it's pretty matter-of-fact about inflation. It's saying, "Just the facts, ma'am." And then this actually says that it's on our radar as something that we're monitoring. So I think that's prudent, frankly, in view of the fact that we don't know what's actually going to happen.

CHAIR YELLEN. Exactly. Okay. I would like to hear your input on this—your reaction to that proposal as we go around. Let's start with President Evans.

MR. EVANS. Thank you, Madam Chair. I continue to be nervous about the Committee's ability to deliver sustainable inflation at our 2 percent objective within a reasonable period. Our optimistic SEPs have inflation reaching target next year. According to the

Tealbook, we don't get there until the end of the projection period. And, of course, most of these are just Phillips curve forecasts. The Committee has been forecasting a return to 2 percent inflation for quite some time.

Today the fundamentals for U.S. economic growth are good, and labor markets are robust, with unemployment falling to 4.3 percent last month. The real economy looks solid. But, disappointingly, low core inflation is telling us that important pricing headwinds still persist. There's more for our accommodative policy to do to reach our inflation objective, and I'm not really relying on the past three months of weak inflation data, although that last basis point might have tipped me. [Laughter]

MR. WILCOX. I knew you'd want to be aware of that.

MR. EVANS. Thank you. I do appreciate that. The data, as we've seen them, don't help, but my concerns are broader. Furthermore, the economy will surely turn down again at some point. If we truly fear risks of being at the lower bound again in the future, then I believe our actions must strongly defend our strategic commitment to a symmetric inflation objective. This calls for communicating a policy rate path that truly generates the possibility that inflation will rise above 2 percent during this rate cycle.

In this context, I look at the June SEP median funds rate path for 2017 and 2018, and I wonder, can this path deliver enough support for confidently ensuring inflation rises to our symmetric objective? And, again, I worry that other communications hamper our ability to achieve this goal. That is, when we emphasize inflation forecasts with an upward glide path to 2 percent and downplay the acceptability of risking inflation rising any higher, I suspect the public infers that the Committee is highly averse to inflation above target. This reinforces the impression among many that 2 percent is a ceiling.

Madam Chair, I do support alternative B today with the changes that you just suggested. But my preference is to be particularly careful not to set expectations of an overly aggressive funds rate path that would impede our progress on inflation. It is key that policy expectations assert a strong upward pull on inflation, especially as the Phillips curve is so flat. One way to do this is to avoid being overly optimistic about inflation improvements in our communications. I think alternative B is just adequate in this regard by indicating that inflation has been running below target and is expected to remain so in the near term. It was helpful to remove the language in the initial draft that referred to recent low readings as likely reflecting transitory factors. That was too sanguine. In my opinion, that language would convey much more confidence about a favorable inflation outlook than some of us have at the moment.

Madam Chair, strategically, I favor a data-dependent path beyond today's decision, much as you described yesterday evening. Under my current modal forecast, this envisions delaying any further rate increases at least until December, with the obvious caveat that important data developments over the next six months could push that date forward or back.

Now, it seems obvious that the Committee has a strong desire to take some action at each press conference meeting this year unless something goes awry. As Vice Chairman Dudley has spoken about several times, there's a natural way to do this and still not move the funds rate again until late in the year. This would be to announce the implementation of balance sheet normalization at our September meeting while keeping the funds rate target at 1 to 1¼ percent, which I assume will be the result after today's action. We can then wait for December, take a hard look at the data available then, and make the important decision as to whether 2017 ends up being a two- or three-rate-hike year.

The risks of waiting until December to perhaps choose three rate hikes for 2017 doesn't seem large to me. If inflationary conditions improve by then, the Committee would be well positioned to pencil in four or five rate hikes for 2018, if necessary. In a robust expansion, without need of monetary support, this is just business as usual.

On the other side of the ledger, suppose we increase rates again soon but find ourselves at the end of the year with inflation still struggling to gain upward momentum. This scenario would risk further questioning of the Committee's resolve to achieve a symmetric 2 percent target. I'm not sure what we can do at that point to allay that perception, and I certainly hope that the Committee in the future will not fear asset purchases, because that's something that we're going to have to do in sufficient capacity if we do run into those risks.

In light of these two scenarios, I see the strategy of "balance sheet in September" and "hold on rates at least until December" as a pretty decent risk-management plan. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. As I noted yesterday, the economy appears to remain on track, and I am comfortable with another 25 basis point rate hike at this meeting, though I also, obviously, support the cautionary words on inflation that will be made more powerful in paragraph 2 of alt-B.

I support the revised version of alt-B and its analysis of the reasons for raising the federal funds rate today. Further, I think we're ready to provide more information on how we will normalize the size of our balance sheet, and I fully support today's balance sheet policy announcements.

With regard to balance sheet normalization, I congratulate the staff and relevant parts of management for proposing the very sensible strategy we now plan to implement, and all that is left is to decide when to begin. There seem to be two approaches to that decision. One is to say that once we've announced the plan, the date of implementation does not much matter, because market participants will know what we plan on doing, so whatever effects that the process of normalization will have on the financial markets will be reflected in asset prices. Further, there are all sorts of future contingencies that might cause us not to want to move ahead with that plan, and we retain under this approach that beneficial option.

The second approach is to say that once we have a good plan—and we do—there is no sense in leaving it hanging out there as a hostage to fortune. We cannot both claim that the plan will have its effect as soon as it is announced and say that the plan will not be implemented in certain circumstances. The fact is, this is a good plan, which starts small and ramps up. But it is designed not to ramp up to the point at which the weight of the increases in Treasury and government-backed assets being returned to the markets will become excessive.

At the start, planned redemptions will be small, no more than \$10 billion a month. Even once the caps have reached their final values, we'll be redeeming no more than \$50 billion of longer-term securities each month. That is well below the pace of some of our purchases during the QE phase of monetary policy, which were as much as \$85 billion per month under the open-ended purchase program. And, as markets will have time to prepare and to ramp up, the effect on markets should be manageable.

