

**Meeting of the Federal Open Market Committee on  
May 2–3, 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, May 2, 2017, at 1:00 p.m. and continued on Wednesday, May 3, 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

Marie Gooding, 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,<sup>1</sup> Deputy General Counsel  
Steven B. Kamin, Economist  
Thomas Laubach, Economist  
David W. Wilcox, Economist

James A. Clouse, Thomas A. Connors, Michael Dotsey, Evan F. Koenig, Daniel G. Sullivan, William Wascher, and Beth Anne Wilson, 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

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<sup>1</sup> Attended Tuesday session only.

Matthew J. Eichner,<sup>2</sup> Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors; Michael S. Gibson, Director, Division of Supervision and Regulation, Board of Governors; Andreas Lehnert, Director, Division of Financial Stability, Board of Governors

Stephen A. Meyer, Deputy Director, Division of Monetary Affairs, Board of Governors

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

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; Diana Hancock and David E. Lebow, Senior Associate Directors, Division of Research and Statistics, Board of Governors; Gretchen C. Weinbach, Senior Associate Director, Division of Monetary Affairs, Board of Governors

Antulio N. Bomfim, Ellen E. Meade, Edward Nelson, and Joyce K. Zickler, Senior Advisers, Division of Monetary Affairs, Board of Governors

Rochelle M. Edge, Associate Director, Division of Financial Stability, Board of Governors; Jane E. Ihrig<sup>3</sup> and David López-Salido, Associate Directors, Division of Monetary Affairs, Board of Governors; John J. Stevens, Associate Director, Division of Research and Statistics, Board of Governors

Glenn Follette, Assistant Director, Division of Research and Statistics, Board of Governors

Patrick E. McCabe, Adviser, Division of Research and Statistics, Board of Governors

Penelope A. Beattie,<sup>1</sup> Assistant to the Secretary, Office of the Secretary, Board of Governors

Dana L. Burnett, Michele Cavallo,<sup>4</sup> and Dan Li, Section Chiefs, Division of Monetary Affairs, Board of Governors

Benjamin K. Johannsen, Senior Economist, Division of Monetary Affairs, Board of Governors

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<sup>2</sup> Attended the discussions on developments in financial markets and System Open Market Account reinvestment policy.

<sup>3</sup> Attended the discussions on monetary policy and System Open Market Account reinvestment policy.

<sup>4</sup> Attended the discussion on System Open Market Account reinvestment policy.

Arsenios Skaperdas,<sup>4</sup> Economist, Division of Monetary Affairs, Board of Governors

Ellen J. Bromagen, First Vice President, Federal Reserve Bank of Chicago

David Altig, Kartik B. Athreya, Geoffrey Tootell, and Christopher J. Waller, Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, Boston, and St. Louis, respectively

Troy Davig, Julie Ann Remache,<sup>3</sup> and Nathaniel Wuerffel,<sup>4</sup> Senior Vice Presidents, Federal Reserve Banks of Kansas City, New York, and New York, respectively

Todd E. Clark, Terry Fitzgerald, and Òscar Jordà, Vice Presidents, Federal Reserve Banks of Cleveland, Minneapolis, and San Francisco, respectively

Rania Perry,<sup>4</sup> Assistant Vice President, Federal Reserve Bank of New York

David Lucca, Research Officer, Federal Reserve Bank of New York

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**May 2 Session**

CHAIR YELLEN. Good afternoon, everybody. As usual, our proceedings today will be a joint meeting of the FOMC and the Board of Governors. I need a motion to close the Board meeting.

MR. FISCHER. So moved.

CHAIR YELLEN. And without objection. I would like to note that First Vice President Mark Mullinix is representing the Federal Reserve Bank of Richmond at today's meeting, and we anticipate that he will do so until a new president of that Reserve Bank has been selected and is in office. Mark has attended a number of FOMC meetings previously. Mark, we welcome you to the FOMC table.

Also, I'm pleased to note that First Vice President Gooding is again representing the Federal Reserve Bank of Atlanta. Raphael Bostic is scheduled to assume office as president on June 5, and we look forward to working with him soon. Marie, thank you for your contributions to the Committee's deliberations in the interim. We appreciate it. And now let's turn to our first agenda item, which is "Financial Developments and Open Market Operations." Simon will start us off.

MR. POTTER.<sup>1</sup> Thank you, Madam Chair. As shown in the top-left panel of your first exhibit, nominal Treasury yields declined and the dollar depreciated over the intermeeting period, partially reversing price action seen since the November FOMC. An important factor behind the moves appears to be increasing investor skepticism about the Trump Administration's ability to push through many of its pro-growth initiatives. Geopolitical tensions, weaker-than-expected U.S. data, and Federal Reserve communications also contributed to the declines in yields and the dollar. Meanwhile, equity valuations and emerging-market asset prices have been quite resilient, and risk assets were given a boost following the result of the first round of the French presidential election and, to a lesser extent, an ongoing

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<sup>1</sup> The materials used by Mr. Potter are appended to this transcript (appendix 1).

improvement in foreign economic data. Against this backdrop, no increase in the target range is expected at this meeting, and the market-implied path of the policy rate flattened over the intermeeting period.

The failure to make progress on the proposed American Health Care Act led many market participants to call into question the Administration's ability to accomplish its broader initiatives, including tax reform and infrastructure spending. That said, respondents to our surveys still expect an expansionary fiscal policy of some form to be implemented. As shown in the top-right panel, respondents' estimates of the fiscal deficit over the next few years remain much higher since the election.

Market participants continue to debate whether the election's positive effect on business and household confidence will improve the trajectory of the economy. The middle-left panel shows that the difference between "soft" and "hard" domestic data surprises is as wide as it has been since the turn of the century. At the same time, measures of economic policy uncertainty remain at very high levels, and some market participants are switching their focus from the positive effects of animal spirits to the negative effect of persistent policy uncertainty on business and household decisions.

While some of the post-election political momentum in the United States appears to be waning, the outcome of the first round of the French presidential election was viewed as stabilizing political risk in the region. Mr. Macron, a pro-EU centrist, and Ms. Le Pen, a Euroskeptic, moved on to the second round, averting a runoff between two Euroskeptic candidates.

The middle-right panel shows that the relative cost of protection against euro depreciation vis-à-vis the dollar reached euro-crisis levels just ahead of the first-round election, but it quickly returned to its multiyear average after the first-round results were announced.

The bottom-left panel shows that spreads of French and peripheral sovereign debt yields to German equivalents also widened considerably ahead of the first-round election, though spreads have also normalized.

The final round of the election is this Sunday, and betting markets imply a very high probability of Mr. Macron winning the presidency. These odds are consistent with recent polls showing that his lead is well outside the margin of error, which appears to be giving investors comfort. In both euro currency options and French sovereign debt markets, there appear to be very little risk premiums still priced in, suggesting investors may not be well positioned for a surprising outcome this weekend.

Even beyond the French election, political risks that could undermine EU political unity remain. German elections are scheduled for the fall, and Italian elections, while not yet scheduled, need to occur before May 20, 2018. Market participants perceive anti-EU momentum in Italy to be particularly concerning and a substantive

contributor to the widening in Italian spreads to Germany, the light blue line, seen over the past year.

Uncertainty regarding the French presidential election also affected U.S. asset prices. As shown in the bottom-right panel, the VIX increased as the French election came into the option expiry window. With the market-friendly outcome of the election, the VIX dropped back near its all-time low. The current level is within the first percentile of historical readings, in sharp contrast to the elevated measures of policy uncertainty.

Alongside the very low levels of market-implied volatility, emerging market asset prices appreciated over the intermeeting period, as shown in the top-left panel of your next exhibit. The attractiveness of carry trades amid low volatility and reach-for-yield behavior remain common refrains from investors. They continue to highlight accommodative monetary policies from advanced-economy central banks as a key driver of reach-for-yield behavior, with the ECB and Bank of Japan having been perceived as holding back from signaling a step toward reduced asset purchases.

Subsiding concerns about China's near-term economic growth trajectory also reportedly served to support emerging market assets over the period. First-quarter Chinese GDP growth "printed" above consensus at 6.9 percent. Tightened controls on resident outflows, in conjunction with renminbi stabilization, appear to have prompted a net capital *inflow* in February, as shown by the blue bars in the top-right panel.

Contacts expect this near-term stability in China to persist ahead of the Party Congress in the fall, but they are expecting Chinese authorities to take action to slow credit growth in the medium term. Recent efforts at gradually tightening liquidity spurred some financial market dislocations and small-scale defaults, underscoring the challenges ahead.

With respect to expectations regarding FOMC policy, market pricing and the Desk's surveys indicate that a near-zero probability is attached to a rate hike at this meeting. As shown by the red line in the middle-left panel, market pricing currently implies a roughly 65 percent probability of a 25 basis point rate hike in June, comparable to what we saw the same time ahead of the December 2016 hike.

Further out, the market-implied path of the policy rate declined, as shown by the shift from the gray line to the dark blue line in the middle-right panel. Market pricing implies roughly 30 basis points of further tightening in both 2017 and 2018. Compared with just before the March FOMC, this is roughly one fewer 25 basis point hike priced in through year-end 2018. Unconditional expectations regarding the path of the target rate from the Desk's surveys, the red diamonds, remain very close to the market-implied path, the dark blue line.

Since the November FOMC, the survey-implied unconditional path of the target rate is still higher, primarily driven by an upward shift in expectations of the rate

conditional on not returning to the effective lower bound. As shown in the bottom-left panel, average PDF-implied point estimates for year-end 2018 and 2019 have increased by about 50 basis points since the November surveys. As you can see, the median March SEP dot for year-end 2018 lines up almost exactly with the PDF-implied point estimate, but there remains a significant gap at year-end 2019.

As a lead-in to Lorie’s briefing tomorrow, I’d like to highlight some key “takeaways” implied by the most recent Desk surveys regarding expectations about reinvestments. In response to official Federal Reserve communications, including the March FOMC meeting minutes, survey respondents have coalesced around later this year as the most likely timing of an announced change in reinvestment policy, with the most weight placed on the fourth quarter. Desk survey respondents, on average, assign a roughly 60 percent probability to a change in reinvestment policy being announced by the end of the year, compared with a roughly 35 percent probability in March. This change in expectations had little observable effect on market pricing.

Vice Chairman Dudley’s comments that there could be a pause in the hiking cycle when a change to the balance sheet policy is announced also appear to have influenced respondents’ expectations regarding how the Committee utilizes its policy tools. As shown in the bottom-right panel, the majority of respondents to our surveys now expect that a change in reinvestment policy will occur without a contemporaneous change in the policy rate.

For the Desk’s operations, the staff continued to conduct SOMA Treasury security and MBS reinvestments over the intermeeting period in a smooth manner. Quarter-end also proceeded smoothly in U.S. money markets. And there was a significant improvement in functioning in Japanese and European money markets in part facilitated by official sector operational adjustments following year-end.

Overnight unsecured rates shifted up following the Committee’s decision to increase the target range in March, as shown in the top-left panel of your third exhibit. 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—exactly 25 basis points higher than before the target range increase.

Treasury GC repo rates also increased by about 25 basis points following the March rate hike, as shown in the top-right panel. Repo spreads to the ON RRP offering rate have increased somewhat as the Treasury has ramped up bill supply to replenish its cash balance following the reinstatement of the debt limit.

I will now update the Committee on the Federal Reserve’s ongoing efforts to improve reference interest rates. As shown in the middle-left panel, overnight Eurodollar volumes have remained significantly lower in the wake of money market reform, reducing the volume of transactions used to calculate the overnight bank funding rate.

Additionally, a few large borrowers have changed the way that some of their overnight wholesale borrowing activity is booked, and, as a result, it is no longer captured by the FR 2420 report. Recall that, for domestic banks, FR 2420 collects Eurodollar transactions that are booked at all offshore branches, while for foreign banking organizations, or FBOs, FR 2420 only collects Eurodollar transactions that are booked at Caribbean branches. Similar transactions booked through U.S.-based branches of FBOs and domestic banks are not covered by FR 2420, as is detailed in the middle-right panel.

Starting in June 2016, one FBO shifted all of its \$20 billion in overnight Eurodollar activity from the Cayman Islands to its New York branch. More recently, another FBO informed Federal Reserve staff of a similar plan to shift its \$15 billion in overnight Eurodollar activity onshore. In response to this trend, the Desk consulted with 10 large foreign and domestic banks that serve as FR 2420 respondents and found that, as of December, many of them were already booking this Eurodollar-like activity in their U.S. branches. Respondents noted that “regulatory” and cost-management factors support this shift, and other banks could follow suit. This “onshoring,” along with the movement of assets from prime money funds to government funds, has left the Eurodollar volumes underlying the OBFR averaging about \$110 billion over the intermeeting period—about half of the level that they were at this time last year. Meanwhile, federal funds volumes, also used to calculate the OBFR, have remained stable.

In order to capture these wholesale, domestic, actively negotiated trades, the staff is exploring ways to revise the FR 2420 report ahead of its standard expiration in September 2018. Additional staff work is required to identify the best approach to acquire these data while minimizing any additional reporting burden. We will notify the Committee of our plans in the coming months.

On the topic of a repo rate benchmark, in November Lorie briefed you on the staff’s efforts at exploring the production and publication of an overnight Treasury general collateral, or GC, repo benchmark rate in coordination with the Treasury Department’s Office of Financial Research.

Recall that, at the time, we highlighted three principal objectives: first, to improve the amount and quality of information available to the public on the repo market; second, to produce a rate aligned with international best practices for financial benchmarks that could be considered as a reference rate in financial contracts; and, third, to produce a rate that is correlated with other money market rates and resilient to market evolution and that could be considered as a potential backup monetary policy rate.

To best achieve these goals, the staff proposed the publication of three daily secured benchmark rates: one comprising transactions in the triparty repo market; a second comprising the triparty transactions as well as GCF, or interdealer, repo; and a third comprising the triparty transactions, the GCF transactions, and the Federal



Reserve’s repo-based open market operations. All three rates were anticipated to be calculated as volume-weighted medians.

After the November FOMC meeting, the Desk released a statement notifying the public of the three proposed rates and the initial publication target of late 2017 or early 2018. However, it also noted that one or more of the rates could be modified over time, as appropriate, to incorporate additional data sources.

Since November, the DTCC has expressed a willingness to also provide anonymized, transaction-level data on bilateral repo transactions centrally cleared through FICC. Based on a sample, the data include an average of approximately \$400 billion of daily overnight bilateral repo transactions.

As the added volume would enhance the robustness of the reference rate, the staff plans to incorporate the bilateral data in the third proposed rate. This is in line with a recommendation from the Alternative Reference Rates Committee, or ARRC—a private-sector group, sponsored by the Board and the Federal Reserve Bank of New York, that has been charged with identifying one or more possible successors to U.S. dollar LIBOR and a plan to help the market transition to these rates. Additionally, the third rate will no longer include Federal Reserve open market repo activity, in light of discussions with the ARRC that indicated that the group did not have a clear preference for including such transactions and the fact that these transactions do not always represent negotiated market pricing. Therefore, the third rate will now include triparty, GCF, and bilateral repo transactions. The first two rates, the triparty rate and triparty plus GCF rate, will remain unchanged. These changes are summarized in the bottom-left panel.

The bilateral data provided are specific issue transactions in which counterparties denote a specific Treasury security at the time of the trade. This makes it difficult to distinguish between transactions that are qualitatively similar to GC repo, in which the cash lender is willing to receive any securities that fall within a broad class, and “specials” activity, in which demand for a specific Treasury security is such that the acquirer will accept a return on their cash that is significantly lower than a GC rate.

In order to address the issue of specials in the bilateral data, the staff plans to trim all transactions below the 25th volume-weighted percentile rate to remove those transactions in which the specialness rent might be very high. Sample data suggest that this trimming method would still leave about \$300 billion of added bilateral data to the benchmark calculation. As a result, and as shown in bottom-right panel, the volumes underlying the new third rate would generally be approximately \$200 billion higher than the originally proposed one, taking into consideration the removal of Federal Reserve open market operation activity. With respect to where the new third rate is likely to “print,” judging by the sample of the bilateral data, it will be approximately 6.5 basis points higher, on average, than the originally proposed one.

While the proposed trimming method will likely remove a significant portion of specials activity, it is impossible to determine whether all purely specials activity will

have been taken out. This means that the third rate cannot be considered a general collateral rate.

Looking ahead, the change in scope from including the bilateral data will extend the timeline for publication of the rates by several months. We intend to publish a Desk statement following the release of the May FOMC meeting minutes providing the public with updated information on the three proposed rates.

For an update on the Desk's small-value operational readiness exercises, we successfully executed our first-ever European-government-bond sale. The Desk also conducted a small-value exercise to draw euros from the ECB, which was not completed successfully. The same small-value test was also not completed successfully last year, but for a different reason. In both cases, we could have taken corrective measures to complete the transaction in a live operation. A summary of the other small-value exercises conducted over the intermeeting period, along with a list of upcoming exercises, is shown in the appendix.

Finally, as discussed in the memo sent to the Committee on April 12, we request that the Committee vote to renew the standing liquidity swap lines with the Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank, and the Swiss National Bank as well as the North America Framework Agreement and its applicable related agreements, or NAFA arrangements, with the central banks of Canada and Mexico. Foreign central bank counterparts support the renewal of these arrangements.

The swap lines promote financial stability and confidence in global funding markets in times of stress. During previous crises, these arrangements helped ease strains in financial markets and reduce their effects on financial and economic conditions in the United States. They continue to serve as a useful backstop and a reassuring presence to the market. As shown in the appendix, recent usage of the dollar liquidity swap lines has been relatively low, and there have been no drawings on the NAFA arrangements since 1995. However, the liquidity swap lines and NAFA arrangements are a tangible and constructive signal of cooperation among central banks, and we view the costs of maintaining the lines as minimal. The liquidity swap lines also support the approach that the Federal Reserve, along with other major central banks, endorsed, that there are “no technical obstacles,” or NTOs, to central bank capabilities to provide liquidity quickly to a systemically important financial market utility. In this context, the Desk annually tests its NTO operational framework with the Bank of England and the Bank of Canada.

Importantly, reauthorization does not constitute automatic approval of any request to use the lines. All drawings related to U.S. dollar liquidity swap lines are subject to the approval of the Chair, while all drawings on foreign currency liquidity swap lines require FOMC approval. All drawings related to the NAFA arrangements require FOMC approval. The FOMC may terminate its participation in the liquidity swap lines and the NAFA arrangements at any time with six months' written notice. If the

Committee chooses not to renew its participation in the NAFA arrangements, the related agreements would cease when they are currently set to expire on December 12.

Thank you, Madam Chair. That concludes my prepared remarks. I would be happy to take questions.

CHAIR YELLEN. Thank you. Are there questions for Simon? President Bullard.

MR. BULLARD. Thank you, Madam Chair. Simon, on the swap lines, do we have criteria that are listed somewhere regarding why this particular set of central banks outside of the NAFA agreement is the one that we want swap lines with, as opposed to some other set of central banks?

MR. POTTER. We do. I think that if you look at our website, it goes through the history of the swap lines, particularly the ones that we created in 2008, and the metric we've used is in terms of large financial centers. The five central banks that we have the standing arrangements with satisfy that in, obviously, a particular order, with London being the most important financial center outside the United States. I'd say for the goal of these swap lines, which is to support credit formation in the United States, it's clear that banks in those regions are important in our credit formation, not only those in Europe and Japan, but also those in Canada, whose banks are large players in our markets as well.

MR. BULLARD. Thank you.

CHAIR YELLEN. Any other questions for Simon? [No response] Okay. If there are no further questions, I'm now going to ask for separate votes on the renewal of the NAFA arrangements and the liquidity swap arrangements. Of course, only current FOMC members may vote. Let's start with the NAFA arrangements, our standing swap lines with Canada and Mexico. Do I have a motion to approve?

VICE CHAIRMAN DUDLEY. So moved.

CHAIR YELLEN. Are there any comments? [No response] All in favor? [Chorus of ayes] Any opposed? [No response] The renewal of the NAFA swap arrangements is approved. Now for renewal of the liquidity swap arrangements. Do I have a motion to approve?

VICE CHAIRMAN DUDLEY. So moved.

CHAIR YELLEN. Any comments on these? [No response] All in favor. [Chorus of ayes] Any opposed? [No response] Okay. The renewal of the liquidity swap arrangements is approved. And, finally, we need a vote to ratify the Domestic Open Market Operations conducted since the March meeting. Do I have a motion to approve?

VICE CHAIRMAN DUDLEY. So moved.

CHAIR YELLEN. All in favor. [Chorus of ayes] Any opposed? [No response] Thank you. Okay. We're ready to move on to our next agenda item, "Economic and Financial Situation." David Wilcox is going to start us off.

MR. WILCOX.<sup>2</sup> Thank you, Madam Chair. I'll be referring to the packet of material titled "Material for Briefing on the U.S. Outlook." As shown by the blue dot in panel 1, the BEA currently estimates that real GDP growth slowed substantially in the first quarter of this year, in line with our estimate in the April Tealbook and even a little more than we anticipated in March.