So the conclusion is, we should announce our decision to start implementing the planned balance sheet reduction soon, possibly even immediately following our next meeting—that is, at the end of July, with a start date of the beginning of September. That might be a surprise to

markets, although one begins to see more and more of that belief in the press. Furthermore, our own communications between now and then, including this afternoon's press conference and the upcoming monetary policy testimony, could substantially reduce any element of surprise that remains.

Thus, I do not think that the result would be an outsize market reaction. In fact, having already revealed that we expect to announce by the end of the year, it's better that we announce a date while expectations of the timing are still diffuse, rather than wait until expectations have hardened, perhaps onto a date that we later find inconvenient. Rather than backing ourselves into a corner by allowing the market to fix expectations of the start date of the plan, we can, by announcing in July, act before the market has developed firm convictions. And if expectations for policy did adjust somewhat, that would not necessarily be a bad thing.

As Thomas noted yesterday, markets currently appear to price in significantly less tightening than we expect, although we have to wait and see what today's data on prices imply for what markets expect. But I believe that expectations would move in the right direction if we announced an earlier date than is currently expected.

I'd also like to add a few remarks about future interest rate policy. As discussed yesterday, markets appear to have become somewhat complacent about the outlook, and perhaps we, too, have become somewhat complacent. Consider again the possibility I presented yesterday in which we find ourselves, over the coming year, with still-accommodative financial conditions, an unemployment rate below 4 percent, and inflation moving higher—a circumstance in which we'd have to tighten policy significantly more rapidly than currently expected.

Or consider another possibility in which whatever is moving inflation at the moment, or in which political factors, begin to affect future policy measures. We've tended not to talk about

these political factors, and not talking about them has been the right approach so far. But whatever political uncertainties there are—and there are many—they may very likely add to uncertainty about future economic policies and thus about future aggregate demand and supply. Even if policies do not, in the end, prove that surprising, the increased uncertainty along the way is likely to reduce the rate of investment at any given federal funds rate, thus reducing both aggregate demand and future aggregate supply by its effects on the capital stock and productivity growth, and that would potentially call for more accommodative policy. That is to say, as we move ahead and continue approaching r^* from below and moving further below our estimates of the natural rate of unemployment, we may need to adjust interest rates in either direction and potentially more rapidly than our communications and the behavior of the financial markets to date have been assuming.

Thus, I think we need to emphasize more the data dependence of our decisions and to provide less forward guidance and less assurance about the continuation of the FOMC's past approach of pursuing a particular monotonic interest rate policy path over long periods of time. With the lower r^* , we are not that far from the vicinity of the steady state that we hope to reach. And once we get to that vicinity, we will find ourselves being bounced around by random events, which will move us in both directions.

Now, such a change in communication is easier to contemplate because recent increases in the federal funds rate have distanced the economy further from the ELB than it has been since the outbreak of the GFC. I'm learning to speak in acronyms. It's a rare skill.

In this connection, I draw attention to an interesting and important feature of Tealbook A, the section on risks and uncertainty on pages 73 to 92. That section begins with the good news that the staff now regards the risks to the medium-term real GDP projection to be balanced. The

staff writes that in previous Tealbooks, they regarded the risk of monetary policy having to return to the ELB as tilting overall risks to the forecast to the downside. This was based on a definition, specified in the April Tealbook, of the threshold level for removing this bias as being at a probability of 25 percent regarding a return to the ELB, and that probability has now declined to 23 percent. And an advance reading provided, possibly unintentionally, by David Wilcox yesterday said it's now 20 percent. Maybe that's just an approximation? Well, of course, 23 percent is not zero, but it is better than the more than 50 percent probability of a return to the ELB that we calculated as facing us a year ago.

Let me add a final remark, on which I'm beginning to sound a bit like a broken record, but something is broken. But before doing that, I'd like to just add a commendation to the staff—again, on Tealbook A, this part on monetary policy strategies, on pages 93 to 115, in which the staff compares optimal control results with different specifications of the utility function and of expectations formation. The two types of expectations formation, in modern language, are MCE—model-consistent expectations, once known as rational expectations—and VAR-based, otherwise known as adaptive expectations. Results presented in that section bear further analysis and conclusion mining as we continue to struggle with the flatness of the Phillips curve.

Now I'll return to the final remark. It is good news that the staff no longer regards the possibility of returning to the ELB as a sufficiently large risk to move the risk outlook to “balanced” from “downward.” But if we are able to move ahead in the years to come without having a financial crisis, we will need to go out strongly against the threat of complacency. We in this building can rely on the continuation in Federal Reserve service of people who were members of the staff during the GFC to maintain a concern within the Federal Reserve about a

return to the ELB, even for probabilities of less than 25 percent. But as time goes by, the institutional memory of being at the ELB and its disadvantages will fade. And one fears that even now, only 10 years after the start of the GFC, that bad news may have been wiped out of some commentators' memories and could soon, in some important respects, be wiped out of our regulations. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. I support alternative B for this meeting. Current economic conditions and my forecast for the economy are consistent with tighter policy. Perhaps more important is how monetary policy is described in the press conference and in the *Monetary Policy Report* testimony.

My own view is that we should be laying the groundwork for moving this July to begin the gradual reduction in the balance sheet. While I'm very supportive of the balance sheet shrinking very gradually and remaining in the background, current conditions in my forecast indicate that we should not delay that process. The costs of moving earlier than some expect need to be weighed against the costs of significantly undershooting sustainable unemployment rates by waiting too long. Delaying past July an announcement of balance sheet actions could unduly complicate our normalization process, in view of the uncertainty about the debt ceiling, budget talks, and the appointment of new Federal Reserve Governors this fall.

While I certainly do not believe in rigid monetary policy rules, I do believe that, as a rule of thumb, policy rules can be instructive in challenging why policy is deviating from simple historical norms. All of the simple policy rules described in the Tealbook imply a tightening of policy that includes more than just three 25 basis point federal funds rate increases this year. It's important to note that none of these policy rules incorporate the sizable balance sheet, which, if

taken into account, implies an even larger increase than these policy rules prescribe. Even more strikingly, the Tealbook's optimal control simulations highlight the risk that the federal funds rate would need to be much higher, particularly if unemployment and inflation deviations are equally weighted in the loss function.

Unless actual data come in substantially weaker than is forecast in the Tealbook, I would not be supportive of any pause in the gradual increase in the federal funds rate when we decide to make our balance sheet announcement. In fact, if the data evolve consistent with the Tealbook, a strong case could be made for even tighter policy this year and next than the policy assumption used in the Tealbook. If we want to continue moving policy gradually and to minimize the risk of an unsustainable overshooting that could unravel a sustainable recovery, we should continue with the regular normalization process of the federal funds rate while beginning the gradual reduction in our balance sheet sooner rather than later.

In view of the apparent limited effects of our previous federal funds rate increases to date, as indicated by the numerous financial conditions indexes, and the increasing probability of substantially undershooting the natural rate of unemployment, continuing our funds rate increases as we begin to shrink our balance sheet may be the least risky path for avoiding, or at least delaying, the next recession. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Bostic.

MR. BOSTIC. Thank you, Madam Chair. Under my outlook and current assessment of risks, I support the policy action in the alternative B statement. I'm also okay with the proposed language in alternative B, including the changes that we have proposed today. However, as I noted in the economy round, while the risks associated with my inflation outlook are broadly balanced, I am concerned that readings on inflation indicators are drifting a bit in the wrong

direction. Because of that, I believe it will be important to continue to emphasize that we are closely monitoring inflation developments, and the proposed language changes today increase that focus and emphasis in a way that I believe is beneficial and appropriate.

It will also be important to emphasize that policy decisions are data dependent. My SEP submissions embody one additional rate hike this year. While I acknowledge strong accommodative conditions in financial, housing, and other markets, I consider that rate path to be at risk should the inflation rate fail to recover its movement toward our objective over the next several months.

In advance of this meeting, financial markets placed only slightly better than even odds on a further rate move this year. That feels about right to me. I would be uncomfortable with any communication that further raises the market's probability of another rate hike before we get evidence that we are back on track with respect to attaining our inflation objective.

On portfolio normalization, I support the communication plan for today and also support beginning the reduction of the portfolio in September, though I do find arguments to start sooner compelling and would not object if that course was embraced. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. First Vice President Mullinix.

MR. MULLINIX. Thank you, Madam Chair. To summarize my policy views, I support alternative B's proposed 25 basis point increase and the revised wording changes suggested by you, Madam Chair. Additionally, I believe our target range for the federal funds rate is below where it should be, given economic conditions, but for now I do not see a great deal of urgency in moving the stance of policy back toward a more normal setting. The lack of urgency stems from the lack of strong signals suggesting that an acceleration in prices is approaching. Of course, such a turn could come quickly and unexpectedly, and I do see some risk that we could

find ourselves more seriously “behind the curve.” That is not my baseline outlook, however. I project monthly inflation to fluctuate around 2 percent, and this should allow for a gradual path for interest rates.

In my forecast, the real federal funds rate remains negative into 2018, while the economy continues to grow a bit faster than my projected medium-term trend of 1.8 percent. That growth is enough, in my forecast, to continue to reduce the unemployment rate, making an already tight labor market tighter. These conditions suggest to me that we need to remain on a persistent, though not precipitous, path toward an interest rate that is more normal.

I’ve placed my longer-run normal funds rate projection at 3 percent. My projected path involves a move today, then two more this year and four 25 basis point moves in 2018. Under this projection, we would reach the longer-run normal rate in 2019. It’s important to note that my forecast for 2019 has inflation at 2 percent but the unemployment rate still well below its longer-run normal level. The funds rate may need to run above 3 percent, and this is reflected in my SEP submission.

I believe our provision of additional information on our plans for winding down reinvestment and your opportunity to talk about this at today’s press conference, Madam Chair, will help us decouple interest rate and balance sheet policy to the extent possible, which I see as desirable. These steps will also afford us flexibility in how and when we start the program, which, from my vantage point today, is best to occur in September. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. I support alternative B with the revised language for paragraph 2 that you outlined. In this situation, it’s appropriate to take the next steps toward removing accommodation. This involves both raising the funds rate target today as

well as providing the information to the public through the statement, the Addendum to the Policy Normalization Principles and Plans, and your press conference that we will begin reducing reinvestments later this year.

Taking these actions today keeps us on the appropriate path toward normalizing the stance of policy. My view of the appropriate policy rate path is to assume four rate increases both this year and next, just as in the Tealbook. And, as noted in our discussions yesterday, overall financial conditions have actually been strengthening as we've been raising rates. I'd like to reiterate something President Kaplan said. I think it would be very helpful in our July meeting, and maybe in future meetings, to really try to understand what it is that we're learning from asset prices and market moves in general. Our own work at the Federal Reserve Bank of San Francisco has highlighted the point that market participants, at least according to the TIPS market, believe that the long-run real interest rate is very low, and that helps explain some of the asset price levels that we're seeing. There are obviously alternative views on that. I think that's worth diving into. And it gets back to this issue: How accommodative is monetary policy, actually, relative to a long-run norm?

My preferred pace of rate increases is faster than markets or the median FOMC participant expects. Nonetheless, as President Rosengren has already stressed, the path that I'm describing lies below nearly all of the policy rules shown in the Tealbook as well as most of the optimal control paths. In the Tealbook, the unemployment rate falls below 4 percent, and the inflation rate persistently, although modestly, overshoots our objective. In other words, the Tealbook funds rate path already has a high degree of gradualism and downside risk management embedded in it.

Finally, I support announcing the balance sheet normalization in September, as you suggested. I strongly prefer an approach on the balance sheet that, from the beginning, is in the background. Moving sooner or later, I think, interferes with that. I like the approach that you outlined, assuming the economy performs broadly as expected. Markets have taken our announcements about balance sheet normalization in stride. I think that's an understatement. So I don't expect an adverse market reaction as we move forward with these announcements. In fact, I do think that the "Greenspan conundrum" alternative scenario today is more likely than a reinvestment taper tantrum scenario. Thank you.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. I want to comment on three areas today. One is the financial conditions index as a rationale for increasing the policy rate. Another is the price-level path of the U.S. economy. And third is today's decision and how the Committee is placed for today.