In light of this and a few other soft readings on recent indicators, a key question for us, and for you, is whether the first-quarter slowdown was real, and, if so, whether it might portend anything more serious. The short answer that we give is that we think the economic expansion is probably doing just fine. But I'm about to give you the long answer.

One common hypothesis regarding the first-quarter dip in real GDP growth is that it reflects residual seasonality. We are skeptical about that explanation. As part of last year's annual revision, the BEA attempted to purge the accounts of that influence. We see no reason to think that it didn't succeed, although it is difficult to know with any confidence because the BEA has not yet revised the national accounts prior to 2013. As a result, analyses that use longer sample periods are not useful for determining the answer. For now, though, we are proceeding under the assumption that residual seasonality doesn't explain last quarter's weak real GDP reading.

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<sup>2</sup> The materials used by Mr. Wilcox are appended to this transcript (appendix 2).

Two other hypotheses carry more weight with us. The first is that the first-quarter slowdown was real but will prove to be transitory. The slowdown in GDP growth was concentrated in consumer spending, and there is a good basis for thinking that households took a bit of a pause in the first quarter. For example, motor vehicle sales, one of the few indicators that can be measured accurately in real time, stepped down from a very high level in the fourth quarter of last year. Similarly, first-quarter retail sales are estimated to have decelerated sharply.

However, as you can see from the red line in panel 2, the Federal Reserve Bank of Chicago's National Activity Index, which takes on board a broader range of indicators than just the spending data, has portrayed a steadier profile of real activity in the past and continues to do so now. Among the additional indicators taken into account by the Chicago index, the recent data from the labor market point to continued solid improvement: In March, the unemployment rate came in  $\frac{1}{4}$  percentage point lower than our previous projection, and the participation rate was  $\frac{1}{4}$  percentage point higher. In addition, initial jobless claims have remained remarkably low of late. The BLS's first estimate of March payroll employment growth was disappointing, but we think the main culprit there was the weather—both in the form of warmer-than-usual temperatures in February that probably caused some hiring to be moved forward and in the form of the major winter storm that hit the Northeast in March. Smoothing through these swings, the three-month average pace of payroll job gains in March—shown in panel 3—was well above the 90,000 to 120,000 range that we estimate to be consistent with steady pressures in the labor market. In addition, measures of consumer sentiment continue to be upbeat, including a sizable plurality of households reporting that they see jobs as easy to find rather than hard to get, while indicators of business activity have generally remained well in expansionary territory.

Yet, another possibility regarding the first-quarter slowdown is that it reflects statistical noise. For example, a good part of the Q1 PCE slowdown is in non-energy services—a category with very little hard-source data until the QSS is published in early June.

Either way—real or statistical noise—we think the recent spate of weaker-than-expected indicators will probably amount to a stumble along the path of an ongoing, moderate expansion in real activity. For the first half of this year, we now expect real GDP growth of about 2 percent at an annual rate, slightly stronger than in our March Tealbook forecast. Further out, our medium-term projection is little changed from March, reflecting relatively minor changes to our key conditioning factors this round.

Similarly, our judgmental assessment of the current and prospective cyclical position of the economy—summarized by the output gap shown in panel 5—is close to what we projected in March. As we discussed in the Tealbook, in order to square our overall assessment of the economy's current margin of slack with the news from the labor market, we now attribute a slightly larger fraction of the improvement in the unemployment rate and labor force participation rate in recent quarters to structural factors. Specifically, this round we edged down our estimate of the natural rate of

unemployment by 0.1 percentage point, to 4.9 percent, and raised our estimate of the trend labor force participation rate. By the end of 2019, the unemployment rate is projected to be around 4 percent—a percentage point below our revised estimate of the natural rate, as in the previous projection.

As you know, we have been developing a suite of models that aim to estimate the economy's cyclical position by pooling a range of indicators. Panel 6 gives the results from one such model. Importantly, this model incorporates a Phillips curve, and so it factors in the news on inflation in generating its slack estimate. The model knows about all of the first-quarter data that we had in hand as of the April Tealbook's closing date, including our Tealbook first-quarter real GDP growth forecast, but it doesn't know about the rebound we are projecting for GDP growth in the second quarter. Similar to the staff, the model balanced the weaker-than-expected incoming information about spending and inflation with the stronger-than-expected labor data and concluded that overall slack was little revised.

Panels 7 and 8 on the next page summarize the inflation outlook. The March inflation data were notably lower than we expected, with the downside surprise concentrated in the core portion of the index—panel 8. Part of the miss reflected the much-ballyhooed drop in wireless services prices. That said, prices for a number of other components of the core series were also lower than we anticipated. We think that a few of these soft readings, such as the ones for apparel and for lodging away from home, are likely to rebound. Accordingly, we offset some of last month's forecast error by nudging up our core inflation projection in the next few months—a very similar procedure, albeit in the other direction, to the one we followed in January when the price data surprised us to the upside. A stronger projected path of import prices also pushed up the near-term forecast of core PCE inflation a little.

Over the 12 months ending in March, the overall PCE price index increased 1.8 percent, while the core index increased 1.6 percent. As you can see from panel 9, we now expect the 12-month change in core prices to remain close to its current level for the remainder of the year, while headline inflation drifts down a touch.

The median longer-run inflation expectation measure in the Michigan survey—the red line in panel 10—was 2.4 percent in April, close to a record low. A smoothed version of the series—the blue line—has declined steadily during the past few years. We have been attributing a portion of that slide to the low rates of headline inflation in 2015 and 2016. Indeed, if we try to control for the influence of food and energy price changes, the resulting trend—the green line—falls less sharply, though its current level is still low by historical standards. Among the various expected inflation measures we track, the Michigan measure shows by far the steepest downtrend, so it is not obvious that a broader erosion in inflation expectations is under way, but we continue to view that risk as material.

Last Friday, we received the March ECI—the black line in panel 11—which showed a 12-month change that was  $\frac{1}{4}$  percentage point higher than we had expected. More broadly, labor compensation appears to be accelerating modestly, about as we

would expect in light of the combination of an increasingly tight labor market and continued lackluster productivity gains.

In the remainder of my comments, I will revisit a topic that I last addressed in September 2016—namely, the differential unemployment experience of African Americans and Hispanics relative to whites.

As a jumping-off point for that discussion, I will use the brilliant book titled *Our Kids*, by Harvard sociologist Robert Putnam. In this latest book, Putnam divides American society roughly in thirds by educational attainment: The top third comprises those with a college degree or more, the bottom third comprises those with a high-school degree or less, and the middle third comprises those who have something in between—generally some college or perhaps an associate’s degree from a career-oriented or community college.

Across a range of indicators, Putnam observes a convergence over the past 50 years or so among races and ethnicities. In terms of parenting practices, family structure, substance abuse, and civic engagement, among other metrics, African Americans and whites with a college degree or more behave more similarly today than 50 years ago. Likewise, African Americans and whites with a high-school degree or less behave more similarly today than half a century ago.

I thought it would be interesting to investigate whether the same type of convergence might have occurred with respect to labor market experiences. In particular, exhibit 13 compares the unemployment experiences of African Americans and whites. The red dots show the annual data from the first half of the sample period, 1996 and before, while the blue dots show the data from the second half.

Two facts are apparent from these two scatter plots: First, looking at the panel on the right, as I showed in September, even blacks with a college degree or more experience a much more severe version of the aggregate fluctuations in unemployment than do whites. When the unemployment rate for whites with a college degree or more increases 1 percentage point, the unemployment rate for similarly credentialed blacks goes up by an estimated 1.7 percentage points in the early sample and 2 percentage points in the late sample. Second, there is no evidence here of convergence of the unemployment experience of highly educated blacks toward that of highly educated whites. The panel to the left shows that roughly the same result holds for blacks and whites with a high school degree or less.

Exhibit 14 shows that mostly similar results hold in the relative experience of Hispanics and whites. In this case, there are two distinctions: First, the overall relationship is somewhat flatter than in the case of African Americans. Second, there is some evidence of modest convergence, as you can see from the fact that the blue regression lines have shifted down from the red lines. Further investigation will be required, though, before we can conclude that the apparent lack of convergence among African Americans and the small apparent convergence among Hispanics bear

directly on what Robert Putnam had in mind, or whether, for example, they might represent a change in the composition of the various demographic groups.

Overall, this evidence underscores the fact that when the white population experiences a change in labor market conditions, the black and Hispanic populations do too, but in much more severe fashion. A mild recession for the white population is equivalent to a major downturn for the black and Hispanic populations, and conversely when the economy recovers. It is interesting to note that this basic regularity continues to hold in recent data. For example, compared with the annual average for 2015, the average unemployment rate in the first quarter of this year was only 0.5 percentage point lower for whites but 1.1 percentage points lower for Hispanics and 1.7 percentage points lower for African Americans. Beth Anne Wilson will now continue our presentation.

MS. WILSON.<sup>3</sup> I'll be referring to the materials titled "Material for Briefing on the International Outlook." IF's benign, if unspectacular, foreign outlook is summarized on slide 1. Throughout most of the projection period, we have aggregate foreign GDP growth running at about a 2½ percent pace, as growth in both the advanced and emerging market economies settles in at roughly their potential rates. We see inflation stabilizing at 3 percent for the emerging market economies and trudging slowly toward 2 percent for the advanced.

Headline inflation has been boosted of late by the recovery in global commodity prices, pictured in slide 2. This modest pickup over the past year and the expected stabilization of oil and nonfuel commodity prices after a multiyear slump is a key support for growth in a number of emerging market countries, including importantly Brazil. Another support to our near-term EME outlook has been the welcome step-up in global trade and manufacturing. This improvement is broad based, but, especially in Asia, trade is benefiting from the upside of a high-tech cycle, as semiconductor shipments have surged along with new orders for high-tech equipment, and from stronger demand from China.

In the advanced foreign economies, slide 3, a main factor supporting growth is accommodative monetary policy. We expect that interest rates in the major advanced economies will stay very low, with only Canada's target rate rising significantly over the projection period, and that central bank balance sheets as a fraction of GDP will remain sizable and, in the case of the ECB and Bank of Japan, climb further.

With U.S. policy rates projected to rise gradually and the Federal Reserve's balance sheet expected to shrink modestly, we have some divergence in monetary policy built into the forecast and think that markets have not fully priced it in. Therefore, as shown in slide 4, we anticipate a slight appreciation of the dollar between now and the end of the projection period. This and past appreciation play a role in explaining the small drag coming from net exports that we expect to see over the forecast. I would note that NIPA trade data for Q1 showed surprising strength in

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<sup>3</sup> The materials used by Ms. Wilson are appended to this transcript (appendix 3).



exports—leading to a barely positive contribution of net exports to GDP that we do not anticipate will be sustained.

It is probably worth taking a moment to reflect on the novelty of this delightfully mundane forecast. As celebrated on slide 5, after years of almost ceaseless downward revisions, as the global economy was buffeted by all manner of adverse shocks, we are finally seeing our outlook for global economic growth stabilize, with even some upward revisions of late. Our April Tealbook forecast, shown in black, now lies above the October 2016 forecast, shown in blue, for 2017. Furthermore, incoming economic data and financial conditions point to a low probability of global recession over the next 12 months. The sense that risks to global growth have now become more two sided is a feature not just of our forecast, but of those of other international and domestic institutions, and was a theme in discussions at the recent spring meetings of the IMF and World Bank.

To drive this point home, I'd like to highlight an upside and a downside risk we see to our outlook. First, the upside. As articulated on slide 6, over the intermeeting period, incoming indicators raised the possibility that foreign economic growth could be stronger than in our baseline. This should be a plus for the U.S. economy, although such improved conditions could also engender a stronger monetary policy response in some advanced foreign economies than we have built in. One example of this was when euro-area data came out and were particularly positive, and then when markets breathed a sigh of relief after the first round of the French elections, you saw increased investor speculation that the ECB could shift to a considerably less accommodative policy stance. We think the ECB will remove accommodation only gradually. But, in general, there is a range of uncertainty regarding both economic outcomes and the responses of central banks to those outcomes.

In the Risks and Uncertainty section of the Tealbook, we explore the potential effect on the United States should foreign economic growth surprise on the upside. In this scenario, faster foreign growth—the effect of which is shown in the blue lines—provides a significant boost to U.S. real GDP and inflation, in part because greater confidence in foreign economic prospects engenders a sizable reversal of the dollar appreciation seen since mid-2014. If central banks respond more aggressively than our baseline policy rule would imply, the effects on U.S. real GDP are still positive but slightly smaller, as seen by the red lines, reflecting some greater upward pressure on U.S. interest rates. In either case, U.S. GDP growth runs closer to 2½ percent next year and inflation reaches 2¼ percent.

That said, of course, downside risks have not disappeared. And a prominent one, the risk of EME financial market turbulence, is discussed on the next slide. To listen to the chatter at the spring meetings or to read the latest investment reports, it is springtime in the emerging markets. Better data, stabilizing commodity prices, and continued low interest rates in advanced economies have spurred strong capital inflows to emerging markets, likely boosting levels of private- and public-sector debt. A case all its own is China, where a decade of often government-encouraged lending has almost doubled the ratio of credit to GDP to a nerve-racking height of nearly

240 percent. Rising debt levels in China and other emerging market economies leave them increasingly vulnerable to shifts in investor sentiment and higher interest rates.

As illustrated in slide 8, in a second Tealbook simulation, we look at the possible effects of such a shift. In this case, U.S. monetary policy normalization sharply boosts the dollar and foreign interest rates, leading to heightened financial pressures abroad that elevate emerging market economy borrowing costs and weigh on confidence, reducing foreign economic activity. Weaker foreign growth and a 10 percent rise in the broad real dollar lead U.S. real GDP growth to slow noticeably, and inflation fails to reach 2 percent over the forecast period. Although we do not anticipate such a negative outcome, we remain concerned about the risks posed by the buildup of EME debt, especially in China.

Finally, as I summarize in the last slide, over the intermeeting period we also explored risks to foreign financial stability within the framework of our financial stability matrix. You received a memo on our updated matrix as part of the materials surrounding the QS Assessment of Financial Stability. Here, I would just point out that, although we still view the overall level of foreign vulnerability as “moderate,” it’s a bit less enthusiastic “moderate,” in part as we downgraded Mexico and Turkey on account of the greater economic and political risks we see there. I will now pass the baton over to Rochelle Edge, who will give an assessment of U.S. financial stability.

MS. EDGE.<sup>4</sup> Thank you, Beth Anne. I will be referring to the material titled “Material for Briefing on Financial Stability Developments” and will be summarizing the document on financial stability that you received last week.

We continue to view vulnerabilities in the U.S. financial system as moderate overall, reflecting our judgment that leverage as well as maturity and liquidity transformation in the financial sector are low, leverage in the nonfinancial sector is moderate, and asset valuation pressures are notable. While these assessments are unchanged since January, we consider that vulnerabilities have increased with regard to asset valuation pressures, though not by enough to warrant upgrading our assessment of these vulnerabilities to “elevated.”

The upper-left panel of your first exhibit plots a composite index that summarizes asset valuation pressures and risk appetite for a number of markets, including markets for equities, corporate debt, and residential and commercial real estate. Our estimated value of this index for the first quarter of this year is at the 80th percentile of its historical distribution and is slightly above where it was just before the bout of market volatility that began in the late summer of 2015.

Focusing on some specific markets, the upper-right panel plots the forward price-to-earnings ratio for the S&P 500 index. This ratio, which is at levels last seen in the

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<sup>4</sup> The materials used by Ms. Edge are appended to this transcript (appendix 4).

early 2000s, reflects pricing pressures that are broad based across a wide range of industries.

The middle-left panel reports near- and far-term speculative grade corporate bond spreads, which have continued to narrow from their early 2016 peaks. Bond spreads reflect both investors' perceptions of borrower default risk and their required compensation for bearing that risk. However, because long-term perceptions of default risk likely fluctuate little over short horizons, the narrowing in far-term forward spreads over recent months—the red line—likely reflects investors requiring less compensation for default risk. Spreads for newly issued institutional leveraged loans—not shown—also narrowed last quarter, and some nonprice terms on these loans that provide protection to lenders in the event of a default weakened as well.

The middle-right panel plots capitalization rates on recently transacted properties for major classes of commercial real estate, which provides a gauge of CRE valuations. These rates continued to decline over the first few months of this year, reflecting slower rent growth for some types of properties as well as further increases in property prices. Even so, nonprice measures of risk appetite in this market from recent Senior Loan Officer Opinion Surveys indicate that banks have been tightening—and expect to continue tightening—their terms on CRE loans. Respondents to the April survey cited as reasons for these tightenings a less-favorable or more-uncertain outlook regarding CRE valuations and fundamentals, along with reduced tolerance for risk.

The two bottom panels consider nonfinancial leverage, focusing on debt associated with markets for which we see significant valuation pressures or notable risk appetite. The lower-left panel plots average gross leverage among speculative-grade firms—the black line—and for firms at the 75th percentile of this leverage distribution—the red line. Leverage in the corporate sector increased for several years after the crisis. While these measures edged down or flattened over the course of 2016, they remain at high levels relative to historical norms.

The lower-right panel reports, relative to nominal GDP, the outstanding amount of CRE debt secured by nonfarm and nonresidential properties, which includes office, industrial, and retail properties—the blue line—and the volume secured by multifamily properties—the red line. Over the past couple of years, these volumes have increased at a pace faster than GDP, although each ratio remains close to its trend.

Your next exhibit considers vulnerabilities in the financial sector, starting with leverage. In the banking sector—the upper-left panel—leverage remains low, with the common equity tier 1 ratios for banks of all sizes holding roughly steady at multiyear highs.

Outside of the banking sector, financial leverage appears to have also remained broadly unchanged. The upper-right panel reports two measures of hedge fund leverage from new, post-crisis data collection efforts. As is standard for hedge funds,

leverage is reported as the ratio of assets to capital. The black line reports average gross notional leverage across hedge funds as derived from the SEC’s Form PF data. The most recent reading of this measure, which is fairly comprehensive but not very timely, suggests that leverage in mid-2016 remained at the high end of its recent range. The red line reports gross leverage calculated from funds’ prime-brokerage-account data. The most recent reading of this more timely but less comprehensive measure suggests that gross leverage decreased slightly in the latter part of last year.

The remaining panels examine maturity and liquidity transformation and trace through some broader financial system developments associated with last fall’s money fund reforms. As you know—and as shown by the middle-left panel—in the lead-up to the compliance date for these reforms, \$1.2 trillion of the \$3 trillion held in U.S. money funds shifted from more-risky prime funds—the red area—to less-risky “government” funds—the sum of the plain and the hatched green areas.

The hatched green area shows government money funds’ holdings of Federal Home Loan Bank (FHLB) obligations, which have risen as these funds’ share of total money-fund assets has increased. This rise can also be viewed from the perspective of FHLB debt, which is shown in the middle-right panel and which has risen notably in recent years. The increase in FHLB debt has been concentrated in short-term debt—the sum of the hatched and the plain pink areas—with a near doubling since late 2015 in the debt held by money funds—the hatched pink area. The rise in short-term debt has shortened the average maturity of FHLB liabilities. At the same time, the maturity of FHLB assets has not changed, implying that maturity mismatch at FHLBs has risen.

Increased FHLB advances to large banks—the black line in the lower-left panel—accounts for the increase in FHLB assets. These advances are loans collateralized by mortgages and mortgage-related investments. FHLB advances began increasing several years ago, reportedly because advances are an inexpensive way for banks to accumulate high-quality liquid assets and thereby meet liquidity coverage ratio requirements. After late 2015, however, when the change in the composition of money funds started to get under way, advances increased sharply while bank commercial paper funding from prime funds—the red line—declined. Because these advances have two- to three-year maturities, these developments imply reduced maturity transformation at large banks. However, they imply increased maturity transformation at FHLBs and greater large-bank exposure to FHLBs.

The lower-right panel sums up our overall assessment of these developments. On net, money fund reform appears to have reduced run risk in short-term funding markets and vulnerabilities associated with liquidity and maturity transformation, which we started characterizing as “low” in January’s QS report. However, developments at FHLBs associated with recent regulatory changes warrant further analysis to understand the risks faced by FHLBs and the channels through which stress at FHLBs could be transmitted to the broader financial system. The staff is continuing to engage with the Federal Housing Finance Agency—the FHLBs’ regulator—to understand these risks and transmission channels.

Finally, the table on the last page reproduces our judgmental heat map, which recaps these points and summarizes our overall assessment. Thank you. That concludes our prepared remarks, and we will be happy to respond to your questions.

CHAIR YELLEN. Questions for any of our presenters? Vice Chairman.

VICE CHAIRMAN DUDLEY. I have a question for David about investment spending. How is the staff thinking about how the political uncertainty could be affecting investment? You would think that when there's a lot of uncertainty about trade policy or tax policy, the option value of potentially delaying investment might go up. Are we seeing any evidence of that? And how are you thinking about that?

MR. WILCOX. I'll offer a thought or two and then see whether my colleagues might have something to add. First of all, it is pretty hard to measure uncertainty. Some of the various indicators that we look at point in different directions. Traditional financial market indicators are pretty low at the moment, puzzlingly so. That could be because indicators like the VIX and the implied option volatility on bonds have a short horizon, and they may not anticipate that that uncertainty will be resolved over the period covered by the relevant contract. My recollection is that the Baker, Bloom, and Davis index has been more volatile and a little higher, but it doesn't point to any red flags. Credit spreads in bond markets are pretty low. That said, one has to wonder whether those indicators are just fundamentally missing the point about the extent of policy uncertainty.

Broadly speaking, investment hasn't been hugely surprisingly weak for us, and, again, we continue to think that a major influence in holding down investment is the slow growth of the labor force. If you just compute the rate of growth of the capital stock using historical averages, it is pretty slow. If you adjust for the rate of growth of potential workers, it looks at the moment like it's currently about at the sample average. Bill?

MR. WASCHER. The only thing I would add is that the GDP numbers for Q1 actually gave us a positive surprise on investment. We had been writing a pretty modest pace of investment for this year, and we were positively surprised by the Q1 data.

VICE CHAIRMAN DUDLEY. Thank you.

CHAIR YELLEN. President Kashkari.

MR. KASHKARI. David, you ticked down your estimate of the natural rate of unemployment and ticked up labor force participation. Could you talk to me about that a little bit? Obviously a critical determination for us is where the natural rate is. Nobody knows for sure. As I've read the history of the Committee over the past 30 or 40 years, it seems like when the Committee errs, it errs in overestimating the natural rate rather than underestimating it. I'm just curious if you could talk about your confidence in our current assessment.

MR. WASCHER. I'll take this one. Let me start with the participation rate, because there I think the story is a little bit clearer. The participation rate had been moving relatively sideways and against the downward trend, and it moved up above our estimate of a trend to a place at which we were a little uncomfortable with how wide that gap had become. Because of that, we reexamined some of our underlying trend estimates, which we do by demographic group, and it looked to us like we had a trend for the younger group, the 16-to-24 year olds, that was too negative. That trend is a much more difficult for us to estimate because it's hard to determine the cohort effects. We don't have very much information on them. And so about three-fourths of the upward revision we made to the trend, which is pretty small, is the result of raising the trend for the 16-to-24-year-old group.

In addition, at the previous FOMC meeting President Harker mentioned evidence from research at the Philadelphia Federal Reserve that some people were returning to the labor force

from disability, and we looked into that. We looked at the work that Shigeru Fujita of the Federal Reserve Bank of Philadelphia had done, and we were convinced that some of that was going on. So that was another source of an upward revision to the trend. We had previously viewed people moving from the labor force or unemployment to disability as a permanent state. It's still pretty persistent, but it looked like it was a little less permanent than we had thought before, and that made us comfortable revising up our trend participation rate a little bit.

The natural rate, I think, was a harder call for us. The inflation data don't give us a lot of signal about the natural rate because the short-run Phillips curve is so flat. Certainly, on the price side that is true. Using the wage data, the Phillips curve is not quite as flat, and there, actually, our models, as David mentioned, haven't really been surprised given our current estimate of the natural rate and low productivity growth. But, nonetheless, we were trying to get our estimate of the output gap in line with our estimate of slack in the labor market, in order to reduce what we refer to as an "Okun's law error" that would have become uncomfortably large absent any changes. And so it just seemed to us like it was also a sensible thing to do—to nudge down slightly our estimate of the natural rate.

MR. KASHKARI. Can I follow up?

MR. WILCOX. In terms of the level of confidence, what would you estimate?

MR. WASCHER. I believe Thomas is going to show in his briefing a confidence band surrounding one of our model estimates of the natural rate, and it's pretty wide.

MR. WILCOX. Like a percentage point.

MR. WASCHER. Maybe a percentage point each way.

MR. KASHKARI. Okay, that was going to be my follow-up. Is it conceivable that two years from now we look back, and though we thought it was 4.9, it was really 4.5? Is that very possible?

MR. WILCOX. Absolutely.

MR. KASHKARI. Okay. Thanks.

MR. WILCOX. The only way in which I think I would respectfully disagree with the premise of your question is that my recollection is that, speaking for the staff, toward the end of expansions, I think we tend to get a little enthusiastic about the natural rate. We don't see inflation emerging, and in the past couple of cycles we've pushed down the natural rate as an explanation why those inflationary pressures are more muted than one would have believed, given a higher natural rate. Retrospectively, we've tended to go back and boost our estimates of the natural rate because in the rearview mirror it appears that the economy actually was a little overheated, generally speaking, as the economy went into recession. So, this time around, I think we've been reserved in our approach to revising down our estimate of the natural rate, not only hoping not to commit some new error this time but also keeping very much in mind the fact that the errors from our wage and price indexes really aren't calling for a downward revision in the natural rate at this point.

MR. KASHKARI. Thank you.

CHAIR YELLEN. Other questions? President Bullard.

MR. BULLARD. Thank you, Madam Chair. This is a follow-up question on the staff output gap, which is panel 5 on the forecast summary page. Again, there are no confidence bounds. It doesn't look like this output gap would be statistically significant, where we are today. Would it become statistically significant by the end of the forecast horizon?



MR. WILCOX. I don't have confidence intervals for the measure that's shown on the left. It parallels pretty closely the one in panel 4 on the right. Thomas, do you have one?

MR. LAUBACH. Not for the output gap. I only have the confidence bound for the natural rate.

MR. WILCOX. However, an Okun's-law multiple will work pretty well here. Unless Bill Wascher can beat me to the draw, I'll just say that if the confidence interval around the unemployment rate is a percentage point, then I would guess that it might be as large as 2 percentage points around the output gap estimate that comes from the state-space model. By 2018, I think it would be on the verge of becoming statistically significant.

MR. BULLARD. And then I have a question on the foreign financial stability, which is the matrix on the last slide in the "Material for Briefing on the International Outlook." For April 2017, we have South Korea ranked as "low," and I just wondered: That country has had a big political scandal, and there obviously have also been a lot of tensions on the peninsula. Are those things outside the purview of what we would put in this matrix, or would you put them at least at "moderate" on the basis of those developments?

MS. WILSON. It's definitely true that you're not the first to play this up. We don't have the risk of nuclear war here in our matrix. There are a number of things, purely on the financial side, that we think look good in South Korea. The financial sector has moderate risk. The banking sector seems in fairly good shape. Sovereign debt levels are low, and it's running a sizable current account surplus. Valuation pressures are moderate, and it has relatively robust institutions. So those have all contributed to our assessment of "low" overall.

One thing we haven't seen at this point is a really big spillover of that risk into financial markets. If we were starting to see that risk really push down asset prices and weigh on the

exchange rate, we would probably reconsider. But it's so speculative that, in terms of financial-stability risk that would spill over to the United States, it's hard to put that into the matrix at this point without more signals from financial markets.

MR. BULLARD. Okay, so is this meant to reflect the potential for financial instability in that particular country to spill over to the United States, or is it a statement about whether that country, just taken on its own, faces financial-stability risk?

MS. WILSON. It's a little of both. The countries chosen in our matrix are determined both in terms of their overall size—their financial markets, their GDP, their engagement, and their connection to the global financial and economic system—as well as their linkages—importantly, their linkages to the United States. So that's part of why we have chosen them, and they are weighted in a way that will try to capture those interlinkages. When we do our assessments, we are assessing the financial stability—in particular, characteristics that we think will have more international implications.

MR. BULLARD. It's a little of both. Thank you.

CHAIR YELLEN. Governor Brainard.

MS. BRAINARD. I just have a comment to say I think I'm probably one of the people that you're referring to who has raised this. The won has depreciated very substantially in a very short period in response to some geostrategic concerns, so I would also question that judgment.

MS. WILSON. Okay.

CHAIR YELLEN. Any other comments or questions? [No response] Okay. We now have an opportunity for people to comment on financial-stability-related issues. A number of people have indicated a desire to do so. And if anyone else wants to join the list, just raise your hand. We'll start with President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. Discussion of GSE reform seems to have been pushed back as other more pressing initiatives are receiving more attention. However, GSE reform poses a potential risk that has received relatively little attention to date. The GSEs, including their securitized vehicles, hold approximately 44 percent of multifamily loans. The GSE holdings of multifamily loans significantly exceed the holdings of banks, which hold approximately 36 percent of multifamily loans outstanding. Should GSE reform get serious, one can imagine a fairly significant shock to the sector, especially if reform proposals require the GSEs to reduce or eliminate their holdings of multifamily loans. In light of the risk that prices in this sector are already a bit “rich,” as we heard earlier, as indicated by their low cap rates, one can easily imagine proponents of reform asking whether it is wise for the GSEs to have such a large footprint in the multifamily mortgage market. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. I was going to comment, or maybe it’s actually a question. It relates to the QS report—so this is probably for Rochelle—and it’s really more of a broad question about how do we think about price-to-book ratios for large banks? In the QS report on page 14 of 97, you reported that financial leverage in the banking sector remains low and pointed to chart 3-2 on page 15 of 97, which shows the price-to-book ratios for selected bank holding companies.

I have two specific questions about just how to think about price-to-book ratios in terms of thinking about risks to the banking system. The first question is about the large foreign banks. Many of them have price-to-book ratios well below one even today. What does that mean for the resilience of these banks in the financial system? How do we think about banks that have such

low price-to-book ratios in terms of their vulnerabilities and in terms of their ability to survive in a very stressed environment?

My second, very related question concerns the domestic banks, as even there we are seeing significant improvement. Price-to-book ratios are now at levels of about 1 or above that, but still well below the levels—about 2 or higher—that we saw before the financial crisis. And, again, I’m just trying to think, what do I make of that? Is that just a reflection of a stricter regulatory environment? Is it about new business models or changes in business models in those large banks? Is it just part of a “new normal” for the financial system? And, if anything, what is this telling me about, again, vulnerabilities or resilience in terms of the large banks and the broader financial system? Those are my questions.

MS. EDGE. Comparing it with, say, the past, the higher values in the past probably do reflect risk perceptions that were maybe being out of line and not properly seeing the risk that was there in the earlier environment. It’s obviously an indicator of profitability, and it’s an indicator of ability to raise equity. So higher price-to-book ratios, say above 1, would suggest a better ability for raising equity. And lower price-to-book ratios would reflect difficulties with actual profitability and difficulties in raising equity.

MR. WILLIAMS. My question, really, is, while we focus a lot on regulatory capital and capital ratios, should we be more focused on this? Is it telling us something different that maybe we should be spending more time thinking about? I don’t have an answer for that.

MR. ROSENGREN. Let me contribute one gratuitous observation. I think there’s a high correlation between return on equity and price-to-book and, to your point, profitability. It says more about that they just can’t earn. Back before the crisis, there were just much higher returns on equities. And, normally, especially with banks, there’s a very high correlation. The European

banks in particular have lower returns on equities, but even the U.S. banks are struggling to get above 10, and I think that may explain most of it

VICE CHAIRMAN DUDLEY. If I can just add something. There is also still a lot of embedded legal risk in the valuations. So if you have legal costs that are probably to come that aren't really reflected yet in legal reserves, that's something that is probably important for some banks.

MR. LEHNERT. President Williams, this is all actually my fault. I apologize. I really wanted to put this chart in there. This was something that was raised in the second half of last year as a potential vulnerability of the U.S. banking system. There was a Brookings paper on this co-authored by Larry Summers with Natasha Sarin, so it seemed important to pay attention to it. Like Rochelle said, the connection between, let's say, immediate resilience and this measure is a little murky. A low price-to-book ratio is evidence that you are going to have trouble raising capital in private markets. Of course, a high price-to-book ratio could arise in part because you are overly optimistic. But, in principle, one ought to find it easier to attract private capital.

And your final question, what's a good market-based measure of leverage? I think one that is strongly preferred is something like a CDS spread that is more conceptually aligned with solvency risk in these institutions.

MR. FISCHER. Two questions. One for Andreas and one for President Kaplan. Are we happy with the quality of CDS spreads? Do we know they are good, and we can base policy on that?

MR. LEHNERT. Do you mean the integrity of the underlying data sources and the market participants who are executing the transactions?

MR. FISCHER. No. I mean the estimates. The markets make estimates. They don't always make good estimates.

MR. LEHNERT. They have seemed responsive to reasonable market events. They, of course, embed the market price of risk in the assessment of the probabilities of various bad events that can influence banks, and, certainly, they were in some sense too low—out of whack with physical probabilities—before the crisis.

MR. FISCHER. Okay. And for President Kaplan, I'm puzzled as to what rates of return we expect banks to make. If I can make 10 percent, just barely make 10 percent, I'd probably be quite happy. What do you think they should be making?

MR. KAPLAN. There is no answer to that. It's a function of market conditions. But I would say, to the extent that you've got a relatively flatter yield curve and some of the other market dynamics we have, it's not surprising. Also, you'd expect them to be a little higher if the banks are fee-generating, which enables the big banks to earn lots of fees on asset management and investment banking and really doesn't take a lot of capital.

The only concern I have for especially small, mid-sized banks and other banks about having an ROE under 10 percent is whether they are taking duration risk and other risks in their investment portfolio in order to make up for the lack of profitability in their other lines. That's the part for me that makes me a little nervous. When I see what they're doing with that excess deposit account, I fear people may be taking undue risks that may come back to bite them. But what's the right ROE? It's a function of the environment. My guess is, in this environment, these banks are adapting—we were talking about this last night—about as well as could be expected. The concern is the way they're adapting, especially small, mid-sized banks that don't

have fee-earning potential and are not in the asset-management business or banking business. They are probably doing some things with the investment account that they may regret later.

MR. FISCHER. Okay. Thanks.

CHAIR YELLEN. Governor Fischer, you're on the list. Did you have a comment?

MR. FISCHER. Oh, I have lots of comments. Sorry.

CHAIR YELLEN. Please proceed.

MR. FISCHER. The "QS Assessment of Financial Stability" is an impressive survey covering not only the U.S. financial system in considerable detail, but also including assessments of financial stability in other leading advanced and emerging market countries. And the staff who worked on this assessment deserve our thanks.

On balance, the summary of financial stability in the United States is encouraging. The overall staff assessment of the level of vulnerability of the U.S. financial system is "moderate," as it has been since the current scale was adopted in 2014. In addition, the international financial stability matrix of the 13 foreign countries, 7 advanced economies and 6 emerging market economies, also receives an overall summary grade of "moderate." The only problem with the 13 foreign countries is that the standalone assessment of the vulnerability of the financial sector is the most conspicuous exception to their doing well. Only 4 of the 13 countries earn the "moderate" grade, and Italy and China are awarded red flags for the most serious vulnerabilities. The two other countries that received red flags are surprising: Canada and Switzerland. But it's less surprising when you realize those are for their housing sectors; Hong Kong is the third red housing flag. These evaluations are not, I think, undertaken mainly to increase our expertise on the global economy, but rather because they are used in evaluating the vulnerability level of the foreign assets held by U.S. banks.

Beyond the international aspect, the QS identifies weaknesses in the U.S. financial system, and the staff has not hesitated to describe some of them in the QS. In particular, the survey notes that prices of risky assets are high across a range of markets, including those for corporate debt, equities, and commercial real estate. But, to encourage us, the staff also points out that fundamentals are good, and they include a judgment that prices of homes remain within the range suggested by their rents. I think we are now beginning to see signs of house prices starting to rise more rapidly, and, in any case, housing is always the sector that bears careful watching.

The staff suggests that the ratio of credit to GDP remains below a range of plausible estimates of the trend, although there is a question of whether from the viewpoint of financial stability there should be a positive trend in the ratio of credit to GDP, particularly at a time when the short-term real interest rate is low and likely to rise. The staff analysis goes beyond looking at macro-level indicators of vulnerability and in a more detailed analysis concludes that credit losses resulting from declines in asset prices will not hit any critical node in the financial system particularly hard. The optimism of that answer would be reduced by a significantly more rapid rise in short-term and other interest rates, but the staff makes the valid point that because recent stress tests have built in big drops in property and equity prices, resilience against such shocks is likely to be high and less worrisome. The report also discusses the question of what would happen if asset prices continued to rise. It suggests that this would lead to an increase in the demand for credit and notes that the United States lacks the macroprudential tools in the real estate market that many other countries have. But on a “one hand and on the other” comment, the staff notes that there are absolutely no signs of a credit boom at present.



The staff has also turned its attention to examining the risks that could arise outside the regulated banking system—that is, in the shadow banking system—a term that the staff dislikes for its connotation that there is something shadowy about the nonregulated financial system. In this regard, it reports with care on the success of the reform of money funds while warning that vigilance continues to be needed, for money managers have an inherent obligation to seek higher returns, although we remind ourselves that it's without increasing risk excessively. The staff is concerned that money might begin to return to prime funds and other more opaque vehicles that in effect have fixed nominal asset values.

In Rochelle's presentation today, she made the case that the Federal Home Loan Banks have recently increased the degree of maturity transformation they undertake. The staff, as on most phenomena that worry them slightly, does not believe that the present levels of maturity transformation present a major financial stability problem, but they are clearly on guard watching current developments and warning that stress at the FHLBs could be transmitted to other parts of the financial system. And they are also reaching out to the FHFA, the primary regulator on these issues. This is very useful work, and the staff deserves our commendation again for exploring and exposing difficulties that arise from the powers of the FHLBs.

In other words, the work of the regulator is never done. Successes in maintaining stability are rarely noted, which implies that the best regulators should prefer not to have their names in the newspapers too often. Rather, their best rewards are the recognition of their achievements by those who understand the forces threatening financial stability that always operate in the economy and hope for the silence of the dog that doesn't bark in the night.

One final word to all of us. We are entering a period in which the balance of forces between those who have sought to bring financial stability through structural changes in the

financial system and those who have forgotten the lessons of 10 years ago and the massive losses that the GFC inflicted on so many United States citizens and residents is turning in favor of those who forget or tend to ignore history. We all have to be on guard, for that is the greatest threat to financial stability that we now face. Thank you.

CHAIR YELLEN. I agree. President George.

MS. GEORGE. Thank you, Madam Chair. I, too, want to thank the staff for their ongoing work on the QS assessment. I find these helpful, and especially the Federal Home Loan Bank analysis this time.

I want to echo, a little bit, the comments of Governor Fischer. When I look at the report on leverage in the financial sector remaining low and capital ratios at the bank holding companies that are high by historical standards, as it relates to the largest firms, I find this encouraging. But I'd have to say, my own level of concern about this vulnerability has gone up in light of some of the discussions we hear today about potential regulatory reform, which of course is yet to be fully defined.

It's true that the largest banking firms were considered to have high capital ratios by historical standards, certainly in a relative sense, given levels in 2008 that required taxpayer support. But judging their capital be adequate relative to the risk they pose to the broader economy is going to warrant ongoing scrutiny. When you look at international accounting standards, which restrict the netting of derivatives, these largest firms hold an equity-to-asset ratio of 6 percent, while the smallest U.S. banks, by the same measure, hold more than 10 percent. I would also note that if you go back to the time before government safety nets, these largest firms held between 12 and 15 percent.

The other important characteristic in this report is the vulnerability associated with interconnectedness. And on this dimension, again, I think it's reassuring to see a decline in intrafinancial system assets and liabilities as a result of regulations such as capital surcharges, liquidity coverage ratios, net stable funding ratios, and reductions in bilaterally cleared derivatives. So the report's conclusion that these firms are less connected seems right to me. But, again, in a relative sense, as their assets compose a greater share of GDP, it seems to me that the economy remains vulnerable to these linkages, and it's a reminder of the ongoing importance of applying strong capital regulation and supervision to these firms. Thank you.

CHAIR YELLEN. Thank you. Governor Brainard, did you want to comment?

MS. BRAINARD. Yes. Thank you. Well, my comments follow directly from both Governor Fischer and President George. The quarterly assessment highlights "rich" asset valuations as a source of notable concern while noting that financial sector leverage and maturity transformation are well contained. History suggests that elevated asset valuations pose a considerably greater risk to financial stability when they're associated with high leverage, especially in the financial sector. Because today these elevated valuations are occurring against a backdrop of well-capitalized core financial institutions, which are managing their liquidity and their risks much more carefully and transparently than before the crisis, it's plausible that the overall risk to the financial system is only moderate.

At a time when many of the regulatory changes enacted since the crisis are coming under critical scrutiny in the policy arena, it's important to emphasize that our large banks did not become well capitalized by accident. Enhanced prudential standards, including the higher capital requirements and supervisory stress tests, as well as liquidity requirements and CLAR stress tests have been instrumental in bringing about this improved situation. Tough resolution planning

requirements and orderly liquidation authority are critical requisites for assessing financial stability risks to be moderate today. As memories of the crisis fade, public perceptions of the need for these rigorous prudential standards for the large, complex banking organizations may, too, fade. As we have seen previously, this impulse to soften standards can contribute to the cyclical nature of the financial system. And, as we know from experience, it is precisely when asset prices are high that future losses are also likely to be building and the loss-absorbing capacity of thick capital buffers is likely to be most important.

What implications does this have for our monetary policy deliberations today? Although monetary policy could have some effect in moderating asset prices, it is a very blunt instrument, and, arguably, would be unwarranted in current circumstances in no small part because we have a rich set of micro- and some macroprudential tools that are better targeted to combating these risks, and we are using them vigorously. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Is there anybody else who would like to weigh in on financial stability? [No response] Okay. I suggest we take a break. How about 15 minutes? There's coffee and so forth outside, and we'll come back and then begin our economic go-round.