On the financial conditions index, as has been talked about here, a lot of these types of indexes are showing that conditions are easier than when we started our rate increases and came off the effective lower bound. We also saw yesterday that, at least for the Goldman index, a lot of this is driven by the S&P 500 index. So, essentially, you're talking about equity prices. In my view, the equity price movements since the election are driven in an important way by the expectation of corporate tax reform, and that possibility alone could revalue the U.S. corporate sector by 10 to 15 percent, depending on how you do the calculation. Markets anticipating that are thinking that it may occur in 2017, but if not in 2017, then probably in 2018. It is an issue on which the reigning party has a lot of conviction.

In my view, then, this particular period from November 2016 up until now is distorted when you look at the financial conditions index and compare it with what you'd see looking at it in the '90s or the 2000s or before the 2016 election, because during those periods you didn't have the prospect of corporate tax reform moving equity prices around. In other eras, you might have looked at this kind of move in equity prices and said, "Well, this looks bubbly," or "This looks like easing of financial conditions," but maybe that's not the right interpretation in this particular instance. So I don't think that the FCI is necessarily signaling what it would have in the past, and I'd be careful about interpreting it the way it's being interpreted around here as a rationale for increasing the policy rate.

Also, I think if we want to react to equity price movements, we'd do better just to say that we want to react to equity price movements and give the arguments. That's been a long-standing issue at the table here, certainly since the late '90s, and how to react to these situations and whether you've got unduly frothy markets is something that the Committee has entertained many times in the past. However, I will say that the Committee has been shy about using that as a rationale for increasing the policy rate. It's been shy about trying to take that out of the market.

Let me turn to the price-level path of the U.S. economy. Some of you know that, in 2012, I gave a speech called "A Singular Achievement of Recent Monetary Policy." In it, I talked about price-level targeting for the United States. In a lot of the New Keynesian models that are popular in monetary theory today, price-level targeting is optimal—something the staff has emphasized, and something we've looked at in the past. The nice thing about price-level targeting being optimal is that you can actually go look at it in the data to see whether we're price-level targeting and, therefore, come to some kind of conclusion about whether U.S. monetary policy is optimal. All you need are the price-level data and a price-level path.

I did that in the speech. It's sensitive to when you start the price-level path, but I started it in 1995 because I think 1995 was the point when the Volcker-era disinflation ended and the Committee came to more or less a consensus of informally targeting a 2 percent inflation rate for the United States. If you draw the price-level path since 1995 at a 2 percent pace, as of 2012 we were actually right on that price-level path, and I called that "a singular achievement" of U.S. monetary policy because it meant that the Committee was behaving essentially like price-level targeting would recommend. Even through the Global Financial Crisis and all of the disruption that came from that, we had maintained the price-level path. And, at least from the perspective of these kinds of models, that would be optimal monetary policy.

Now, almost as soon as I gave that speech, we started to fall off the price-level path, and it's now been five years. I've looked at it again in recent talks that I've given. We're about 4½ percent below that price-level path. The forecasts that are available today, suggest that it doesn't look like we're going to get back to that price-level path any time soon and perhaps ever. We're actually deviating from the 1995–2012 price-level path. If you wanted to get back, you'd have to run inflation somewhat over 2 percent for some time to make up for the period in which we've run below. I'm concerned about this. I had taken a lot of solace from the 2012 argument, but now we've fallen off that path, and I am concerned about it.

Finally, on today's decision, I don't think it's a great day for the Committee. I think we're in a situation where we've downgraded our forecast for inflation for 2017. We're now saying it's going to take longer to get back to our target than we anticipated, but we're nevertheless going ahead with our rate rise plan. This can be handled, but I do think it's a symptom of our tendency to do things on a calendar basis. The data often do not cooperate with us when we're trying to do things on a calendar basis, and I think today is a day that is like that.

A market interpretation, in my view, may be that the Committee is sort of dead set on a normalization plan, a sort of “Damn the torpedoes” normalization plan, regardless of what the data say.

I don’t think it’s fatal by any means, but it’s just not as good as it could be. I can certainly go with 25 basis points today. My main contention, however, is that the Committee does not need to be on a path to raise the policy rate 200 basis points, in order to get to some kind of neutral setting. I continue to stress that I think we’re in a slow-growth, low-inflation regime. This is how you should think about the U.S. economy. The current level of the policy rate is, in fact, about right if all you want to do is keep unemployment more or less where it is and keep inflation close to our target or perhaps moving up some toward our target. I just don’t think you need to have these plans laying out the future in which we need 200 basis points or more of increases in the policy rate in order to achieve our mandated goals. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. President Kaplan.

MR. KAPLAN. Thank you, Madam Chair. I support the revised version of alternative B. I do believe it’s appropriate to raise the federal funds rate today. This is in the context, though, of a patient and gradual approach to removing accommodation. And I think this is also consistent with my own expectation that we should begin to allow the balance sheet to run off in September. Obviously, I intend to carefully monitor upcoming developments to assess the rate of progress on employment and reaching our 2 percent inflation target. As I do that, there are four issues that I’ve been struggling with and that I’ll continue to struggle with.

The first regards the neutral rate. I’ve been of the view that we should be gradually moving toward neutral. The question that I’m wrestling with is: “What is neutral?” I paid

attention to the Laubach-Williams model, our own models at the Dallas Federal Reserve, other models in the System—the Federal Reserve Bank of Richmond model—which suggest to me that the answer is, “The neutral real rate today is around zero.” Even though I’ve put an upward slope into my SEP rate forecast for the next two or three years, I keep asking myself, “Why? Why am I doing that?” I’m not sure what factors will cause the neutral rate to drift up over the next two or three years, and I’ll keep asking that question.