[Coffee break]

CHAIR YELLEN. Would this motley crew please come to order? [Laughter] I think we will get going on our economic go-round, starting with President Bullard.

MR. BULLARD. Thank you, Madam Chair. My view continues to be that the U.S. economy is behaving in a manner consistent with balanced growth and that there's little need to embark on a major policy rate tightening campaign in the current environment. The hard data, along with anecdotal reports from the Eighth District that have been reported since the previous meeting of this Committee, have reinforced the St. Louis Fed's view that the U.S. economy is

best described as having attained a type of steady-state outcome characterized by real output growth of about 2 percent, inflation near 2 percent with little upward pressure, and labor input growing at a pace consistent with the balanced-growth regime.

Despite buoyant business-sector optimism following last year's election, evidence collected in the Eighth District from business contacts clearly suggested relatively weak Q1 real GDP growth. This is exactly what has occurred, with the preliminary Q1 real GDP estimate coming in at an annual rate of just 0.7 percent. I do expect some bounceback in this measure during Q2, but not enough to meaningfully alter my growth forecast of 2 percent for all of 2017. For those who wish to assign the 0.7 percent growth rate to the category of so-called residual seasonality, then we should be willing to subtract some amount from the growth rates in Q2, Q3, and Q4, because those would be overstated due to residual seasonality. I have not noticed this type of adjustment in previous years when residual seasonality was an issue. We tend to apply it only to the first quarter as if it wouldn't apply to other quarters as well.

In light of these issues, I think it may be better to track year-over-year real GDP growth rates during this period, especially because a lot of analysts that observe the U.S. economy know that you can de-seasonalize the de-seasonalized data and get significant seasonals, and because of that it's hard to peddle a story that there aren't problems with the de-seasonalization of the GDP data. So I think a better approach would be just to talk more about year-over-year growth rates and not try to just downplay the seasonal issue.

Recent reports on inflation have pushed even the core PCE inflation rate lower, now at 1.6 percent on a year-over-year basis. This has also shown up in the Dallas Federal Reserve trimmed mean PCE inflation rate, which was 1.9 percent but is now 1.8 percent measured from a

year ago. I would categorize these numbers as suggesting that there's little inflation pressure in the U.S. economy, despite continued economic growth and relatively strong labor markets.

I think the staff interpretation of the GDP growth and inflation data is somewhat strained. The idea that growth is slow but still slightly above trend and that this is putting only slight upward pressure on inflation but nevertheless enough to require a major tightening campaign by this Committee seems like an overinterpretation of the data to me. I think we would be better off simply accepting the evidence of recent years that there does not appear to be very much inflation pressure in the current environment.

Labor markets have continued to improve. My interpretation is that labor input has continued to expand at a pace of about 1.5 percent per year and that this, combined with about ½ percent per year productivity improvement, gives an output growth rate in the neighborhood of 2 percent. Both nonfarm payrolls and hours are growing at approximately 1½ percent measured from a year earlier. If anything, this might slow down.

Unemployment has, indeed, fallen to 4½ percent, but I think it will fluctuate in this range over the forecast horizon. Even if unemployment fell to 4 percent, I do not think it would have a meaningful effect on inflation, considering the very flat Phillips curve estimated in the data in recent years. I regard it as speculative to suggest that recently estimated Phillips curve relationships will suddenly change. I think the best advice at this juncture is to wait and see if anything meaningful happens with inflation.

Bond market trading seems to suggest that by making rate moves in December and March and suggesting further moves in the policy rate in the near future, the Committee has been too “hawkish” relative to incoming data. The 10-year yield has fallen about 32 basis points since the previous FOMC meeting, instead of rising more or less in tandem with the policy rate. The

five-year TIPS inflation breakeven remains somewhat low and has fallen since the previous FOMC meeting, suggesting lowered inflation expectations over the forecast horizon. Equity prices have largely held up at higher levels after increasing in the post-election period. However, this importantly reflects expectations of coming tax changes and may not reflect expectations of better macroeconomic prospects. I think this is a source of major confusion in interpreting recent macroeconomic data. The international outlook certainly looks better, but this is likely to have a relatively modest effect on the U.S. economy. In sum, my interpretation of the current data configuration is that it does not provide a compelling case for a major tightening campaign by the Committee over the forecast horizon. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. The FOMC's statement that we will discuss tomorrow highlights the fact that the Committee views the slowing in real GDP growth during the first quarter as likely to be transitory. I agree with that assessment. My forecast has been for consumption-led growth over this year. This forecast is quite consistent with the strong underlying fundamentals supporting the consumer, including high readings on consumer confidence and household net worth and with continued growth in real disposable income, supported in part by payroll employment growth that continues to be well above its steady-state level. Thus, I view the disappointing first-quarter consumption reading as likely reflecting temporary factors such as residual seasonality, delayed tax refunds, and distortive weather. Consistent with this expectation, the Blue Chip forecast of private forecasters, like my own forecast, expects both consumption and real GDP to bounce back in the second quarter. Beyond the expected bounceback this quarter, my outlook has real GDP growing somewhat above 2 percent over the next couple of years, again, consistent with the consensus of the Blue Chip

forecast. With the low rates of population and productivity growth that I expect, my estimate of potential real GDP growth is only  $1\frac{3}{4}$  percent. This implies that the projected path of GDP growth should lead to a further tightening of labor markets.

Given my estimate of the natural rate of unemployment of about 4.7 percent and with the current unemployment rate already at  $4\frac{1}{2}$  percent, my forecast anticipates additional overshooting of full employment. Specifically, my modal forecast of the unemployment rate by the end of 2019 stands at 4.1 percent, just 0.1 percentage point higher than the Tealbook. A modal unemployment forecast that low entails a significant probability that the unemployment rate could fall below even 4 percent over the forecast horizon.

How serious is it to have unemployment fall so far below the Committee's median estimate of the sustainable unemployment rate? The Federal Reserve Bank of Boston staff has been revisiting Phillips curve estimates in the region of very low unemployment rates. Their work found that the Phillips curve may well have a steeper slope at very low unemployment rates, which implies a larger response of inflation to very low levels of unemployment. Their work highlights a risk that inflation may not be as well behaved as envisioned in the baseline Tealbook forecast, especially as we approach these levels of unemployment. I would also note that the various inflation models that our bank runs that do not have this threshold effect in the Phillips curve imply inflation rates somewhat higher than the Tealbook. Like the median forecast of the Survey of Professional Forecasters, we see core PCE inflation on a Q4-by-Q4 basis stepping up from 1.7 percent in 2016 to 1.9 percent this year. In support of that forecast, the most recent trends in compensation from the employment cost index and average hourly earnings are quite consistent with modest tightening in labor markets.



Regardless of the sensitivity of inflation to an unemployment rate gap, I continue to be concerned that allowing the unemployment rate to get so low will result in a heightened probability of a recession that ultimately leaves us well below full employment. Prudent risk management suggests that we follow a path that does not let the unemployment rate fall too much further. That is why my forecast is predicated on announcing the start of the balance sheet reduction this summer, not this fall, and why I have three, rather than two, increases in the federal funds rate based into my forecast.

It is also worth noting that in the various optimal policy simulations in Tealbook A, the prospect of an overshoot of unemployment implies a federal funds rate much higher than our estimates of the equilibrium federal funds. For example, in the extended Tealbook forecast, the federal funds rate consistent with optimal policy exceeds 4 percent in the outyears. Of course, these simulations embed the assumption that none of the upside risks to economic growth materialize, but risks may increasingly be skewed to the upside, which could result in an even lower forecast of the unemployment rate. With respect to these upside risks, while I have some fiscal stimulus in my forecast, the possibility of a large tax cut financed by deficit spending seems to be increasing rather than decreasing. Rebounding economic growth in other countries also poses upside risks. While U.S. stock prices have been rising, European and emerging market stock prices have been rising even more quickly, reflecting an investor perspective that expects much better outcomes for many of our trading partners.

Finally, I would note that through much of this recovery, unemployment has surprised us on the downside. Earlier, some of the surprises were due to disappointing readings for labor force participation, but more recently the downward trend in the unemployment rate has occurred despite better-than-expected outcomes for the labor force. Although the relative strength of the

participation rate could be interpreted as a success in terms of a monetary policy strategy that probes for better labor market outcomes, the economy now appears to have exceeded full employment. As a result, probing under current conditions should proceed more cautiously, as continued downward surprises in the unemployment rate would move us still further from what we expect to be sustainable. I will discuss the implications of that tomorrow. 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 and even a bit more positive than in March. Much of this optimism is still driven by as-yet-unrealized hopes for the future. However, I did hear a few more reports this time of firms actually experiencing increases in demand. Among manufacturers, order books were up for some heavy equipment producers, notably those supplying the construction sector, and both Caterpillar and ArcelorMittal reported signs of some recovery in oil and gas activities. Caterpillar also noted that international demand had improved, particularly in China, where it expected government policies to support strong sales of construction equipment for at least another few months. This is the peak construction season there, I'm told. In contrast, Ford and GM were less positive this round. In March, our contacts had hoped that sales would stabilize near the 17½ million pace seen in January and February, but March and April sales were disappointing, which leaves them with some decisions to make about production plans. That said, they still expect 2017 sales at the 17¼ million pace, only a little below the record for the previous two years. Furthermore, other business reports discounted the first-quarter slowdown in overall consumer spending. Notably, my director from Discover Financial was pretty upbeat and indicated that credit card receipts seem more robust than the NIPA consumption data.

Labor markets appear to be moving forward at a pace similar to recent months, and this would tighten conditions further. I continue to hear many of the same old complaints about shortages of skilled workers, but I also heard a few more stories about businesses actually doing something about it. For example, there were more reports of firms trying to fill shortages of skilled labor by expanding training programs, often in conjunction with community colleges, and some temp help and placement firms said that they have convinced more of their client companies of the need to boost wages if they want to get and keep their jobs filled. One agency in Michigan told customers they would no longer accept any orders for light industrial office or service workers at under \$11 per hour. This compares with a minimum wage of \$8.90. This firm regularly adjusts such wage cutoff points to match market conditions. When wages are below the threshold, turnover is too great and it finds it too tough to meet its hiring and retention guarantees to its clients.

Turning to the national outlook, we made only minor changes to our real GDP growth projections. And like the Tealbook, we nudged our core inflation outlook down 0.1 percentage point this year, but we still expect inflation will sustainably reach our 2 percent objective by 2019.

My uncertainty over all of these forecasts is a bit higher than it was in March. First, I'm a little concerned that the weak first-quarter consumption figure may contain more signal than assumed in our outlook. The softer April motor vehicle numbers reinforce this perception a bit.

Second, in my outlook I continue to assume a modest fiscal stimulus that begins later this year with a boost in defense spending and then adds in tax cuts of some form in 2018. But the Administration's opening bid makes our tax cut assumption seem paltry. On the other hand, it's

not clear what kind of tax package is going to get through the Congress or when we might see it. So uncertainty over fiscal policy is even higher now than before.

Finally, on inflation, there is the downward surprise in the March releases. I do not want to read too much into one month, so for now I am willing to put it aside and await more data. But the March surprise does make me a bit more uncertain about the current trajectory of inflation. I hope we will have enough information in hand at our June meeting to know whether the recent consumption and inflation data were just temporary hiccups or something more that would require a change to our baseline forecast. And maybe we'll have more clarity by then on the fiscal policy picture as well. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Thank you, Madam Chair. Since we last met, most of the hard data on the U.S. economy have surprised to the downside. While I'm inclined to look past the softness in payrolls and aggregate spending, I'm troubled by the lack of progress toward our inflation target and will be watching indicators of both realized and expected inflation closely over the coming months. By contrast, foreign risks to the outlook have further receded, and the global outlook has continued to brighten. Let me take each in turn.

The labor market continues to show signs of tightening. Unemployment fell to 4.5 percent at the same time that the labor force participation rate has increased, and the employment-to-population ratio has hit a new post-recession high. Although payroll gains fell substantially in March, the three-month average was close to 180,000, a level likely consistent with a falling unemployment rate. And unemployment insurance claims so far in April remain at very low levels, suggesting that job gains remained healthy last month. Even so, other indicators suggest there may be some margins along which labor markets can continue to make progress.

The share of workers who work part time for economic reasons has edged down but remains notably higher than pre-crisis, and the prime-age employment-to-population ratio remains below pre-crisis levels. The staff analysis of the lag with which minorities experience improvements in the labor market relative to whites, even after controlling for education levels, is particularly striking in this regard, and I look forward to further analysis at future meetings.

Overall, the data seem to suggest that wages are increasing a bit more rapidly than they were a few years ago, which should be providing a welcome boost to household income. Nonetheless, I see little indication of a breakout in nominal wage growth of the kind that would be predicted by models with a nonlinear relationship between wages and the unemployment rate. For example, in last Friday's release of the ECI, the 12-month change in hourly compensation for private industry workers was 2.3 percent. That's an improvement over March this time last year when the 12-month increase was 1.8 percent, but it's lower than the 12-month increase in the previous year—March 2015—of 2.8 percent and only marginally higher than inflation.

While labor markets are evolving roughly in line with my expectations, the March core inflation data caught my attention when it surprised to the downside. The March reading brought the trailing 12-month change in the core PCE price index below 1.6 percent. That's unchanged from a year earlier, suggesting no progress toward our objective. To be fair, the low reading for March was, in part, the result of one-off factors. Still, it also reflected softness in other categories and led the staff to revise down core inflation for the year to just 1.7 percent, no different from 2016. This soft reading is particularly notable against the backdrop of recent yearly patterns in which the first quarter tends to evidence firmer inflation data usually followed by softening over the remaining quarters.

With somewhat diminished confidence that realized core inflation is on track to reach our 2 percent goal, I continue to monitor indicators of inflation expectations closely. Here, too, we've seen some deterioration since March. Both the Michigan and Federal Reserve Bank of New York survey measures of consumers' longer-run inflation expectations have edged down since March, and market-based measures of inflation compensation have also moved lower since the March meeting and remain quite low by historical standards. With core inflation below our 2 percent target for almost all of the past eight years, we must continue to emphasize that evidence of further progress is necessary to reach and sustain our symmetric inflation goal.

Turning to aggregate spending: First-quarter real GDP came in exceptionally weak. This fits a recurring first-quarter pattern and may reflect, in large measure, residual seasonality and an unseasonably warm winter and should not be taken as a harbinger of overall slowing. Nonetheless, the sharp slowdown in first-quarter consumer spending bears watching.

By contrast, I'm heartened by the signs of strength in other categories. Of particular note, residential construction posted a double-digit increase, drilling for oil and natural gas is rebounding sharply, and nonresidential construction contributed nicely to first-quarter real GDP growth. Business spending on equipment and intangibles, which fell slightly in 2016, rebounded at a strong annualized rate in the first quarter, and exports posted a 6 percent annual rate such that net exports made a small positive contribution compared with the drag anticipated in both the April and March Tealbooks.

That said, consumer spending was surprisingly weak. Special factors, such as the unusually warm winter and elevated fourth-quarter auto and retail sales, likely account for a portion of that unusual weakness, although it was widespread and included components of spending that are based on solid data. Nonetheless, the underlying fundamentals remain

favorable. Household income should continue rising with strong employment and wage data, home prices and equity prices should be contributing, and consumer sentiment remains upbeat. Going forward, I'll be watching for signs that these strong underlying fundamentals are in fact translating into renewed strength in consumer spending.

By contrast to the downside surprises to the U.S. intermeeting data, the international data surprised to the upside, and risks to the outlook from abroad have further diminished. The first round of the French presidential elections is being interpreted favorably as boosting the likelihood of policy continuity in the euro area. This comes alongside an upside surprise to core euro-area CPI, strong manufacturing and services PMI data, and continued improvement in employment. While Italy will remain a source of risk, the broader environment can be expected to be more resilient if elections in France and Germany evolve as is now widely expected. Globally, economic growth forecasts have also been marked up, breaking a pattern of repeated downward revisions from 2013 through much of 2016, and we're seeing both advanced and emerging market economies on a more robust trajectory. China's first-quarter growth came in at 7 percent, and capital outflows have slowed notably, although China bears watching as policy is adjusted to address elevated financial-sector and credit risks. Brazil has seen a return to growth following three years of recession, in part reflecting a strengthening in commodity prices, and we're seeing some improvement in Mexico in equity prices and the exchange rate, although economic growth is likely to be down.

As others have noted, recent announcements on fiscal policy suggest some upside risk to domestic demand as well. Independent estimates suggest the latest tax announcements could increase the deficit by about 2 percentage points in the first few years, which is about twice the size of the baseline assumption in the forecast. The effects of the policies that are currently

under consideration would likely come primarily through a boost to aggregate demand, which could, on balance, boost inflationary pressures, with the economy already in the neighborhood of full employment. This potential upside risk to domestic demand seems more consistent with a further strengthening in equity markets that we have seen since March than with developments in foreign exchange or Treasury security markets.

Between today and the June FOMC meeting, we will have substantial additional data that will help us assess the extent to which the downward surprises on payrolls, core inflation, and consumer spending are indeed temporary setbacks and that will enable us to get a better gauge of the implications for policy—a subject to which we'll return later. Thank you.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. Contacts in the Fourth District report that over the intermeeting period, the District economy expanded at a moderate pace, with some pickup seen toward the end of the quarter. The Cleveland Federal Reserve staff diffusion index measuring the percentage of business contacts reporting better versus worse conditions edged up from 38 in February to 41 in April. Conditions improved broadly among manufacturing, construction, and banking contacts. Conditions in District brick-and-mortar retailers remain soft, but contacts suggested this largely reflects continued adjustments in the sector to online retailing rather than softness in overall demand.

District auto sales in the first quarter increased on a year-over-year basis, although at a slower pace than last year. Despite slower sales, automakers' profits remain healthy because the mix of sales has favored light trucks, including SUVs, which have higher profit margins than cars. In response to sales, producers have been shifting more of their production from cars to light trucks. Indeed, an auto industry executive on our board noted that, because of the



continued strength in demand, automakers are increasing capital spending to raise light truck capacity. Still, dealers expressed some concern that producers have not slowed car production enough to keep inventories from rising.

Conditions in District labor markets continued to strengthen. Through March, District employment grew 0.8 percent on a year-over-year basis, well above the Cleveland Federal Reserve staff's estimate of trend employment growth in the District, which is 0.25 percent. The District's unemployment rate has been stable at around 5 percent over the past year. Over the intermeeting period, regional contacts reported a pickup in hiring activity across a broader set of industries. They continue to report difficulties in finding qualified workers in both high-skill and low-skill occupations.

Turning to the national economy, incoming information on the real side of the economy has been mixed, but my medium-run outlook has not materially changed. First-quarter real GDP growth was weak. History seems to be repeating itself. At our meeting a year ago, I noted my sense of *déjà vu*, because first-quarter GDP growth was, again, weak, and I hoped that sense of *déjà vu* was going to continue, because in the previous two years after a weak first quarter, we saw a rebound in the second quarter. And we did see a pickup in GDP growth over the balance of last year. I anticipate we'll see the same thing again this year. The weakness in the first quarter likely reflects some temporary factors like unseasonably warm weather early in the year that held down spending on utilities as well as some residual seasonality in the data.

Research by some Cleveland Federal Reserve staff members suggests some residual seasonality remains even after the BEA's methodological changes to address this issue. And I agree with President Bullard that it's important to smooth through volatile data to get a read on the underlying trends and to focus on fundamentals. These fundamentals remain sound. They

include healthy household balance sheets, rising personal income and wealth, and accommodative monetary and financial conditions. In addition, consumer sentiment remains high. Thus, I expect to see a pickup in consumer spending.

Housing activity came in stronger than expected. In some locations, demand is outstripping supply, resulting in an acceleration in prices. I anticipate that housing will continue to expand at a sustainable pace.

Business fixed investment picked up in the first quarter, and new orders for nondefense capital goods, excluding aircraft, have been rising, suggesting further improvement.

Manufacturing has started to strengthen, as oil prices have stabilized and the rate of dollar appreciation has tempered. The positive readings on investment and manufacturing suggest that the pullback in inventory investment, which subtracted from real GDP growth in the first quarter, should go into reverse. Thus, I continue to expect real GDP growth to be slightly above trend this year.

Despite slower output growth in the first quarter, labor market conditions remain strong. Average payroll gains in the first quarter were well above trend, and the unemployment rate of 4½ percent is nearly at its lowest level seen during the previous expansion and is below most estimates of its longer-run level, including my own 5 percent estimate. Productivity growth remains low, and the subdued wage growth we've seen for some time is consistent with this. Nonetheless, we have seen an acceleration in wages over the past year.

I am taking little, if any, signal about the path of inflation from the declines in the headline and core CPI and PCE inflation measures in March, which partly reflected some one-off changes like declines in prices for cell phone service plans. Instead of declining in March, the Federal Reserve Bank of Cleveland's median CPI inflation series rose 0.2 percentage point. Its

year-over-year increase held steady at 2½ percent, and the other CPI-based measures have been rising at 2 percent or better. Over the past year, headline PCE inflation has neared our 2 percent goal. It's important that inflation return to 2 percent on a sustained basis, but we should expect some variability in the monthly data. Despite the dip in inflation readings in March, longer-run inflation expectations haven't changed that much since our previous meeting. This includes survey-based measures like the 6-to-10-year-ahead CPI inflation forecast from Consensus Economics as well as the 5-to-10-year readings on inflation compensation from TIPS and the Federal Reserve Bank of Cleveland's model-based 5-year-forward, 5-year inflation expectations measure, which has been about 2 percent since the end of last year. Reasonably stable inflation expectations, along with my expectation of economic growth slightly above trend and continued strength in labor markets, leave my inflation outlook intact. I anticipate that inflation is going to be sustainably at our 2 percent goal by the end of the year or early next year.

I view the risks associated with both my economic growth outlook and my inflation outlook as broadly balanced. The global economic outlook has improved, although there are some geopolitical risks, including tensions in North Korea and the Middle East. Of course, the latter are not the types of risks preemptive monetary policy can reduce, but they do need to be considered when interpreting changes in economic and financial conditions. Indeed, some of the downward moves in long-term interest rates over the intermeeting period reflect flight-to-quality flows in the face of rising geopolitical tensions rather than the material reevaluation in the modal outlook.

Under my outlook, I believe it's appropriate to continue to remove monetary policy accommodation this year by increasing the federal funds rate and by ending reinvestments. This 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 whatever risks, whether to the upside or downside, are ultimately realized.

Earlier in the expansion when downside risks predominated, the Committee was appropriately very cautious in signaling that the removal of accommodation was nearing. With our recent actions and communications, we have been achieved a better alignment of the public's policy expectations with the Committee's anticipated policy rate path, although sometimes that has taken intermeeting speeches in addition to postmeeting statements.

The readings on the first quarter were weak, but the outlook is little changed. My concern is that the gap between the public's policy expectations and the Committee's will widen once again, which complicates policymaking. This seems more likely to happen if our communications inadvertently overemphasize short-run changes in the data and underemphasize the fact that despite the noisy data our median-run outlook is little changed and that our assessment that a gradual reduction in accommodation continues to be appropriate. Under the current circumstances, we need to mind the gap in expectations and make sure our communications are particularly clear. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Acting President Mullinix.

MR. MULLINIX. Thank you, Madam Chair. The broad contours of my outlook for economic activity are very similar to those presented by the staff. I view real GDP as growing above the underlying trend determined by productivity and labor force growth—a situation that has persisted for some time now. With employment growth continuing to run above growth in the working-age population, labor markets have passed from a phase of improvement to one of tightening. I am perhaps a bit more confident that inflation is essentially returning to its target, and I expect it to fluctuate around 2 percent in the coming years.

As this “steady as she goes” picture might suggest, I also believe the recent softness in consumption to be temporary. The healthy fundamentals underpinning household spending—growth of real disposable income and high levels of household wealth—should support consumption growth. Real disposable income growth has been mainly supported by employment gains, not so much by real-wage gains. Like the Tealbook, I attribute relatively low real-wage growth to low productivity growth. In fact, for the past three years, real-wage growth has exceeded labor productivity growth, and the wage share in GDP has been increasing, as usually happens in an expansion when labor markets are getting tight.

Recent information from the Fifth District supports the view that first-quarter weakness in GDP is temporary. Our business activity surveys have been strong in recent months, reaching multiyear highs. Furthermore, in the first four months of 2017, the composite index of manufacturing was consistently strong, more so than it has been for a few years. In general, reports on manufacturing were very upbeat, but some concern was expressed regarding higher commodity prices, health-care costs, and potential trade policy changes.

Concerning wage gains, a number of large employers reported that they are budgeting for 3 percent average compensation growth in 2017. However, a staffing firm reported that even though labor markets were tight, their clients would rather leave positions unfilled than pay a higher wage. These clients may believe that they cannot pass on the higher wages as price increases, and some of our directors have also expressed this concern. One building materials manufacturer, however, did so at year-end and reported virtually no effect on year-to-date orders. In my assessment, the bottom line is that both the national and regional data attest to the fundamental strength of the U.S. economy. Thank you.

CHAIR YELLEN. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Madam Chair. The 11th District economy continues to expand at a moderate pace. First-quarter Texas job growth is estimated to have come in at approximately 2.4 percent, annualized, and our full-year job growth estimate is roughly the same. This would be the highest rate of job growth in Texas in the past three years. There have been marked accelerations in manufacturing, construction, and oil-and-gas-related employment, as well as in professional and business services. Despite continued migration of people and firms to the state and a growing labor force, reports of labor shortages are becoming even more frequent and have certainly reemerged in energy-intensive areas of the state.

Residential construction activity has been insufficient to ease housing supply shortages, and recent run-ups in home prices have raised concerns about home affordability in a number of cities in Texas.

The forward-looking components for our business outlook surveys indicate that 11th District executives remain notably optimistic but a little less so than they were a couple of months ago.

Regarding the energy industry, it's our view that global oil supply and demand are right now in a fragile equilibrium. On the basis of the expectation that global oil demand will grow, on average, approximately 1.3 million barrels a day, we continue to estimate that the global consumption and production of oil will move into rough balance sometime this year. However, the timing has been pushed forward by the implementation of the December 2016 agreement between OPEC and certain other oil-producing nations to decrease output levels as much as 1.8 million barrels a day.

The fragility comes from the fact that U.S. oil production is now steadily rising. Since the fall of 2016, U.S. production has risen from a low of 8.6 million barrels a day to

approximately 9.3 million barrels a day currently, and it's our estimate that U.S. production will increase to approximately 9.6 million barrels per day by the end of this year. The big question is whether OPEC members will be willing to maintain supply restrictions in the face of steadily rising U.S. production. Also contributing to this fragility is that we still have record-high global oil inventories. Assuming OPEC countries and other oil producers extend significant supply cutbacks through the second half of 2017, our energy group anticipates inventory levels will begin to decline sometime later this year, and under these circumstances, we would expect some price volatility, but within a roughly stable band from the mid-40s to the mid-50s. If these supply cutbacks do not hold, we would expect price changes to the downside.

Drawing on this base case—expectations for prices in the mid-40s to mid-50s—our latest Federal Reserve Bank of Dallas energy survey reports that oil exploration and production companies plan a notable increase in capital spending during 2017. The bulk of the spending plans are focused on shale and are likely to involve technologies designed to achieve new production efficiencies. Survey participants report that current prices are sufficiently above breakeven levels to encourage a further rig count growth, particularly in the Permian Basin.

Regarding the nation, my views on the national economic outlook are not much changed from my estimates in March in most respects and are not very different from the Tealbook baseline scenario. I see the unemployment rate dipping below 4½ percent in the fourth quarter of 2017 and continuing to decline next year, driven by above-potential GDP growth. Despite the weak first-quarter real GDP growth, I continue to believe that because of improved ratios of debt to income and debt service to income among households, the health of the household sector, is going to be key to the underpinning of GDP growth in excess of 2 percent in 2017. In addition, I expect continued pickup in business spending and investment.

On the uncertainty side, though, I am cognizant that the Federal Reserve Bank of Dallas trimmed-mean core inflation measure slipped in March, and I do look forward to what the numbers show in April and beyond to see whether this is an anomaly, as I might expect, or is part of a trend. I'm also concerned about policies that are being discussed that affect the access and affordability of health care as well as policies that affect the willingness of immigrants to leave their homes and spend money. I'm concerned that weakness in first-quarter consumer spending, while not indicative of the overall health of the consumer, may be partly due to uncertainty regarding these policies. I'm also concerned about policies that have the potential to slow an already sluggish rate of workforce growth. And, looking ahead, while talks of tax cuts are encouraging to business leaders and could be stimulative, I'm actually more concerned about policies that could give a short-term boost to real GDP growth but ultimately leave us with similar growth to current rates but much higher levels of debt to GDP.

I remain convinced that we are likely at the end of the so-called debt supercycle, meaning that government debt held by the public of 77 percent as well as the present value of \$46 trillion of unfunded entitlements are unlikely to be sustainable. I think this is likely to become more apparent if and when interest rates move higher. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. Since the March meeting, we've seen a meaningful tightening in labor markets in the household survey but inflation data that call into question how much further inflation will increase this year, if at all. We've also had a relatively weak report on first-quarter real GDP, although that weakness seems likely to be transitory. Because it is hard for me to see a clear theme or direction in those data, I do see the outlook as broadly unchanged, albeit less certain.



Starting with the labor market: In March, the unemployment rate fell to 4½ percent, below the staff's estimate of the natural rate as well as the median SEP estimate of the natural rate. The labor force participation rate remains at 63 percent, moving above the staff's current estimate of its trend, as it did late in the past two cycles. A key question is whether the unexpectedly large decline in unemployment is noise or whether it points to a more rapid tightening in labor market conditions. The fact that the 12-month decline in unemployment is actually smaller in relation to real GDP growth than in recent years suggests that the drop may be real. However, an outsized portion of the decline was among the ever-volatile teenage group, suggesting the possibility of a rebound. While only time will tell, there is a good chance that the decline does not represent statistical noise and that there will be a further decline in the unemployment rate over the rest of the year if we continue to see moderate gains in demand.

Speaking of demand, real GDP increased at only a 0.7 percent rate in the first quarter compared with 1.9 percent over the past four quarters. However, private domestic final purchases—a more reliable indicator of demand than GDP—rose at a 2.2 percent rate in the first quarter, suggesting that the underlying momentum in the economy was still solid. PDPF did, however, slow relative to the fourth quarter, as consumption rose at an annual rate of only 0.3 percent compared with 3 percent for 2016. Much of the shortfall reflected declines in motor vehicle purchases and energy services. In addition, retail sales posted anemic gains. Consumption expenditures of nonprofits actually fell, although those are very poorly measured. On balance, I see this shortfall in consumption as likely to be statistical noise rather than evidence of a more persistent slowdown. The fundamentals that matter for consumption—solid employment gains, a high wealth-to-income ratio, and elevated sentiment—should continue to support spending.

In contrast, business investment made an outsized contribution to GDP growth in the first quarter, although some of that reflects a perhaps transitory increase in drilling and mining. Even if we ignore drilling and mining, business investment posted its first solid increase since 2015. This pickup in investment has been global and reflects stronger economic growth around the world. The improving global picture represents an improvement in the balance of risks. Higher investment would be a significant positive for our economy and others around the world in view of the very weak performance of productivity over the past six years and years of weak investment.

The pickup in investment may also reflect the increased business optimism seen in a variety of surveys. Higher consumer confidence, however, has not yet shown up in consumption. Stronger demand from the rise in confidence among both consumers and businesses remains an upside risk for demand. To me, the placeholder of a tax cut of about 1 percent of GDP still feels like a safe place to be while events unfold. Disappointment on tax and regulatory reforms, however, could undermine confidence in equity valuations and represent a downside risk, as was highlighted in one of the Tealbook simulations. In sum, I see good prospects for further moderate growth, with evenly balanced upside and downside risks and some further tightening in labor markets.

On inflation, the March data were weak. The 12-month change in core through March was only 1.6 percent, the same as a year ago. Core prices actually fell in March, although to some extent that was a reversal of January's high reading. Both readings appear to have been driven by transitory factors. The Federal Reserve Bank of Dallas trimmed-mean series provides a systematic way of excluding these transitory blips, and that series through March showed that underlying inflation over the past year has edged up and is now at 1.8 percent. Consequently, I

suspect that the recent movements in core PCE prices are noisy, that we are still on an upward trend, and that PCE prices will move up as this noise dissipates and import prices firm.

To conclude: We are at, or close to, full employment, and labor markets may be tightening more rapidly than expected, but inflation is not accelerating and, indeed, may have paused on its gradual upward march. The continued low readings on inflation, although a weak signal in light of the flatness of the Phillips curve, present the possibility that the natural rate could be a bit lower than current estimates. Overall, I see this pattern as supporting the case for continued gradual rate increases, as we will soon discuss. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Harker.

MR. HARKER. Thank you, Madam Chair. Over the intermeeting period, economic activity in the Third District has continued to grow at a moderate pace. Our labor market now looks more like that of the nation, with employment growing a bit more than 1 percent over the past three months. Additionally, the unemployment rate has ticked down and is now only 0.1 percentage point above that for the rest of the nation. Employment growth has been especially strong in eds and meds, in leisure and hospitality, and in mining and construction. And claims for unemployment insurance have been steadily falling. However, conditions in South Jersey remain distressed, but on a sunnier note, Camden, New Jersey, finally seems to be undergoing a sustained revival, and that's with the help of more than \$1 billion in state tax credits and several billion dollars of private investment that's now going into the city. It's sort of becoming the Hoboken or Jersey City of Philadelphia in some ways. [Laughter]

Our manufacturing survey retrenched a bit in April, but the current activity index still remains solidly in expansionary territory. Inventories are rising, and employment is strengthening as well. In a special question, approximately half of all firms indicated that they

would be expanding capital expenditures this year, although most indicated that the expansion would not come until the second half of this year. Only 17 percent indicated they would be decreasing their 2017 capital expenditures relative to what they invested in 2016. One of our contacts who manages a diverse manufacturing company is reporting a strong order book for March and April. With the exception of autos, his industrial components division is doing very well, and most of the CEOs he deals with are looking forward to a good year. Although activity is strong, there are no price pressures. The only part of costs that are rising is the wages component. Increases in volume that help offset large fixed overheads are more than making up for the wage increases.

Services appear to be growing, but the pattern in retail sales is like a seesaw—one month up and the next month down. Employment in our services sector is healthy, and both manufacturing and service-sector contacts remain very optimistic about the future. The same is true of consumers. Local builders are experiencing a moderate improvement in traffic, contract signings are up, and there are construction backlogs. The existing home market is extraordinarily tight, with houses listed on Friday, viewed on Saturday, and sold by Sunday. Nonresidential investment is improving robustly, with 19 percent growth in March following a 12 percent increase in February. Most of the growth is in the commercial sector, and we have seen very little infrastructure investment.

Loan growth has been strong, especially in the C&I and commercial real estate sectors of the market. Credit card loans are falling as households continue to pay down debt. Further, our bankers are reporting delinquency rates at all-time lows. So the regional outlook looks quite positive, and overall we are seeing modest to moderate economic growth that is fairly broad based.

Regarding the nation, my economic outlook is little changed and not significantly different from that of the Board staff in the Tealbook. I, like many others, believe that the weakness in the first quarter will be transitory, and that some of the weakness is due to the recurrent problems in seasonal adjustment. I am still anticipating real GDP growth of a bit more than 2 percent this year and then gradually returning to trend, which I consider to be roughly 2 percent. Because of the large amount of uncertainty, I continue not to factor in any prospective changes in fiscal policy. With respect to unemployment, I project an unemployment rate falling to 4.4 percent or lower by year's end and remaining there in 2018. On the inflation front, my forecast is a bit stronger than that of the staff, with headline PCE prices rising 1.9 percent this year and reaching its targeted rate in 2018. Finally, with respect to monetary policy, I anticipate that it will be appropriate for us to raise rates two more times over the course of this year as well as to cease reinvestment. More to come on the latter issue tomorrow. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. We continue to be faced by the contrast between hard and soft data on the economy—a contrast that began to develop within hours of it becoming clear that Donald Trump would be the next President of the United States. We have all said that this contrast cannot persist forever. Some say that, at some stage, the soft data will have to converge to the hard data; more careful people say that at some stage the soft and hard data will have to converge.

At present, we face two questions. First, is the extremely slow real GDP growth in the first quarter a signal of an overall economic slowdown or weakness, or just the usual first-quarter blues, with an unusual weather pattern thrown in to complicate the issue? And, second, over a slightly longer period, will the growth rate of economic activity rise to meet the optimism of the

soft data, or will the soft data decline in the opposite direction? In other words, should we think that GDP growth over the next few years will be closer to 3 percent than to 2 percent?

On the first question—that is, what’s going to happen the remainder of this year—alternative B and almost all of the other forecasters view the recent weakness in GDP growth as likely being transitory. They see a short period of rapid growth—more than 3 percent in the second quarter and 2½ percent in the second half of the year—that will bring the growth rate for the year to slightly above 2 percent. That forecast is based on a number of positive signals, including a long-awaited pickup in investment, including in housing; increases in oil production; and a strengthening global economy, with trade growth picking up, and with Europe, Latin America, and, to an extent, China all expecting more rapid economic growth than last year—and for the exciting, unexpected icing on the cake, with the IMF raising its forecast of global growth for the first time in years to a rate closer to pre–Great Recession levels.

While much has been said about the disconnect between hard and soft data, we will, of course, be better off if the outcome is that the hard data rise to the level of the soft. However, doubts about the capacity of the Administration to gain support for its policies have begun to increase, and the soft data have begun to decline toward the hard data, as can be seen in chart 3 on exhibit 1 of Simon Potter’s presentation. For the hard data to rise to the level of the soft data, spending and investment need to rise. That is more likely to happen and to persist for some time if the fiscal package that is beginning to take shape includes major supply-side elements.

The labor market continues to be a source of strength for the short-run recovery, but this is not a new development. The strength of the labor market is reflected in both the flattening of the declining trend in the labor force participation rate and the unemployment rate itself, now at 4½ percent, almost ½ percentage point below the staff’s estimate of the natural rate and

somewhat below the median estimate of FOMC participants' estimates of the longer-run unemployment rate. The staff forecast has the unemployment rate falling below 4 percent by 2019, a sizable overshoot of the projected natural rate. But as has been pointed out previously, all the hard work of getting unemployment back to its natural rate without a recession occurs outside the forecast period.

The tightness of the labor market has coincided with a small pickup in nominal wage growth, with Friday's first-quarter employment cost index coming in with the strongest quarterly increase since the end of 2007. However, before we get too excited about the reemergence of the long-dormant Phillips curve, it should be acknowledged that increased minimum wage requirements likely played an important role in the first quarter, although one could no doubt plausibly argue that minimum wage hikes are easier to implement in a tight labor market than in a loose one.

Stronger wage growth is not apparent in core PCE inflation, which fell back to 1.6 percent in March. However, as noted by the staff, this decline in part reflects idiosyncratic developments in the pricing of cell phone service plans, which are unlikely to continue. Nevertheless, core and actual PCE inflation are projected by the staff to be somewhat below 2 percent this year and next, while CPI inflation is projected to exceed 2 percent in both 2017 and 2018. Overall, I view inflation as being very close to our target.

Although we are close to our targets, policy appears quite accommodative, with negative real short-term rates. Of course, the degree of accommodation provided by negative real rates is importantly affected by the level of the neutral rate—that is,  $r^*$ . In view of the uncertainty regarding  $r^*$  projections as well as the possibility of a rapid shift in the headwinds that have been

depressing the neutral rate—to my mind, on account of an increase in positive animal spirits—we have to be cautious in our assessment of just how accommodative or tight our policy is.

As for longer-run growth, my view is that the economy will continue to grow at around 2 percent, perhaps a little bit above that, with growth in 2018 dependent on the size and details of the fiscal package that has begun to take shape in the past few weeks, and longer-run growth dependent on the behavior of the rate of productivity growth—a variable that is even more difficult than most to predict.

And if I may, I'd like to conclude by noting another sign of springtime in America. It is an April 21 report by Jan Hatzius and others from an investment bank titled “The Return of the Missing Growth.” May it be so. Thank you.

CHAIR YELLEN. Thank you. Acting President Gooding.

MS. GOODING. In general, Sixth District contacts noted that after a weak January and an even weaker February, activity rebounded in March. However, their sense was the rebound was just enough to eke out a slight gain for the quarter, consistent with last Friday's GDP report.

The uncertainty theme expressed by our contacts in the period leading up to the January and March FOMC meetings continues. Most contacts are holding back on major expansion plans, waiting for a desirable set of tax and regulatory policies that they hope will materialize. Though this upside risk is still the dominant view among our contacts and directors, in this cycle we began to pick up a downside risk wait-and-see theme associated in particular with emerging and potential changes in trade policy and international relations. District firms that engage in international trade or have globally integrated supply chains report that global demand appears to be accelerating. But, despite the improvement in the global outlook, we heard multiple reports of



reluctance to expand or initiate significant capital investments out of concern that changes in trade policy may negatively affect the demand for U.S. exports.

A troubling example of potential problems on the trade front came from our Travel and Tourism Advisory Council. Contacts affiliated with destinations that primarily cater to domestic tourists continue to report strong demand. In contrast, contacts that cater to foreign travelers noted a sharp falloff in international visitors in areas that are popular with foreign tourists. Though there may be multiple reasons for this development, our contacts definitely perceive that the emerging stances on trade and immigration policy have diminished the interest in the United States as a destination for foreign travelers. Tourism is just a piece of a broader issue. Across contacts in many sectors, there is a growing concern that policy developments will have a negative effect on the environment for conducting international business.