The second thing I’m wrestling with—we flagged it yesterday, I don’t need to go into it a lot more—is the 10-year yield. It was 170 basis points pre-election, it’s 220 now, and I’m wondering what the significance of this is. My own experience is that stock market investors and businesspeople tend to be bottoms-up. Fixed-income investors, for better or worse, tend to be top-down macro investors, and the only thing I’ve learned over the years is that they’re worth paying attention to, even though they may be at odds with bottoms-up investors.

The third issue I’m struggling with is, while the labor market is tight—and I believe and I’ve been saying that I think over time, with a lag, this tight labor market will lead to wage pressure and then some price pressure—I also believe that the secular headwinds are very strong, and, in particular, I think the trend of technology-enabled disruption is becoming more intense and more powerful. And I believe the forces that are limiting pricing power of businesses are strengthening. I’m trying to come to grips with what the implications of that are.

And then the fourth issue for me is this issue about financial conditions, which I know is causing some to believe we should be a little bit more forward leaning on the path of rates. My own view is a little bit different. I’m actually not overly swayed by strong financial conditions. The biggest reason why is that, on the basis of my experience, I know they can change overnight. The other thing is, credit growth is contained or at least under control. I think this is primarily

due to strong macroprudential policies, but I'm more swayed by the shape of the yield curve at the moment than I am by very strong financial conditions. But I'll continue to wrestle with that question. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. The economy remains on a solid, steady path that warrants a further 25 basis point rate increase at this meeting, and I will support alternative B with the additional language that the Chair mentioned. I would add briefly that there was a comma in alt A after the word "balanced," and I didn't hear that. My support for this change would be even more wholehearted if that comma did make the trip, after "contained," to alt B.

CHAIR YELLEN. Good suggestion. Let's include the comma.

MR. POWELL. In that case, I'm all in. [Laughter] My base case is that the Committee will begin phasing out reinvestments in September—perhaps with a brief delay in implementation if debt ceiling troubles loom—and that the Committee will forgo an interest rate increase in September and will raise the federal funds rate again in December. Growth has been about as expected, and the labor market has continued to tighten. These solid underlying fundamentals should exert upward pressure on prices, so that inflation should resume its gradual upward rise toward 2 percent. As long as the underlying growth and labor market fundamentals remain strong, I would be reluctant to take too much signal from short-term inflation readings. If, however, inflation weakness does persist or worsen, and the Committee decides to slow the pace of policy normalization, I would rather forgo a third rate increase than postpone a phaseout of reinvestments past the end of this year.

For me, the evolution of broader financial conditions may also have implications for the path of policy and provide a reason at the margin not to make what is already a very gradual rate path even more gradual. As a number of others have noted, 18 months after the first rate increase, we have tighter credit spreads, higher equity P/Es, a lower equity risk premium, lower long-term rates, and very low realized and expected volatility. Of course, many domestic and global factors affect financial conditions, and part of the story is probably that the economy has improved on a low-drama gradual path, and the Committee has been exceptionally transparent about our intentions regarding policy rates.

The natural way for this placid time to end would be a negative shock, as President Kaplan may have suggested, that would catch the market on the wrong foot and create short-term turmoil. Such an event might or might not leave any mark on the economy. But the placid mood could also go on for quite a while longer, with financial risks building, and it's not hard to see that this environment, if it persists, could lead to very high asset prices and other forms of financial excess. In fact, that's exactly what happened in the previous two cycles while inflation remained near 2 percent. We don't see these troubling excesses today, but at the margin I do consider this to weigh in favor of moving ahead with our gradual rate increases. Thank you.

CHAIR YELLEN. Thank you. President Harker.

MR. HARKER. Thank you, Madam Chair. I support alternative B, as amended at this meeting. It makes sense to me to initiate the balance sheet adjustment, as others have said, in September. If all goes according to plan, then I see December as a possibility that should be on the table for an additional 25 basis point increase in the federal funds rate. However, I do realize that my forecast could turn out to be too optimistic, so I may need to revisit some of my policy assumptions with respect to the federal funds rate. But, as Governor Powell just said, we should

maintain our plan for adjusting the balance sheet and make sure it is, as you mentioned yesterday, like watching paint dry. That said, I believe that even with the implementation of this plan, policy will remain somewhat accommodative, especially in light of falling long-term bond yields and recent run-ups in the stock market.

Let me switch to a slightly different topic. Echoing comments yesterday from Governor Fischer and others, I would also suggest that thought be given to changing some of our statement language in the future—not at this meeting—that would acknowledge more fully that as the labor market tightens, we expect job growth to moderate. With so much focus on monthly job gains, we should be giving a clearer signal regarding what we deem as acceptable gains that will continue to support the removal of accommodation.

The lower job growth numbers that we have been seeing over the past three months may be more representative of what is likely to transpire than is the return to the stellar numbers we have been averaging over the past few years. I do not believe that such an occurrence would signal significant weakness in labor markets. In view of the low level of the unemployment rate, the slower pace would instead reflect more normal behavior. The recent JOLTS report with record job postings and a fall in the hiring rate may be an indicator that jobs may cease to be filled at very high rates.

Importantly, I do not believe that somewhat slower future job growth should significantly affect the speed of normalization. Signaling this stance may help avoid some criticism that our data-dependent policy suffers from inconsistencies in data interpretation. So one possible suggestion for a future statement in paragraph 2 is that we add language such as “Job gains are anticipated to moderate as labor market conditions continue to tighten.” Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. Given my outlook, the progress on our dual-mandate goals, and the risks associated with the outlook, I support a 25 basis point increase in the target range of the federal funds rate, and I'm comfortable with the language in alternative B, with the Chair's amendment from this morning.

In thinking about data dependence and forecast revisions, I think we should all remember the error bands associated with our inflation projections, which are now vividly illustrated in our SEP. I support releasing the details of our normalization plan at this meeting and indicating that we will begin implementing the plan this year. I believe the normalization paths we have given for the funds rate and for the balance sheet will help avoid a buildup of risks to macroeconomic stability and to financial stability. And I believe it will put monetary policy in a better position to address whichever risks, whether to the upside or downside, are ultimately realized.

I think the Committee has done a good job of changing the narrative. Before, it was "Wait until we see sufficiently strong data before taking a normalization step." Now it is "Continue on the gradual normalization path unless there is material evidence against doing so." I think we should continue to emphasize this narrative. We need to ensure there's consistency in our policy as well as in the messaging. By doing so over time we've been able to better align the public's policy expectations with the Committee's anticipated policy rate path, but a gap remains, and we don't want it to widen. Our messaging should emphasize our assessment of the outlook so that the public isn't distracted by small fluctuations in the data. And we should continue to emphasize the link between our outlook and our policy decision. If this outlook does not materially change, an increase in the funds rate is appropriate as part of the gradual normalization path we have articulated.

Similarly, the Chair has done an excellent job of leading the Committee as we work toward normalizing the balance sheet and communicating that work to the public. The markets may still react when the plan is implemented, but the reality that this is a gradual normalization that is consistent with expectations should help avoid a longer-term negative reaction. In view of the uncertainty surrounding fiscal policy, I think our consistency should be welcomed by the public. I agree with Governor Fischer's remarks about the timing of the start of implementing the normalization plan for the balance sheet.

The discussion yesterday about the timing to start the plan was interesting to me. I was thinking of the decision to lay out the details of the plan, as we plan to do today, and the timing and implementation as really being essentially one decision. I think giving advance information about the plan is very good, but too long a gap between presenting the plan and then triggering implementation would seem to add uncertainty, not subtract uncertainty. Yesterday's discussion pointed out some complications associated with triggering in September—the debt ceiling, budget talks, and perhaps a data report that isn't material for the outlook but that complicates communication. So I think we should think seriously about July. The Chair could use her July testimony to set up a trigger decision that would come at the July meeting. Emphasizing that the plan is very gradual can help.

Thinking ahead, the proposed language in paragraph 5 of alternative C seems like appropriate language to use when we do begin to implement balance sheet normalization. We should also consider what we plan to say about the balance sheet in subsequent meeting statements. It isn't obvious. Because we want the plan to be in the background, that may suggest not referencing it in the statement after initialization. On the other hand, we want the statement to be transparent about our policy decisions, and balance sheet decisions are part of our

policy. On balance, I lean toward being transparent and simply reminding the public in our statement that balance sheet normalization is ongoing in accordance with our previously announced plan. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. I support alternative B and the proposed language change that you've offered. Today's decision continues the very gradual adjustment of short-term rates, which remain supportive of the economy's sustained growth, and it clarifies the Committee's approach to balance sheet reduction. The details of this plan, along with today's press conference, offer an important opportunity to explain the Committee's thinking about the balance sheet, and we will learn how markets react. Assuming no change in the outlook, I believe we should consider implementing this plan as early as the July meeting, having laid the groundwork for a very modest and cautious pace of reduction.

Research by my staff estimates that a \$675 billion reduction in the balance sheet over two years is equivalent to only a 25 basis point increase in the funds rate. In addition, this equivalent increase is likely to happen only gradually as we normalize and, in fact, may already be partially priced in by markets as they anticipate us ceasing reinvestments.

Finally, I support the aim to bring inflation back to 2 percent in a sustainable manner, regardless of whether we are above or below our symmetric inflation target. However, I remain skeptical regarding any policy choices that would deliberately target an undershoot of the unemployment rate or an overshoot of our 2 percent inflation target in order to make up for past misses. I understand the risk of continued inflation below target, including lower inflation expectations. But the greater risk, in my view, is trying to fine-tune our policy. If we wait for actual inflation at or above target, we risk having to raise rates more quickly, which could

undermine financial stability and defeat the sustained growth we seek in the long run. I view this outcome as far more costly for the economy than inflation running only slightly less than 2 percent for an extended time, especially when the unemployment rate is well below most estimates of the natural rate, including the median SEP value for the long-run unemployment rate. Thank you.

CHAIR YELLEN. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Madam Chair. I support alternative A at this meeting. Today's vote was a tough call for me. I've been focused on looking for signs that the labor force participation story of the past year or so is coming to a conclusion. The economy was creating a lot of jobs, but there's little movement down in the headline unemployment rate. We knew that had to end at some point, and indicators that it was reaching its eventual conclusion would include a significant move downward in the headline unemployment rate, a move up in core inflation, and/or a move up in inflation expectations.

We have seen a meaningful drop in the headline unemployment rate from 4.7 percent to 4.3 percent since the Committee last voted to increase rates in March. That drop in the headline unemployment rate suggested to me that we're getting closer to maximum employment, which by itself would have supported an increase in rates today, but, at the same time, core inflation has also been dropping while inflation expectations essentially remain unchanged. We don't yet know whether that drop in core inflation is transitory. In short, the economy is sending mixed signals: a tight labor market and weakening inflation.

For me, deciding whether or not to raise rates came down to a tension between faith and data. On one hand, intuitively, I am inclined to believe in the logic of the Phillips curve. A tight labor market should lead to competition for workers, which should lead to higher wages.

Eventually, firms will have to pass some of those costs on to their customers, which should lead to higher inflation. That makes intuitive sense to me. That's the "faith" part. Unfortunately, the data aren't supporting this story, with the Committee coming up short of our inflation target for many years in a row now, and now core inflation actually falling even as the labor market is tightening. If we base our outlook for inflation on these actual data, I don't believe we should raise rates today. Instead, we should wait to see whether the recent drop in inflation is transitory.

If I'm torn between faith and data, then I try to look at this decision from a risk-management perspective. The risk of raising rates too soon is a continuation of our track record of continuing to come up short of our inflation target. And as Marie Gooding said at the previous meeting, the Federal Reserve Bank of Atlanta survey indicated many people already believe our 2 percent inflation goal is a ceiling rather than a symmetric target. Raising rates will further strengthen that belief. And if inflation expectations drop, as we've seen in some other countries, it can be very, very challenging to bring them back up.