Turning to the labor market, reports of tightening conditions continue. Nonetheless, wage growth appears to be generally stable. Overall, I have left my outlook largely unchanged. Like the Tealbook, I am discounting much of the weakness in the first-quarter data. It appears that delayed tax refunds, unusually warm weather in January and February, and possible residual seasonality have affected the top-line GDP figure. On the seasonality point, however, we have noted that much of the first-quarter weakness was due to a sharp decline in consumption growth. Previous work by the Board's staff and the Bureau of Economic Analysis suggests that consumption expenditures is a component of GDP that has not, in the past, exhibited significant residual seasonality. I'm concerned about the outlook for consumer spending but not enough to shake me from my baseline forecast.

On inflation, I view much of the recent softness as transitory. Still, price pressure appeared to be muted, even after excluding some of the most unusual price swings, as captured,

for example, by the Federal Reserve Bank of Dallas trimmed mean inflation measure. I am sticking to my previous forecast of near 2 percent inflation over the balance of the year. However, the latest fallback in both headline and core inflation adds yet another month to the surfeit of below-target inflation readings we have experienced since the last recession. This is unwelcome if the public does not see the inflation target as truly symmetric. I will have more to say on this topic in the policy round tomorrow. Thank you.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. The outlook for the 10th District economy has brightened, as weakness related to energy and manufacturing appears to be abating. Unemployment rates are at historically low levels, and wages are picking up. For example, in March, the unemployment rate in Colorado dropped to 2.6 percent, the state's lowest since at least 1970. Wage growth in the District now mirrors that of the nation, in contrast to a year ago, when District wage growth was more than a full percentage point less than the U.S. average. District manufacturing activity has rebounded from recent lows, and export activity has increased notably. In the first quarter, the District manufacturing index reached its highest mark since the first quarter of 2011.

Although business conditions have improved in the energy and manufacturing sectors, the District agricultural economy remains subdued. Agricultural commodity prices remain low and are unlikely to rise substantially through the year, as markets generally remain oversupplied. And despite declines in some input costs or producers' efforts to cut operating costs, profit margins remain weak, and some regions are facing a third consecutive year of losses.

In energy, WTI crude oil continues to trade in a fairly narrow band, around \$50 a barrel. OPEC compliance with the production cuts has provided support to the lower end of the band,

but high U.S. inventories and production capacity, as President Kaplan noted, are likely to put something of a soft ceiling on prices. At current prices, oil production is, on average, profitable for firms in our District, and many firms have sizable hedged production for 2017, boosting drilling activity, especially in Oklahoma but also in parts of Colorado.

My outlook for the U.S. economy has changed little since March, despite apparent softness in Q1 consumer spending, which I attribute largely to anomalous weather effects. Lower spending on utilities during January and February not only held down services consumption but also boosted the household saving rate from 5.2 percent in December to 5.9 in March. Other categories of consumer spending, such as the decline in car sales, look to be moving back to more historical levels of demand after several years of very strong sales. All in all, I expect consumption to bounce back in the second and third quarters of the year, as some of the increased savings is drawn down, wages rise, and labor markets remain strong, supporting growth momentum for consumers.

With the strength in labor markets, our District business contacts continue to report difficulty finding workers. This is not a new complaint, but I have noted more anecdotes where employers are now turning to technological substitutes. And with little or no slack remaining in labor markets, I expect the pace of job gains will slow over the coming year. In comparing my employment outlook with that of the Tealbook, I see they are diverging, partly because I have not incorporated any fiscal stimulus into my forecast. Without such stimulus, I could see the monthly pace of net job gains averaging around 125,000 in 2018, which is notably below the Tealbook estimate of 169,000. In the absence of any fiscal stimulus, I would not view a pace of 125,000 as worrisome. Rather, it would reflect a labor market operating near maximum employment, with a slower pace of working-age population growth than in the past.

The strength in labor markets also continues to support housing. With the rise in permits for single-family housing over the past six months, the outlook for single-family construction remains positive. Recent research by my staff, however, suggests the number of households is likely to be at least 3½ million below its trend, even after accounting for demographics and changes in preferences. This unmet demand for housing may face a persistent lack of supply due in part to limited land in desirable areas available for development. Our business contacts are, likewise, optimistic about future single-family housing demand. With strong demand and the pace of development below historical norms, house prices are likely to continue rising. For households that spend a relatively larger share of their income on shelter, this can create its own challenges.

According to several financial conditions indexes, such as those produced by the Chicago, St. Louis, and Kansas City Federal Reserve Banks, financial conditions appear to have eased over the past six months despite our actions to remove monetary accommodation on two occasions. This may reflect that much of the uncertainty in financial markets ahead of the French election has since dissipated, though the easing in financial conditions reflected in low levels of implied volatility and compressed risk spreads raises some concerns that financial markets may be somewhat complacent and underpricing risk.

Finally, I view inflation as generally consistent with our price-stability mandate. The recent decline points to transitory outliers—namely, a plunge in the price of wireless telephone services. Looking through the effects of this one-time move, I continue to see signs that inflation remains very near the Committee’s objective. I do expect core measures to tick down very slightly on a year-over-year basis over the next few months, then to rise back to near 2 percent by the end of the year.

Longer-term inflation expectations seem stable, near 2 percent. And although they are low by historical standards, I am not sure we should be terribly concerned by that, at least in the context of the current expansion. Some have assumed that inflation expectations depend on past inflation and that persistent low rates of actual inflation pose a risk that expectations will fall below our goal. Market participants, however, do not seem to question our commitment to the target we adopted in 2012, particularly in light of the extraordinary actions taken during the crisis and the subsequent period of near-zero rates. Looking ahead, I would be concerned about deliberately allowing inflation to drift above 2 percent because it could risk pulling those expectations higher or, alternatively, make market participants question our commitment to the 2 percent goal. Thank you.

CHAIR YELLEN. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Madam Chair. In terms of the Ninth District economy, moderate economic growth continues, labor markets remain tight, and respondents to a business conditions survey in the District reported being generally optimistic about future hiring plans. Survey respondents reported generally modest wage growth at around 2 to 3 percent, with faster growth of around 5 percent in the IT, engineering, health-care, and nursing sectors. Home sales and home construction are very strong. Year-to-date, permitted housing units in the Twin Cities are up about 60 percent over the year. Construction costs are rising at about a 5 percent rate, while commercial and nonresidential construction is slowing.

In terms of the national economy, since the previous meeting, as others have noted, the incoming data on real activity have been very weak. Real GDP growth at only a 0.7 percent rate in Q1 contrasts with a forecast of 1.4 percent in the March Tealbook and 2 percent in the January Tealbook. The staff takes the weak Q1 as entirely transitory and has actually marked up

modestly its GDP growth forecast for 2017 as a whole. In contrast, I think we should take some negative signal from the incoming hard data and, in light of the new data, it is difficult for me to take too seriously the concerns that the economy may be overheating.

In terms of the labor markets, there have been some interesting developments since the last meeting. Labor force participation remains strong. I continue to see scope for rising labor force participation, especially among prime-age workers. As we discussed earlier, I'm happy to see that the staff has become somewhat more optimistic about trend labor force participation. On the other hand, the unemployment rate fell 0.2 percentage point to 4.5 percent in March. As you've heard me say for the past year, I've been telling a story of rising labor force participation that can accommodate a lot of new jobs without increasing wage pressure. This fall in the unemployment rate is the first sign that I have seen that this story might be coming to a conclusion. However, I believe there's considerable uncertainty about both the natural rate of unemployment and longer-run trend in labor force participation.

In terms of inflation, this is where we have had the most news since our previous meeting. The core CPI in March was weak. This was just one monthly observation, but it's the most negative monthly number since 1982. Yesterday's 12-month PCE inflation of 1.56 percent is down from 1.77 percent in March. Market-based measures of expected inflation are basically flat to down since the December and March FOMC meetings, and implied forward inflation rates are generally running below 2 percent. Survey-based measures of inflation are also flat to down, while nominal wage growth has shown some signs of life, but it has certainly not gone to rates that are concerning. Taken together, my reading of this data is that we still have not reached our 2 percent target for inflation, and we may not even be making progress toward that goal.

In terms of uncertainty, there's a lot of uncertainty regarding domestic policy, tax reform, and health care in particular. In my own view, the likelihood of major domestic policy reforms has declined. I think if markets have learned something over the past few months it's that even with one party holding the White House and the Congress, legislation is really hard. Weak Q1 data raise uncertainty about employment and the inflation outlook. And to the positive, the initial resolution of the French elections plus a stronger euro should boost U.S. exports, partially offset by weak Q1 growth in France and the United Kingdom.

Regarding financial markets, 10-year Treasury yields are down, in part reflecting lower expected inflation. The stock market has risen, again reflecting speculation about possible tax reform, but again I don't have any confidence in markets' ability to guess or predict future fiscal policy actions. So I don't take too much signal from the stock market.

In conclusion, data since the previous meeting have been weak. The job market looks strong, but there are worrying signs that inflation might not be on track to target. Thank you.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. Despite some ups and downs in the recent data, the economy's underlying moderate expansion appears to still be on track. I continue to expect real GDP to grow  $1\frac{3}{4}$  percent this year and next, just a touch above my estimated longer-run trend. The labor market also continues to improve, with the unemployment rate at  $4\frac{1}{2}$  percent. We have now reached or exceeded everyone's longer-run estimate of full employment from the March SEP. And headline inflation looks likely to remain just shy of 2 percent this year before edging up and closing in on our target on a sustained basis next year.

In keeping with tradition, first-quarter real GDP growth disappointed; also in keeping with tradition, the causes appear to be transitory. The weakness reflected that pesky residual

seasonality that I've talked about a lot in the past, as well as some other one-off factors, such as weather and delays in tax refunds for lower-income households. As these effects go into reverse, I expect a significant bounceback in real GDP growth in the second and third quarters of this year. Improving orders and shipments of core capital goods portend further improvement in equipment spending, and the fundamental drivers of consumer spending remain solid, with a buoyant labor market boosting household income and surveys indicating that consumers remain generally optimistic.

My business contacts share this optimism. We had the honor last month of hosting the Chair, along with our five Boards of Directors and other members of our Fed family, at our annual meeting. Basically, reports at that event noted no drop-off in activity. Retail contacts reported healthy sales projections, albeit with a continuing shift from storefront to online sales. These online sales may be bad for malls, but they're increasing demand for package delivery services. One such delivery company from my District expects double-digit growth in business related to e-commerce.

The labor market remains robust, with job growth averaging about 160,000 jobs a month over the past six months. This is well above the steady-state pace and served to wring out the last pockets of slack in the economy. As a result, broader measures of labor market slack, including the U-4 and U-5 measures of underemployment, are nearly all back to pre-recession norms, and labor force participation has picked up despite considerable downward pressure arising from retirements of baby boomers. Leading indicators of labor market health, including quits and posted job openings, confirm that labor market conditions are on course to continue to improve.



Risks to this outlook appear to be well balanced. Despite the usual geopolitical hot spots, global growth prospects have surprised on the upside. And there's still considerable uncertainty about fiscal policy, but that, if anything, suggests an upside risk and—I agree with the earlier comments—a potentially significant upside risk to the outlook for economic growth.

Regarding inflation, the price data in the first quarter, like the real GDP data, were pushed around by transitory factors. However, the underlying dynamics of a gradual increase in inflation remain in place and may, indeed, have intensified. The fall in the dollar over the intermeeting period, coupled with the strong labor market reports and signs of building wage pressures, give me more confidence that inflation will be back to target by next year.

We are currently about as close as we've ever been to simultaneously achieving our inflation and full employment mandates, and yet the economy appears on track to outpace potential for the foreseeable future. The Tealbook's interpretation is this will lead to boom conditions for the next few years, with the unemployment rate plummeting to 4 percent in 2019, despite four funds rate increases this year, another four rate increases next year, and a complete cessation of reinvestments later this year.

I would like to follow on President Rosengren's comments and highlight the fact that under this sizable overshoot of full employment, the Tealbook projects real GDP growth of only 1¼ percent for several years in a row to get the economy back to a sustainable level of employment. That persistent sluggish growth puts the economy at considerable risk. Even a small shock could tip us into recession.

When you're docking a boat, you don't run it in fast toward shore and assume you can reverse the engine hard later on. That may look good in a James Bond movie—in fact, it does look good in a James Bond movie, I've watched some of those—but in the real world it relies on

everything going perfectly and can easily run afoul. So instead, the cardinal rule of docking is never approach a dock any faster than you're willing to hit it. Similarly, in achieving sustainable growth, it is better to close in on the target gradually and avoid substantial overshooting, and this recommends trying to rein in the boom to avoid the bust. Acting in small steps now can avoid having to make large and potentially destabilizing corrections later.

Summing up, with the unemployment rate at 4½ percent, we've already overshoot full employment, and 2 percent inflation is in the offing. This is more or less where we expected to be and positions us well for continuing our process of normalizing policy this year. Thank you.

CHAIR YELLEN. Thank you. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. My views on the economy haven't changed much since the previous meeting. I'm inclined, along with most of the rest of you, to discount both the weak first-quarter GDP reading and the softness in the March inflation data. I think we're still likely to be on the same trajectory as we were before—about a 2 percent real GDP growth rate and a very gradual rise in inflation back toward the 2 percent objective.

Turning first to the growth outlook, I see both positives and negatives, and many others have noted there is a disconnect between the harder data that feed directly into the GDP figures and the first-quarter GDP “print” itself and the softer data, such as the sentiment indexes and the ISM activity indexes, that don't. This is reflected in the relatively high reading the Federal Reserve Bank of New York nowcast had for first-quarter real GDP growth of 2.7 percent. Our nowcast puts some weight on the softer data because these data, historically at least, have provided information about the quarterly real GDP growth rate, but they obviously did poorly in the first quarter.

A related puzzle is between the softness in consumer spending in the first quarter and the high level of consumer confidence. My expectation is that we will soon see sturdier consumer spending growth, reflecting the combination of solid job gains, rising real wage and salaries, compensation inflation, and rising household wealth. But I think this is something that we need to keep our eyes on. If we see that the slowdown in consumer spending evident in Q1 isn't just a temporary lull, then we probably have the wrong GDP forecast.

The motor vehicle sector is one area in which I think consumer spending may continue to lag. As I see it, there are some fundamental reasons to expect less demand for cars and light trucks. Not only has the motor vehicle sales rate been very high in recent years, but as a consequence of that, there's also a high volume of vehicles coming off lease, which is depressing used car prices. The decline in used car prices, in turn, should lead to higher monthly charges for future leases, as the finance companies are being forced to lower their residual estimates for the price that they'll be able to sell their vehicles for. I think what's going to happen is higher monthly lease rates will presumably weigh on demand for motor vehicles.

On the positive side of the ledger, the downside risks to the economy appear to have diminished markedly due to two factors: first, the expectation, and likelihood, that fiscal policy in the United States will shift toward a more stimulative setting at some point and, second, the fact that the international growth outlook appears to have improved, with a revival both in Chinese economic growth and a stronger, broader upswing in Europe. I think those are the two notable factors.

I'd be cautious, however, about overweighting the improvement in Chinese growth. We may have already passed the peak in terms of Chinese economic momentum, and we still should worry about the fact that the acceleration that we've seen rests on a pretty weak reed—a sharp

surge in credit. It's interesting to me that the most recent Chinese PMI reading that we got this month was on the softer side—a decline to 51.2, which is a six-month low. That suggests to me that the pickup in China's growth has already happened and we're now on the downside.

On inflation, I wouldn't overreact to the weak March data. The decline in core prices was quite concentrated, with cell phone prices, lodging away from home, and apparel prices particularly important in contributing to the softness. These components are often quite volatile. As I see it, the prospects for a gradual uptrend in inflation remain quite favorable. The labor market continues to tighten. Compensation cost inflation is gradually moving higher, and I take a little bit of signal from the fact that the employment cost index, which had been lagging the other wage compensation measures, is finally starting to catch up a bit.

And I think the thing that people haven't focused much on, but is worth noting, is that nonfuel import prices are now rising—about 1 percent over the past year. That's quite a contrast with a year ago, when nonfuel import prices were actually falling at an annual rate of 2.5 percent. Obviously, the dollar trajectory is now starting to have some consequences for the inflation outlook.

In terms of inflation expectations, I know that the data are mixed. I just want to add to the mix the Federal Reserve Bank of New York's Survey of Consumer Expectations that came out earlier this week. The three-year expectations actually rose to 2.9 percent, up from 2.7 percent, and the one-year drifted up to 2.8 from 2.7 percent. So there are some inflation expectations components that may raise a bit of concern, but they're not really supported by the Federal Reserve Bank of New York's Survey of Consumer Expectations.

So if real GDP growth supported by a strong consumer spending looks like it's bouncing back in the second quarter, and if the labor market continues to generate respectable job gains,

then I think the case for tightening monetary policy at the June FOMC meeting will be quite strong. As a number of people have mentioned, our recent moves to remove accommodation have not tightened financial conditions, and that's the point of tightening monetary policy. This suggests that if the forecast that we broadly anticipate manifests itself, we need to continue to tighten monetary policy; there's more for us to do. Thank you, Madam Chair.

CHAIR YELLEN. Thank you, and thanks to everyone for an interesting round of comments on the economic outlook and risks. Let me finish things up with a few observations about incoming data and their policy implications. Starting with the labor market, I see conditions as continuing to improve. Payroll growth slowed to 100,000 in March, but that slowdown was likely weather related. Smoothing through the noise, the three-month average remains solid at 180,000 per month. In addition, the unemployment rate moved down to 4½ percent, U-6 declined notably, and other indicators of labor utilization tightened on balance. Wage growth looks to be firming a bit, but it still remains subdued, which raises the possibility that the longer-run sustainable rate of unemployment could be lower than I estimate. The continued sideways movement of the labor force participation rate in the face of downward demographic pressures may also be a sign that we have underestimated how much room there is to grow, but I would like to see more data before revising my supply-side assumptions.

Regarding the overall economy, GDP, and especially consumer spending, decelerated sharply in the first quarter, but, like most of you, I am also not inclined to take much signal from these data for growth in the period ahead. As David noted, much of the recent PCE slowdown likely reflected transitory factors. For example, outlays of consumer energy services have been soft because the winter was unusually mild, and the Q1 decline in auto sales was from a Q4 level that was probably unsustainably high. With income growth remaining solid, household wealth

has increased further, and debt service burdens are low, while readings on sentiment remain elevated. I anticipate that consumer spending will bounce back in the spring. In addition, with orders and shipments of capital goods continuing to trend up, drilling activity rebounding, and other indicators remaining favorable, I anticipate that real GDP growth will also be supported in coming quarters by further moderate increases in business investment. All told, I see little reason to change my outlook for real activity on the basis of the hard data that we have received.

Financial market developments are also important to the outlook, but here I see conditions as roughly unchanged. Long-term interest rates have fallen, and the dollar has depreciated modestly since our previous meeting, providing a small amount of stimulus to aggregate demand, all else being equal. But all else is not quite equal because this repricing likely partly reflected diminishing odds of significant near-term fiscal stimulus and an increase in global political risks—developments that may weigh on the economy.

Notwithstanding this fairly sanguine assessment of recent news, I think we need to keep a close eye on the incoming spending and production data over the next few months. We can't rule out the possibility that the Q1 weakness could be a harbinger of a more persistent slowdown in aggregate demand, but that risk to the outlook for real activity is just one of many. On the downside, I see the potential for a correction in the stock market, in view of the fact that valuations, according to some standard metrics, appear somewhat "rich." In addition, as several of you reported, heightened uncertainty about trade, fiscal, and regulatory policies may be leading some firms to delay their capital and hiring decisions until the policy outlook becomes clearer, thereby restraining activity this year more than expected. But there are upside risks as well. Readings on consumer and business sentiment remain elevated, and this may signal stronger-than-expected spending in coming quarters, even though there's little evidence that this

optimism has boosted demand to date. And, of course, the Congress may yet enact a significant stimulus package. Overall, I continue to see the near-term risks to the outlook as roughly balanced.

Because of the uncertainties pertaining to the outlook, I think we should be careful in the months ahead not to get too far ahead of the data in determining the appropriate pace for removing the policy accommodation still in place. We should also remember that tighter U.S. monetary policy could have unexpectedly large spillover effects on the emerging market economies—a concern I heard expressed repeatedly during the recent IMF meetings. Such spillover effects could potentially disrupt global financial markets, lead to dollar appreciation, and adversely affect activity here.

On the inflation front, there hasn't been much news. Although the decline in headline, core, and PCE prices in March was unexpected, I wouldn't overreact to what looks like a single month's aberrant report. As the Tealbook noted, the March data were affected by several idiosyncratic factors that are unlikely to be repeated, such as the remarkable measured drop in quality-adjusted prices for wireless telephone services. And, as the Vice Chairman just noted, the staff now anticipates a bit more upward pressure on consumer inflation from import prices this year than was previously projected. Finally, survey- and market-based indicators of expected inflation are little changed, on balance, in recent weeks. For these reasons, my outlook remains unchanged. Of course, core inflation continues to run below 2 percent, and we will have to keep a close eye on the incoming data to verify that we are continuing to make progress back toward a 2 percent objective.