The risk of not moving soon enough generally doesn't appear to me to be large. If inflation does start to climb, that will actually be welcome. We will move toward our target, and I believe that we, as a Committee, will respond. And if it leads to a modest overshoot of 2 percent, that also shouldn't be concerning, because we have a symmetric target and not a ceiling.

So what's the downside risk of waiting to see whether inflation is indeed transitory? I can only think of one really concerning downside risk—a sudden unanchoring of inflation expectations. If inflation expectations start to slowly drift up, I'm not that concerned because I believe we, as a Committee, will respond, and we will keep them in check. The only real downside scenario is that we somehow break inflation expectations. We wake up one morning

and instead of 2 percent, they jump to 4 percent. We would have to respond very powerfully to re-anchor them at 2 percent. I believe we would do what was necessary, but the short-term economic cost could be large. But this is a risk derived from faith and a sudden return of the Phillips curve, and not a risk that you can detect in financial markets or in survey data. Because it is derived from faith and not data, it is a difficult risk to quantify.

I've looked at the 1960s and 1970s, and they're not particularly useful to help us understand this risk. As I've looked at them, I see wages and inflation slowly climbing, with the FOMC lacking the conviction to bring inflation back down. They cut rates, first in 1967 and then again in 1970, without having brought inflation back under control. One reason why they didn't maintain aggressive monetary policy is that it seems that they put too much emphasis on the Phillips curve, and they underappreciated the role of inflation expectations. High unemployment would help bring inflation down, reducing the need for monetary policy to do its job.

The outcome that we are so focused on avoiding—high inflation of the 1970s—may actually be leading us to repeat some of those very same mistakes the Committee made in the 1970s—a faith-based belief in the Phillips curve and an underappreciation of the role of expectations. In the 1970s, those mistakes led to very high inflation. Today those same faith-based beliefs may be leading us to repeatedly and erroneously forecast increasing inflation, resulting in us raising rates too quickly and continuing to undershoot our inflation target. I believe we should rely on the data to guide us, and that, to me, means we should wait to see whether the recent drop in inflation is transitory or whether inflation is, in fact, actually moving toward our 2 percent target.

I'm also supportive of the details we're putting out on the balance sheet today. I would encourage us to announce the date for implementation as soon as we can reach consensus. In addition, I would be in favor of us putting as much time as possible between the announcement of implementation and the actual start of implementation, just to minimize the risk of any kind of taper tantrum. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Conditions in the U.S. labor market continue to improve at a gradually diminishing pace. With synchronized global growth for the first time in several years and the balance of risks from abroad improving, and with financial conditions easing further, on balance, I anticipate the U.S. economy will continue to strengthen in coming months. For these reasons, I support an increase in the target range for the federal funds rate today.

Nonetheless, there is a puzzling tension between signs that the economy is in the neighborhood of full employment and signs that the tentative progress we had seen on inflation is slowing. The staff anticipates that the May reading on core PCE inflation was only 1.4 percent, if I got that right, little changed from the preceding year and continuing an eight-year run of inflation that remains stubbornly below target. The staff Tealbook forecasts that by the end of this year, core inflation will be only 1.6 percent, no better than last year. And the May reading on the CPI didn't provide any reassurance on this front, although it's still hard to draw any firm conclusions.

As I noted yesterday, I am concerned about the Committee's ability to guide inflation up to target after five years of downside misses. While I remain hopeful that inflation will increase, the continued softness in the CPI "print" this morning suggests a heightened risk that inflation will remain low. As a means of reflecting that risk, I support the Chair's proposed amendment,

which would highlight that we will be monitoring inflation developments closely. If the tension between the progress on employment and the lack of progress on inflation persists, it may lead me to reassess the expected path of the funds rate in the future, although I am not in a position to make that call today.

As we move the target range for the federal funds rate higher, we can consider normalization of the federal funds rate to be “well under way,” and if the economy evolves in line with the Summary of Economic Projections’ median path, it will set the stage for a gradual and predictable running-off of the balance sheet. We’ll have substantially more information in hand at our September meeting. If that information confirms that we are on track, there’s a compelling case to announce at the September meeting our intention to begin the reduction of reinvestment after risks surrounding the debt limit have been satisfactorily addressed, which could be at the beginning of November. There will be a press conference following the September meeting, which would give the Chair an important opportunity to explain the decision and how it will be operationalized and evolve over time. I view this step as a big deal and worth highlighting in a press conference as well as communications by the Chair in advance.

I see no economic advantage to moving up the decision to July and substantial risk that it would trigger substantial unnecessary speculation that the FOMC reaction function had somehow changed for some unspoken reason.

Moving in September will also give us an opportunity to assess the effects of the shift in reinvestment policy on financial markets and conditions before making our next move on short-term interest rates. While the announcement will have been extremely well communicated in advance and, thus, should not lead to any outsized moves in financial markets, it’s also likely that that risk, small though it may be, is all on the same side.

And, finally, by making the balance sheet announcement in September, it will give us more time to assess the inflation situation and financial conditions before we need to make the next decision on the federal funds rate. The staff anticipates that core inflation will pick up in the second half of the year. And it would be valuable to see the data confirming this forecast, as this would provide a very benign environment in which to continue on the gradual path of tightening currently envisaged in the SEP. Similarly, but on the other side, it will be important to see whether there is, in fact, the expected tightening effect on longer-term yields, which we haven't seen so far, in order to calibrate that path appropriately. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. I support alternative B with your suggested changes to paragraph 2. I think it's appropriate to tighten monetary policy at this meeting. It's appropriate to put forth our balance sheet normalization plan. It's appropriate to put market participants on notice that we'll likely begin to execute on those plans this year. In terms of the balance sheet normalization process, I expect that today's communication will work to pull forward somewhat expectations about when we're likely to begin to implement this plan.