What does all this mean for our policy decision at this meeting? Anticipating tomorrow's discussion, I think it implies keeping the target range unchanged at this meeting while leaving

the door open for a hike in June. If economic conditions develop as I expect, a further increase in the target range at our next meeting will probably be appropriate. That would keep us on our current path of gradually removing the modest degree of accommodation still in place, but I don't think that the statement should suggest that a June hike is essentially baked in the cake. Much could happen in the next few weeks. Rather, let's preserve our optionality as we await the receipt of further information—something that I think the language of alternative B does.

So let me stop here. We have plenty of time for Thomas to give us his monetary policy briefing, and adjourn at an early hour for dinner.

MR. LAUBACH.<sup>5</sup> Thank you, Madam Chair. I will be referring to the handout labeled “Material for the Briefing on Monetary Policy Alternatives.”

Your assessments of the recent information on the economy and its implications for the medium-term outlook bear importantly on your decisions tomorrow about whether to raise the federal funds rate at this meeting and whether to retain or alter your guidance about future policy.

To be sure, some of the readings on consumer spending, inflation, and the labor market that became available over the intermeeting period have been challenging to interpret, and the bullet points in the top-left box summarize several key questions they raise. First, was the first-quarter slowdown transitory or could it persist? Although many of the available indicators of the fundamental determinants of household spending remained quite favorable, recent monthly readings on personal consumption expenditures were somewhat disappointing, even after accounting for identifiable transitory factors. At the same time, the recent data on the housing market and on business fixed investment included some welcome upside surprises. Second, is a sustained return of inflation to 2 percent going to be slower than previously anticipated? On a 12-month change basis, headline PCE inflation edged above the Committee's 2 percent objective in February but dropped back to 1.8 percent in March. Energy prices declined in both months and are expected to be little changed in the near term. Additionally, as shown to the right, core PCE price inflation surprised a bit to the downside in March and is projected to run a bit lower in the near term than in the March forecast. Third, is the unemployment rate likely to undershoot its natural rate by more than expected, or does the economy have more “room to run,” because either the trend participation rate now seems likely to be higher or the natural rate of unemployment lower than you had thought? The

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<sup>5</sup> The materials used by Mr. Laubach are appended to this transcript (appendix 5).



unemployment rate dropped to or below your estimates of its longer-run level that you wrote down in the March SEP, while labor force participation ticked up.

The draft alternatives provide somewhat different characterizations of the incoming data and their implications for the medium-term outlook and the appropriate setting of the policy rate. In paragraph 1 of alternative B, the Committee would acknowledge the somewhat mixed information over the intermeeting period. It would conclude that, on balance, the labor market “continued to strengthen.” While acknowledging the softness in consumer spending in the first quarter, it would suggest that PCE is likely to be supported by still-positive fundamentals. And in light of the positive news on business spending in the first quarter, paragraph 1 no longer uses the qualifier “somewhat” to describe the firming in business fixed investment. Dropping “somewhat” is a change we made yesterday that is noted in blue in alternatives B and C. On inflation, alternative B would add a note of caution. It would no longer characterize inflation as having risen recently but would retain the statement that headline inflation “has been running close to the Committee’s 2 percent longer-run objective.” Instead of describing core inflation as unchanged, it would acknowledge the downside surprise in March. But by noting in paragraph 2 the Committee’s expectation that the slowdown in economic activity will prove “transitory,” alternative B would signal that the Committee is keeping open the option of another rate hike in June.

By contrast, the first paragraph of alternative C would express a more upbeat view of the incoming information on economic activity. It would attribute low real GDP growth in the first quarter to a transitory slowing in consumer spending and would add that readings on both business investment and housing have been positive. Alternative C would also indicate that labor market conditions were already tight at the time of the March meeting and have continued to tighten since. And it would retain language stating that “inflation has increased in recent quarters, moving close to the Committee’s 2 percent long-run objective.” This assessment that the labor market and inflation are already at or close to the Committee’s objectives, along with an unchanged economic outlook, would warrant an increase in the federal funds rate at this meeting along with a signal that further hikes are coming.

With alternative A, the Committee would express more concern about the recent slowing in consumer spending and would present a less sanguine view of progress toward the Committee’s objectives. It would indicate the Committee’s assessments that “subdued” wage pressures are evidence of slack in the labor market and that the recent increase in inflation has been the result of “temporary” increases in energy prices.

The middle two panels of the exhibit focus on a consideration for your communications of the appropriate medium-term policy rate path if the economy continues to evolve broadly along the lines of your SEP submissions. The left panel plots the actual unemployment rate, the dashed line, and the estimate of the natural rate of unemployment from the staff’s state-space model that David discussed in his briefing, the blue solid line. The 70 percent confidence band around this estimate

illustrates the extent of uncertainty about which side of the natural rate the current unemployment rate is on. Although the unemployment gap is by no means a complete measure of the distance to “maximum employment,” the uncertainty regarding its sign counsels continued caution in making statements about whether labor markets are slack or tight.

A similar challenge may present itself before too long with regard to describing the stance of monetary policy. The middle-right panel illustrates this point by comparing the current real federal funds rate, the black dashed line, with the natural rate estimate from the Holston-Laubach-Williams model. The position of the real federal funds rate at the lower end of the 68 percent confidence interval, shown by the blue shaded region, may provide some assurance that at this point the stance remains accommodative, as your statement says. But if the real federal funds rate rises along the path implied by the median SEP forecasts of the nominal federal funds rate and inflation, and if  $r^*$  rises only modestly as the median respondents in the Desk’s surveys expect, the gap between  $r$  and  $r^*$  will diminish enough over the next year or so to warrant saying that monetary policy has become neutral. The Committee may need to reconsider before too long how it explains the rationale for further gradual rate increases in such an environment.

The final two panels provide some indication of how market participants have been processing the intermeeting developments and uncertainties. As Simon noted, both market- and survey-based measures of investors’ expectations for the federal funds rate at the end of 2017 shifted slightly lower over the intermeeting period. However, they remained broadly in line with the indications given in your recent statements, the March SEP, and other communications that the rest of this year will see further gradual removal of accommodation. The market-based measure, shown on the left, places almost equal odds on one or two more rate increases this year, and, as shown on the right, respondents to the Desk’s surveys continue to assign the highest probability to two more rate hikes. I should note that the Desk’s surveys, as well as the staff’s conversations with market participants, suggest that these expectations factor in substantial odds on a change in reinvestment policy occurring before year-end.

The March statement and the draft alternatives and implementation notes are on pages 2 to 12 of the handout. Thank you, Madam Chair. That completes my prepared remarks.

CHAIR YELLEN. The floor is open for questions. President Kashkari.

MR. KASHKARI. Just a follow-up to the earlier question I asked David about the natural rate of unemployment. Your chart here shows what seems to be symmetric—I think President Williams wants to jump in—error bars around that or maybe even skewed a little bit to the upside. When I think about the likely mistake we might be making on the natural rate of

unemployment, in light of persistent low wage increases and persistent low inflation, intuitively it feels like if we're making a mistake of overestimating the natural rate of unemployment, but the error bars look symmetric. I'm just wondering, are there any data you could point to or is there a story you could tell on why, a year or two from now, we might look back and realize, well, it was really 5½, it wasn't 4.9? How do we explain making the opposite error that I'm concerned about?

MR. LAUBACH. So the best idea I could come up with is to look back in the past to see whether you observe, depending on in which phase of the business cycle you are, that you were making systematic revisions *ex post* in one direction or another. This type of model framework here lends itself to that because you can compare real-time estimates with *ex post* estimates and see whether, in fact, you see a systematic revision pattern. I haven't done such an analysis, so I can't unfortunately give you the answer to that question, but that's something one could look at.

MR. KASHKARI. Okay. And are there any other real-time economic data that you are looking at that would say, "Hey, maybe this is higher than we think"?

MR. LAUBACH. I think I'll punt that question.

MR. WILCOX. At the risk of repeating myself, the facts haven't changed since an hour or two ago. [Laughter]

MR. KASHKARI. It takes me a few times, David, so go ahead.

MR. WILCOX. If you squint pretty hard, you'll see that this model kicks out an estimate that's a little above 5 percent, for what it's worth. If taken literally, it's looking at signals, including albeit faint signals from inflation, and inferring that the natural rate is a little higher than what we have penciled in at 4.9 percent. I think this model's point estimate is at about 5.15 or 5.20 percent.

MR. KAPLAN. I'll just ask a follow-up to that. If it's your view that the natural rate of unemployment is really just under 5 percent, you would expect us to start seeing more intensifying price pressures than what we're seeing. The definition of "natural rate" is the rate at which you would expect to start seeing price pressures, and maybe we will start seeing them, but they've been muted. What does that tell you about the appropriate natural rate? Does it make you want to rethink or maybe revise your views?

MR. WILCOX. The sad fact, inferentially, is that it doesn't tell you a lot. The Phillips curve is so flat at this point—that's the nub of the matter—that we think inflation gives you a little bit of purchase on the natural rate, but it doesn't give you much.

MR. KAPLAN. So if that's true, I'll ask a dumb question backing up. How are you defining the "natural rate" then?

MR. WILCOX. Well, we're relying partly on those faint signals. The signals are a little less faint with regard to compensation inflation, but this is the reason why the confidence interval out of this model is so wide.

MR. KAPLAN. Okay.

MR. EVANS. If I could just follow up—this is not really going to change anything that you said. Your measure of inflation expectations is a little bit lower than the ultimate target, I believe. Doesn't that factor into this a little bit? I don't know if your model takes that into account and how that affects the natural rate.

MR. WILCOX. I don't remember the details of how inflation expectations—John Roberts, by any chance do you remember how inflation expectations are handled in this specification of the state-space model?

MR. ROBERTS. Yes. President Evans, your intuition is correct. Inflation expectations in this model, I believe, is the staff estimate, which is about 1.8 percent. So if you use 2 percent, you get that much lower an estimate of the natural rate, a little bit lower.

MR. EVANS. Okay.

CHAIR YELLEN. Other questions? President Bullard.

MR. BULLARD. Yes, this is for Thomas Laubach. I'm looking at these alternatives, and at the very end of our statement, on reinvestment policy it says, "This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions." Should we be thinking about ways to rethink what we say about the balance sheet as we go forward, thinking about changing the reinvestment policy possibly later this year?

MR. LAUBACH. As you surely noticed, there are some suggestions to that effect in the staff memo that was sent on April 21. I guess one of the issues that you are going to discuss tomorrow is when is the appropriate time to send what signal through the statement. The staff in its proposal for the communications basically chose the same structure as in the original normalization principles of keeping the question of the appropriate timing of any change in reinvestment policy out of the "principles," let's call them, and assuming that it would be handled in paragraph 5 of the statement.

And then there is the question, at which stage do you want to send signals? For example, if you were to put out principles of the nature that we discussed in the memo, one of the questions for you is whether you would then make a first change to paragraph 5 or whether you would wait until you feel more confident that you are going to make a change fairly soon. That's one of the issues, I think, in front of you.

MR. BULLARD. I guess looking at your panel 4 on the natural rate of interest, you said, well, we might have to think differently about how we're describing policy, but then you also have the balance sheet portion of the policy. So, in our statement, the policy rate and the size of the balance sheet jointly determine how we describe how accommodative policy is.

MR. LAUBACH. Yes.

MR. BULLARD. But you could say the size of the balance sheet would be big anyway and so it wouldn't matter that much.

MR. LAUBACH. Well, I should point out that, mechanically, the Laubach–Williams estimates are affected by the balance sheet policy because insofar as the balance sheet leads to more accommodative financial conditions, that, in turn, will be reflected in stronger economic activity that our estimates would pick up as a higher  $r^*$ . If everything works as it should, a greater accommodation provided through the balance sheet would be reflected in the stronger economic activity that this simple mechanism would then translate into a higher  $r^*$  estimate. So this  $r^*$  ought to already reflect the accommodation provided through the balance sheet, not something that you would need to adjust for in addition.

MR. BULLARD. I'm not sure that comes across in our public communication.

MR. LAUBACH. Well, this is just one particular model.

MR. BULLARD. Yes, sure.

MR. LAUBACH. I'm not saying that you would necessarily need to make this model your own. Conceptually, you're right. It's important to be clear what the concept of neutral is that you have in mind. And, in this particular case, it is a concept of neutral that already looks at all instruments combined.

MR. BULLARD. Thank you.

CHAIR YELLEN. Other questions? [No response] Seeing none, I think we're ready to adjourn. We will reconvene at 9:00 a.m. for the policy go-round and then the reinvestment discussion.

[Meeting recessed]

**May 3 Session**

CHAIR YELLEN. Good morning, everybody. I think we're ready to start off our policy go-round. President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. I support alternative B as written. The market places a relatively high probability on an increase of 25 basis points in June, and I think that is appropriate. As a result, there is no need at this time to provide a stronger signal that we will act in June. This also affords us the flexibility to observe whether the expected rebound in second-quarter economic activity occurs. While I'm not terribly concerned about a repeat of the first-quarter weakness, we cannot completely rule it out at this point. I would also hope that the Committee considers moving the announcement of balance sheet shrinkage to this summer. With the unemployment rate at 4½ percent and inflation now fluctuating around 2 percent, I am concerned that we risk a serious overshoot of what is sustainable.

I currently still support a gradual approach to normalization. A path of either three or four increases per year is quite gradual by historical standards, but should the unemployment rate fall more quickly and wages accelerate more than currently expected in the latter half of this year, we risk needing to abandon such a gradual approach. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Madam Chair. I support alternative B. At the end of my comments I'm going to make a suggestion on one word change that I'd ask the Committee to consider.

In thinking about the appropriate policy, I continue to focus on three key indicators as evidence of whether this labor force participation story is continuing or has "room to run." Those are core inflation, inflation expectations, and the headline unemployment rate. Since our



previous meeting, core inflation and inflation expectations have moved in the wrong direction. On the other hand, the headline unemployment rate has declined. These indicators are sending somewhat mixed signals. To me, the bigger picture is little changed, which is that inflationary pressures remain very subdued, suggesting economic slack might remain. June will be an important meeting, and, in my view, it will not be appropriate to raise the funds rate unless we see more progress toward our inflation objective.

I support alternative B because I don't think it's boxing us in. As President Rosengren said, I think that we have time to look at the data to see how they unfold before we make a decision about June. In terms of the actual statement in alternative B, the one word I would ask us to consider removing is the word "wealth" from paragraph 1. The way it reads is, "Household spending rose only modestly, but households' real income and wealth continued to rise and consumer sentiment remained high." When I read this, "wealth" jumped out at me as a reference to the stock market, and that made me uncomfortable. I asked my staff to look back over time, and I think 2011 was the last time the word "wealth" was included in a statement. I'm sensitive to it because there are many market participants who think that there's a "Fed put," and I felt like this was giving them more ammunition for their view that we are targeting the stock market, which I know we're not. I know it includes both housing and the stock market wealth, but when I think about what's changed in the statement since March, it just struck me as an unusual addition, as not a lot has changed since March. I'll support the statement either way, but I would ask the Committee to consider dropping the word "wealth." Thank you.

CHAIR YELLEN. Thank you. Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. Yesterday's discussion revealed an FOMC that views the first quarter of 2017 as, on the whole, consistent with continuing our plan of

following a data-dependent path of increasing the federal funds rate gradually until we reach the point when we should stop doing that. However, in view of the weakness of first-quarter real GDP growth and questions about the ability of the Administration to implement its ambitious plans for the economy, there was no enthusiasm at all for increasing the interest rate at this meeting. In paragraphs 1 through 3, alternative B makes a strong case for not acting on the interest rate now while leaving open the possibility of continuing on the path of having three changes in the interest rate in 2017 that emerged from the December 2016 SEP. That seems to be the right decision and the right explanation for the decision, and I therefore support alternative B.

I'd like now to return to an issue I raised at the March FOMC meeting and essentially repeat what I said a month and a half ago, with a few changes to update my statement. We're very close to attaining both our unemployment and inflation goals. The real interest rate will still be negative if and after we raise the rate in June. And  $r^*$  has probably risen in the aftermath of a change in animal spirits, a change that, for its validation, still awaits policy actions consistent with a new implied higher  $r^*$ , but that has had a significant effect on stock market and other asset valuations. There's a term we can use instead of "wealth": "asset values." "Further, the expected growth rate of the rest of the world's economy has risen," and that's a quote. Then I added, "Of course, there are storm clouds on the horizon, particularly those related to potential political developments in Europe, in the critical round of elections that will continue until near the end of the year." While those storm clouds have begun to dissipate, and we hope they'll dissipate further following France's election on Sunday, they are still a big issue in this Committee's deliberations.

The staff forecast takes us to an unemployment rate that might very well be close to 4 percent by 2020. The staff calculation is that  $u^*$ , the full employment rate of unemployment, is 4.9 percent. So why are we heading off on a long journey to increase the divergence between  $u$  and  $u^*$  before returning  $u$  to  $u^*$  on a path that is not specified in the table in the current Tealbook, but that is discussed on page 24 of Tealbook A? Well, after helpful discussions with the staff in March, I understand that we need that decrease in unemployment to get the inflation rate up to 2 percent, and, taking into account what we now believe about the Phillips curve, that makes arithmetic sense.

So far, so good. Now, suppose we faced the opposite problem and that we currently had an inflation rate of 2.3 percent with an unemployment rate of 5.2 percent. We'd need a higher unemployment rate in order to reduce the inflation rate and would presumably head off on a trajectory to 5.9 percent unemployment in order to get to the inflation target, by the logic of the path we're presenting in the Tealbook. Would we think it makes sense to raise the unemployment rate to well above  $u^*$  to get rid of 0.3 percentage point of inflation? I don't think so, and I doubt anyone else here thinks so either.

So what should we do? In the interest of near brevity, I will not repeat the four possibilities I raised in March. I will repeat one of them and have added a fifth. Repetition: We could look at episodes similar to those that would be implied by an economy behaving like the economy at the beginning of Tealbook A. A large and talented team of Federal Reserve economists has done that. And their bottom line is that we are unable to draw clear conclusions. My conclusion from that is that working with certainty equivalence of a distance that's quite far from the optimum is very dangerous and that the uncertainties about what could happen on a path that goes from 4.9 to 4.0 percent are very large and have to be factored into our policies.

And then I've added another thing we could do. We could undertake a policy of opportunistic optimization—something that I now believe somebody said was introduced to this body by Don Kohn—in which you wait for opportunities to reduce the gaps between where the economy is and the bliss point, but rule out ambitious paths that history tells us have only a low chance of succeeding. It's well known that the Federal Reserve has, in the past, typically operated by tending to move the interest rate in a serially correlated fashion from one range to another. One can imagine that being an optimal approach. It may be optimal when the distance from the target is large, but it is not clearly optimal when you're very close to the target and you're going to depart very far from the target. I believe we need to consider how this Committee should best set interest rates in years to come in a way that preferably does not include more long marches. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Harker.

MR. HARKER. Thank you, Madam Chair. I support alternative B at this meeting. The economy has weakened a bit, and the latest readings on inflation are not showing any significant acceleration—actually, just the opposite. Although I believe that both the real and nominal signals we are receiving will prove to be transitory, I can see no convincing case for removing additional accommodation at this meeting. We will have a lot more data in June to gauge the case for additional firming. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. By moving somewhat unexpectedly at the March FOMC meeting, the Committee has set an approximate expectation of calendar-based policy moves during the remainder of 2017. Calendar-based strategies have not served the

Committee well in recent years, as the data often do not cooperate in a way that confirms previously set plans. It is possible that we will be at such a juncture at our June meeting.

Alternative B is characterizing recent readings on the economy as “mixed,” but that the data will firm in coming months. It is entirely possible that the data will not firm to the extent we expect. I would be looking for indications consistent with at least 3.3 percent real GDP growth at an annual rate in Q2 in order to offset the weak 0.7 percent reading in Q1 and restore the 2 percent growth path for the first half of the year.

In addition, I think we will want to be able to tell a better story about inflation than we can today. If these indications from the data are not forthcoming during the coming weeks, then I think we will need to consider delaying a further rate hike until a more appropriate time. If we go ahead in June without the appropriate data in hand, I think we will be more “hawkish” than we intend, further flattening the yield curve, lowering inflation expectations further, and putting downward instead of upward pressure on actual inflation. In order to be able to handle this possibility appropriately, I think we should be willing to consider using the July meeting instead, should that become a more appropriate timing. We should also be willing to delay any further increase in the policy rate into the second half of the year.

More generally, I think the FOMC is somewhat overcommitted to a sequence of policy rate moves over the forecast horizon that appear to be unnecessary and could potentially cause significant problems for the U.S. economy. I guess this is what Governor Fischer called a “long march.” I do not think the current constellation of real GDP growth and inflation data provides a rationale for 200 basis points of policy moves in the near future. Labor market data may appear to be stronger, but I think they are better interpreted as being consistent with a balanced growth

path. Even very low unemployment, should it develop, would likely not trigger meaningful inflation, given current Phillips-curve estimates.

I think alternative B does a reasonable job of describing the policy situation for today. However, I continue to think that the statement has internal contradictions in that balance sheet policy is not coherently described, as we are in a period of policy rate normalization. During the period of near-zero policy rates, the Committee argued that the large balance sheet put downward pressure on medium- and longer-term yields. This remains in the statement in the last sentence. However, during the period of a rising policy rate, which we are in now, it may no longer make sense for us to put downward pressure on medium- and longer-term yields at the same time as we are trying to raise the general level of all rates by raising the policy rate.