As was noted yesterday in the Desk briefing, in the dealer and buy-side surveys, most of the probability mass on timing has been split mainly between the September and December meetings, with very little on our next meeting in July and a little bit more than that for the October FOMC meeting. After this meeting, I expect more of the probability mass will shift to our September FOMC meeting. After all, once we've indicated that we have agreement and have announced the details, market participants are likely to start to wonder what's to be gained by waiting until the end of the year to start. That said, I don't expect that there'll be much shifting of expectations to July, in the absence of a scheduled press conference at that meeting.

One issue that deserves consideration is whether the timing of when we start the balance sheet normalization process could be influenced by the Congress's debt limit negotiations. In an ideal world, we shouldn't be influenced by this, but if the situation did look to be very messy, I'm not sure commencing balance sheet normalization at the same time would necessarily be attractive to us. Substantively, I don't think it would make much difference. The amount of Treasury securities that would not be reinvested is quite small in the first quarter of implementation, but I can imagine circumstances in which appearances and psychology could be important. So we might want to decide that these factors deserve some weight in our decision.

In considering the alternatives, I think it's best to wait and see how things evolve as we go into the September FOMC meeting. I don't think pulling forward action to the July meeting is attractive to get ahead of the debt limit debate, as this would be a surprise to market participants and presumably would be taken as a "hawkish" signal. People might interpret it that the FOMC is moving the balance sheet normalization process to July so that it can potentially fit in two more rate moves in September and December, which I think is inconsistent with the SEP, and it's inconsistent, perhaps, with the inflation data that we got earlier today. This would communicate an urgency to tighten that I think would be difficult to justify, in view of the economy's growth pace and the fact that inflation is still well below our 2 percent objective.

In thinking about alternatives, I think there are a number of better alternatives. We can decide at the September meeting that the timing of when the debt limit will bind does not pose a problem for moving at that meeting and announce at that meeting that the process will start on October 1. Alternatively, if we thought the debt limit made an October 1 start date more problematic, we could announce in September but with a later start date—say, November 1, as an example. Or, if things look very confusing, we could even decide to wait until the December

meeting to announce, with a January 1 start date. But I think in September we're going to know a lot more than we know today about how the environment is likely to unfold, and I very much would like to have that information in hand before I am forced to make that decision.

I think my own view is that there are a lot of ways this could go down the road. If the Congress is inclined to pass a clean debt limit bill, then we'll have quite a bit of clarity on that by September. A clean bill would imply a very high likelihood that the debt limit will be raised in a timely, nondisruptive manner. If there's not a clean bill, then, obviously, it gets more complicated, but I still think the debt limit issue is not something that's going to stretch over weeks and months. It's always historically been something that comes to a head and then is resolved relatively quickly. So even if you think it's going to be messy, this isn't something that's going to stretch out, I think, for a very long period of time.

In terms of what we know about the timing of when the Treasury runs out of resources to pay the U.S. government's bills, there's still considerable concern about when the debt limit will actually bind. It's conceivable that it could happen as early as late August or early September. But most estimates have the Treasury having sufficient resources to make it to early October. That's when the government makes large Social Security payments at the start of the month.

The mid-September corporate tax date is potentially going to be important, I think, because there are a lot of funds that flow into the Treasury at that time, with quite a bit of uncertainty about how much resources the Treasury is going to get. So that's also going to affect our view of the precise timing of when the debt limit strikes, but my guess is, bottom line, we're going to know a lot more in September than we know today. And I think that knowledge will be helpful in terms of making that decision, whether we announce in September and what date balance sheet normalization would actually start. Thank you, Madam Chair.

CHAIR YELLEN. Well, thanks to everybody for a very interesting set of comments on policy choices that we'll face in the future. For today I heard broad-based support for alternative B, with the proposed change that I suggested at the beginning. So let me ask Brian to make clear exactly what we're voting on and to call the roll.

MR. MADIGAN. Thank you, Madam Chair. As you noted, this vote will be on the monetary policy statement for alternative B, as shown on pages 6 and 7 of Thomas Laubach's briefing materials, except that the final sentence of the second paragraph of alternative A would be substituted for the final two sentences of the second paragraph of alternative B. The vote will also encompass the directive to the Desk as included in the implementation note for alternative B, as shown on pages 11 and 12 of those briefing materials.

Chair Yellen	Yes
Vice Chairman Dudley	Yes
Governor Brainard	Yes
President Evans	Yes
Governor Fischer	Yes
President Harker	Yes
President Kaplan	Yes
President Kashkari	No
Governor Powell	Yes

Thank you.

CHAIR YELLEN. We now have two sets of related matters that are under the Board's jurisdiction: the corresponding interest rates on reserves and discount rates. I first need a motion from a Board member to increase the interest rates on required and excess reserve balances to 1¼ percent, effective June 15, 2017.

MR. FISCHER. So moved.

CHAIR YELLEN. Second?

MR. POWELL. Second.

CHAIR YELLEN. Without objection. Finally, I need a motion from a Board member to approve establishment of the primary credit rate by the Federal Reserve Banks of Boston, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, Kansas City, Dallas, and San Francisco at 1¾ percent, effective June 15, 2017. It will also encompass approval by the Board of Governors of the establishment of a 1¾ percent primary credit rate by each of the remaining Federal Reserve Banks effective on the later of June 15, 2017, and the date such Reserve Bank informs the Secretary of the Board of such a request. The Secretary of the Board would be authorized to inform such Reserve Banks of the approval of the Board of Governors upon such notification by the Reserve Bank. Lastly, this vote will also encompass establishment of the rates for secondary and seasonal credit under the existing formulas specified in the staff's June 9 memo to the Board. Do I have a motion?

MR. FISCHER. So moved.

CHAIR YELLEN. Second?

MR. POWELL. Second.

CHAIR YELLEN. Thank you. Without objection. I think that concludes our business, other than our final agenda item, which is to confirm our next meeting on Tuesday and Wednesday, July 25 and 26. And let me just mention that while it's early for lunch, my understanding is that there are box sandwiches and salads available in the anteroom. If anybody wants to watch the press conference, there will be a TV set up in the Special Library, and it will begin at 2:30. Thanks to everybody, and we look forward to seeing you in July.

END OF MEETING