In conventional descriptions of how monetary policy works, the fact that an increase of the policy rate is transmitted further out along the yield curve is what gives monetary policy its punch. To be apparently partially undoing this conventional effect through current balance sheet policy is a kind of twist operation, which I think does not have a basis in received monetary theory. To fix this, I think we should, at a minimum, end our reinvestment policy as soon as practicable in order to produce a partial reduction in the downward pressure on medium- and longer-term yields we were previously applying. Even with that move, however, the large balance sheet will remain for some time, and some of the yield effects will remain.

I also agree with President Kashkari's suggestion to drop "wealth" from the statement. I did not realize it had been such a long time since we had referred to wealth. I do think that it's always risky for the Committee to explicitly refer to elements of the economy that might be tied closely to the stock market. Obviously, the stock market can go up, it can go down, and people

would start to wonder what our reaction might be should the air come out of the current valuations in the market. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Acting President Gooding.

MS. GOODING. Thank you. My economic projections have not changed materially since the previous meeting, and I currently assume two additional rate increases this year. After our move in March, I think it is appropriate to be patient and wait for more evidence on the underlying strength in economic activity and inflation before pulling the trigger on the next rate increase. Therefore, I support the policy action in alternative B, and I'm fine with the language in the current draft statement, although I would be fine with the change that President Kashkari mentioned as well.

As I suggested yesterday, I do think the effort to convince the public that our inflation goal is truly symmetric may be challenging as we continue the process of removing policy accommodation. Over the intermeeting period, my staff included a special question in the Federal Reserve Bank of Atlanta Business Inflation Expectation survey asking about firms' perceptions of the FOMC's tolerance for inflation above or below its target. Only 25 percent of respondents indicated they believed the Committee's inflation goal is symmetric. The modal response, from 38 percent of respondents, was the opinion that the FOMC has greater concern about inflation running above its target than it does about inflation running below target.

We conducted the same poll of our directors at last week's Atlanta board meeting. The majority of our board members, including representatives from our five branches, responded that they also believe the FOMC has greater tolerance for inflation below target than above target. When we pushed on why, the response was basically that inflation has been running below 2 percent for a long time, yet the FOMC has tightened policy, so it seems it doesn't want to risk

inflation getting above 2 percent. I'll note that our survey was taken after the March statement in which the symmetry language was included. Our survey results suggest to me that communications about the symmetry of our inflation goal have not completely taken hold, and that's something that the Committee may want to consider in the future. Thank you.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. At our previous meeting, I said it was time for a change in our mindset. Earlier in the expansion, when we were further from our goals, we focused on the risks in moving rates up too quickly, and the base case in our discussion was no change in rates. Only if the data came in sufficiently strong would we act to raise rates. Now we're at, or perhaps a bit beyond, maximum employment, with job gains well above the trend pace. Inflation is near 2 percent, and the risks surrounding the outlook are broadly balanced. With monetary policy still accommodative, the base case for discussion is appropriately the gradual upward path of interest rates consistent with our medium-run outlook.

Because the gradual path may not entail a move at each meeting, the question is not whether to take the next step on the path but whether today is the day to do it. Although a 25 basis point move today is consistent with my outlook, which is little changed since our previous meeting, the public is not expecting the Committee to act today, in view of the weaker first-quarter readings and the fact that the Committee's communications haven't prepared the public for an increase today. I understand the rationale for pausing today, as indicated in alternative B. However, if the economy evolves over the intermeeting period as expected, I'd be very uncomfortable if that pause turned into a longer delay. We've gotten the public to understand that an upward path to policy is the most likely path, given the outlook, and even why



we think that path is appropriate—namely, because it balances the risks and makes it more likely that the expansion will continue, and our monetary policy goals will be met.

I anticipate that the Committee will raise the funds rate in June unless the data come in significantly weaker than expected, resulting in a material change in the medium-run outlook. So it's important that today's statement not undermine that likely scenario and lower expectations for a June increase. Of course, it is difficult to discern how market participants and the broader public will react to any postmeeting FOMC statement. As I've discussed at previous meetings, I think our statements tend to put too much emphasis on short-run movements in the data and not enough on how we're interpreting movements in economic and financial conditions for the medium-run outlook. If we don't provide an interpretation, the public will create their own—one that may or may not be consistent with ours.

Let me offer three observations of the language in alternative B. First, paragraph 1 in alternative B focuses attentions on the short-run movements in economic growth and inflation. The addition in paragraph 2 tends to qualify this with respect to economic growth by pointing out that the Committee views slower growth in the first quarter as likely transitory, but no such interpretation is given for the inflation numbers mentioned in paragraph 1. This seems like an important omission that could well be noticed. This may flatten the market's expected policy rate path.

Two, aside from the attention on one month's change, I find the inflation language in paragraph 1 problematic for another reason. When we discussed the introduction of the language on core inflation into the statement last time, I expressed some concern that we may end up confusing the public into thinking we have changed our longer-run inflation objective from headline to core PCE inflation. I remain concerned that references to core inflation, particularly

with the current wording's focus on the monthly change, will be confusing to the public. We haven't explained why we look at core inflation measures. In future statements or communications, I'd like to clarify that we look at core inflation because it helps us get a sense of where our goal variable—headline PCE inflation—is headed on a sustained basis.

And, three, the Committee has indicated elsewhere, including the March press briefing and minutes, that the reinvestment policy is under discussion. I think it's time to mention this fact in the Committee's statement. This seems like a particularly opportune time, as the Committee anticipates releasing more information on the reinvestment policy plan perhaps as early as June. I do realize that the minutes will summarize today's reinvestment discussion, but I think a mention in the statement would receive more attention and, therefore, be more transparent. We might consider adding a sentence at the end of paragraph 5 that says, "The Committee continues to discuss its existing reinvestment policy and will communicate any change to this policy well in advance of implementation." Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. I'll support alternative B. I can support it as written, or I could support it with the exclusion of "wealth" from paragraph 1, as President Kashkari suggested.

The economy is performing about in line with expectations. If that remains the case, then I can see a couple of further rate hikes this year, including perhaps one in June. I can also see a fourth-quarter announcement that we will gradually end reinvestments along the lines of the current proposal, which we'll return to shortly.

I also see a strong case for continued gradualism in raising rates, and I'll mention a couple of factors. First, core inflation remains below our 2 percent target and seems to have

paused there, where it's been for eight years. I actually don't place a lot of weight on real-time readings of inflation expectations, particularly market-based, which are noisy and unreliable and, in the case of market-based expectations, seem to be driven by movements in nominal securities. I place more weight on the idea that eight years of underperformance could well hold inflation expectations down, and it's also notable to me that the staff's forecast incorporating a trend inflation rate that's below our target has fit core inflation all too well over the past several years.

Second, we will have a recession at some point, and although the risks to economic growth are roughly symmetric today, the effectiveness of our toolkit is not.

Third, there is much remaining uncertainty regarding the neutral rate of interest. The scale of downward revisions to the Committee's individual estimates of  $r^*$  over the past few years has been remarkable. The March SEP shows that all of us think that the longer-run  $r^*$  is above the current federal funds rate, but the location of the endpoint is highly uncertain, and to me that suggests a gradual path of increases.

Finally, I'll point out that it is notable that the previous two recoveries did not end with inflation getting out of hand, but, instead, because of financial-sector imbalances. Today risk premiums in the prices of equities, corporate debt, and other financial assets are compressed, and this warrants a continuing close attention and actually argues for tighter monetary policy, but, in my view, still a gradual tightening along the lines of the path reflected in the SEP. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Acting President Mullinix.

MR. MULLINIX. Thank you, Madam Chair. We have now raised rates three times in the march that began in December 2015. With inflation expectations stable, the short-term real interest rate has increased, and our rate hikes have reduced the degree of policy accommodation.

Furthermore, inflation has essentially converged to our target, and labor markets have continued to improve. Alternative B therefore looks like a reasonable continuation of the policy of very gradual rate adjustments—we pause at this meeting and consider a rate increase at the next. I also support commencing the phaseout of reinvestments in Treasury and mortgage-backed securities later this year.

That being said, the gradual pace at which the Tealbook and the median SEP forecast nominal and real rates to increase stands out relative to the Tealbook's simple rule projections on Tealbook A, page 88. For the period ahead, the first-difference rule essentially defines a lower bound for these projections at  $1\frac{3}{4}$  for the end of 2017 and 2.8 percent for the end of 2018. Both of these projections exceed the median SEP, marginally for the end of 2017 and more so for the end of 2018. While raising the policy rate very gradually has been appropriate so far, tightening in labor markets should alert us to consider some continued policy rate discussion of pacing at future meetings. Additionally, I am in agreement with President Kashkari's proposed wording change to paragraph 1. Thank you.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. I support alternative B. My baseline forecast has not changed much since March and so, for me, I still see one or two additional rate increases this year as being appropriate. I agree that June may be an appropriate time to hike again. As I mentioned yesterday, the weak first-quarter consumption number, low March inflation data, and unsettled fiscal situation have heightened my degree of uncertainty about the outlook. The data between now and June may confirm that the consumption and inflation data were just aberrations. If so, June is likely appropriate. I can also imagine pausing in September while beginning our reinvestment adjustments and then assessing a final 2017 rate hike in December.

But, in light of the lack of obvious broad-based inflation pressures from labor or commodity markets, the continued low readings of inflation expectations, and the dearth of inflation commentary from my business contacts, I still believe policy has some work to do in order to achieve our inflation mandate.

On the question of omitting “wealth” in paragraph 1, I would be okay with that. I seem to recall Chairman Bernanke mentioning several times that the stock market is part of the monetary policy transmission mechanism, and this is just pointing to additional lift for the economy. If some wording other than “wealth,” along the lines of “household balance sheets,” were incorporated—I don’t think that works by itself, but something that gets at net debt situations improving—that might be one way to include that. Or it could be omitted. Thank you.

CHAIR YELLEN. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Madam Chair. I am comfortable omitting the reference to “wealth” from the statement. Otherwise, I support alternative B as written. In light of recent relatively sluggish economic growth as well as broader secular headwinds, I agree with taking no action today. My base case for this year continues to be for a total of three rate hikes, including the one we did in March. I also believe we should sometime later this year begin the process of allowing the balance sheet to run off. I do think, though, it is appropriate to emphasize that we should remove accommodation in a gradual and patient manner. “Gradual and patient” means to me that if and when we see, as we have, weak economic data, we have the ability to take time to review more data before we take further action. And I certainly intend to do that.

Lastly, I’m cognizant that structural and fiscal policies may cause me to revise my outlook for economic growth and amend my views regarding monetary policy, but I don’t take as a given that the net effect of policies being discussed will be positive for economic growth. In

particular, potential health-care reform policies, immigration policies, and trade policies, as well as the rhetoric associated with them, are examples of policies that I believe may be negative for real GDP growth. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. I support alternative B, and I agree with President Kashkari on his suggestion about removing “wealth” for the reasons he articulated and others have said. I don’t think it’s necessary. I think the whole point of that clause is just to be slightly more positive about the underlying fundamentals for the household sector, and I think the real income and sentiment cover that.

I will very briefly tilt against the windmill here. I’ve argued for a long time that this effort in paragraph 1—to go into all of the gory details of the data and to try to capture every bit of the news since the previous meeting—is problematic. I think monetary policy works with pretty long lags, and we need to be very forward looking. And I think sometimes we get ourselves into these situations in which we put in new language one time and then take it out, and put in the new language again. I don’t think that’s always as constructive as it could be. But my point here was that I would delete “wealth.”

But, overall, the language appropriately looks through the first-quarter transitory noise. The sentence in paragraph 2 does a good job on that and positions us well, as many have said, either to raise the federal funds rate in June, barring a meaningful deterioration in the outlook, or to reassess the data. So I think it hits the right tone there.

We have reached or exceeded full employment with underlying inflation only modestly below our 2 percent goal. Furthermore, with the momentum in the economy that we discussed yesterday, we could be well beyond full employment in the next year or two. That’s why, like

the Tealbook, I expect economic conditions, particularly the outlook, to support three more rate increases this year and the start of normalization of the balance sheet also by late this year.

I think this is a sensible policy approach on the basis of my modal forecast. But risk-management considerations also support a continued gradual path of rate increases. As President Rosengren and others have mentioned, there's a very real risk of overheating the economy significantly. Pushing the unemployment rate well below its natural rate means that we will need to eventually correct that, and that will generate very slow growth for a number of years as we try to get the economy back in a sustainable place. Also, the possibility of sizable fiscal stimulus does argue on net—although I agree completely with President Kaplan's remarks that the fiscal and other policies could actually cut either way—for positioning ourselves to adjust the path of policy by taking a rate increase sooner rather than later. Then we can adjust later as we learn more about what the policies are.

Lastly, I'll note that I think that we can separate the reinvestment policy decisions we're going to be making from the near-term funds rate path. Obviously, they're connected. They are both highly relevant to thinking about the stance of monetary policy. I do think it's important to remind ourselves that the market's expectations today about the trajectory of our balance sheet look about right, and markets have taken our hints of impending normalization in stride. So our future announcements on balance sheet normalization will essentially confirm our past communications and market expectations, and, therefore, I don't expect an overly adverse market reaction as we move forward with the balance sheet normalization.

I would like to comment very briefly on Governor Powell's remarks about losing an inflation anchor or the nominal anchor after many years of inflation running below target, or the risks of that. I am also very concerned about that aspect of having inflation—a number of people

talked about this—continuously or consistently run below target and then eroding people’s expectations of inflation. We heard some evidence on that about whether our target really is symmetric. I think that what we need to do is get inflation convincingly back to 2 percent. That means at least a 50 percent probability of being above 2 percent, and I think that’s something we need to do to make sure that we don’t lose this anchor.

I would like to mention that if we thought, in the future, about perhaps a better framework for thinking about this issue, if we had some type of price-level target rather than inflation target, this would need to be completely built in. If we undershot our target for many years, you would eventually have to overshoot it later. I’m not arguing for that for today. Obviously, we’re not doing that, but I think this experience for the past eight years reminds at least me of the challenges in a world in which the effective lower bound is binding a lot, and we could again find ourselves with inflation running significantly under target for a number of years. I think we need to think about that future. Thank you.

CHAIR YELLEN. Thank you. President George.

MS. GEORGE. Thank you, Madam Chair. I support alternative B for today. Although it is appropriate, in my view, to continue removing accommodation, with the economy at full employment and inflation running at a rate consistent with the 2 percent longer-run goal, holding rates steady at this meeting, following our action in March, is consistent with the Committee’s communications about a gradual path of interest rate moves.

In my view, as we look ahead, further gradual adjustments to the funds rate will be appropriate. Moving too slowly also carries its own cost. According to the Tealbook, current economic output is above its potential and expected to exceed it by greater margins over the next few years. The unemployment rate is also below estimates of its longer-run level, and asset



prices such as those of equities, CRE, and corporate debt are elevated and, by some measures, near all-time highs. Of course, allowing the economy to run above its potential could come at a cost, as Tealbook projections show the economy eventually cooling to a 1.3 percent growth rate.

It may be the case that we have the luxury of going slowly, because of the absence of broad-based inflationary pressures, stable longer-term inflation expectations, and moderate output growth. But should any of these begin to move unexpectedly higher, I would anticipate we would see a need to adjust policy more rapidly, which would raise risks connected with the sustainability of the expansion and asset prices as well as our credibility. Thank you.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. Thank you, Madam Chair. While data on the U.S. economy since our previous meeting have mostly surprised to the downside, we're seeing a period of synchronized global economic growth for the first time in several years. The balance of risks from abroad has further improved, financial conditions have eased, and I anticipate the economy here in the United States will strengthen in coming months.

While first-quarter GDP growth led by consumer spending showed exceptional weakness—even allowing for residual seasonality, warm weather, and a strong fourth quarter for consumers—residential construction was strong, business investment is picking up, inventory investment should rebound, and underlying fundamentals are likely to remain highly favorable for consumers. The unemployment rate has moved down. On average, over the past few months payroll gains have been strong, and we're seeing some wage gains, although the momentum is somewhat muted, as well as improvements on other margins. There are good reasons to believe that improvement will continue. Financial conditions have eased significantly, on net. Indicators of sentiment are positive. Adverse risks arising from developments abroad are lower

than they've been in several years, and we're seeing synchronous growth. Recent announcements also suggest an upside risk to aggregate demand from possible deficit-financed tax cuts that could be larger than had been factored into the baseline forecast. Taken together, it seems likely that further removal of accommodation will be appropriate later this year.

Nevertheless, one development that bears careful watching is the softening in realized and expected measures of inflation against a backdrop of an eight-year run of stubbornly below-target inflation. The March decline in core consumer prices reflected factors that are unlikely to be repeated and some that may be unwound later this year, but only in part. Nonetheless, the trailing 12-month change in the case of core PCE prices is now 1.56 percent, substantially below our objective, and the staff projects core prices to rise just 1.7 percent this year. While overall inflation is currently running a bit higher, if inflation evolves as the staff expects, we will not see any discernable progress toward our objective this year. I share Acting President Gooding's concern that the public may not actually believe that our inflation target is symmetric but is rather a ceiling, and Governor Powell's concern that we do risk a decline in inflation expectations unless we are very clear in this regard.

For today I support alternative B, and I can also support the change that President Kashkari has recommended. Regardless, I think, looking forward to the statement in June, I would favor modifying the language in paragraph 5 of the statement to specify the target range for the federal funds rate at which the Committee judges normalization to be well under way. This approach is clean and continuous in relation to the policy that we've adopted since 2015. A strong case can be made that the logical range would be midway to our current estimate of the longer-run federal funds rate, which would place it at a range of 1.25 to 1.5. I'll return to this issue shortly.

Regardless of how we dispose of that question, I think it might be helpful to clarify how Committee members are taking into account balance sheet considerations in their June SEP forecasts. The public appears to be somewhat uncertain as to whether our dots already incorporate our expected path of balance sheet normalization or whether they should expect a revision to our interest rate projections once normalization begins. For instance, it may not be clear to the public that in my March SEP submission, my economic outlook and my federal funds rate path were both consistent with my expectations about balance sheet normalization. In my view, it could be useful to include a special question in the June SEP submission that will enable members to provide clarity on this issue. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. That's helpful. Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. I support alternative B. I think "wealth" is going to be taken out, in light of the sentiment around the table, but I want to defend "wealth" for a minute. I think it's actually appropriate in the statement because I think it is a factor that should lend support to consumer spending. That's why we're including it, because we think it's actually significant. Including it in the statement doesn't imply that there's a stock market put, just that this is a part of the consumption function. It's also particularly relevant now because wealth actually has been increasing quite rapidly both through the rise in the stock market post the election and the fact that home prices are going up a lot. It's not important to me that this be kept in the statement, but I really do think it doesn't suggest a stock market put. It's just that household wealth is an important part of the consumption function, and it's changed a lot over the past six months. That's one of the reasons why we're relatively optimistic that the slowdown in first-quarter consumption is going to turn out to be transitory rather than more permanent. I think that's why it was in there. I'm perfectly happy to accept the

will of the Committee to take it out, but, to me, it doesn't create a lot of problems in terms of creating the idea of a stock market put.

In general, I think the statement does a good job of communicating what we want to communicate. Paragraph 1, I think, communicates the salient economic developments that we had since the previous FOMC meeting in a way that makes it clear we're not putting much weight on either the softness of real GDP in the first quarter or the fall in consumer prices in March. I think paragraph 2 reinforces this by being explicit about the Committee's view that the slowdown in the first-quarter real GDP growth rate is viewed as transitory. When you put it all together, I would anticipate that market participants will read the statement as indicating that a June move is more likely than not, but that it's not a done deal, and that we do remain data dependent. That seems to be the appropriate message to send at this meeting.

At the next meeting, I hope we will be able to get final agreement on our balance sheet normalization plans, and I hope we will publish the bullets that explain our approach. Then we can see how the economy evolves and whether we want to start the process later this year, presumably with the decision made at either the September or December meeting. But regardless of when we actually decide to start that process, I think getting the framework in place and broadly understood by market participants would be worthwhile.

Finally, assuming that the economy does evolve close to our expectations and we continue to raise the target range of the federal funds rate and begin to normalize the balance sheet, I wouldn't want to do both at the same FOMC meeting. There were two reasons for what I put out there, the little pause. First, pulling both levers of raising our federal funds rate target and announcing the beginning of balance sheet normalization simultaneously would make it more difficult for us to interpret any financial market reactions. Second, I think that when we do

announce the decision to begin to normalize the balance sheet, it will represent a tightening of monetary policy even if it's widely anticipated. That's because I think there are important threshold effects inherent in such decisions. Once you get over the bar, there's a relatively high threshold to reversing course compared with before you had made that decision. Consider, for example, how we'd likely react to a period of weak data that occurred before versus after the decision to begin the balance sheet normalization process. If the weak data were to occur before the potential decision, you'd probably be inclined to wait. In contrast, if it were to occur immediately afterward, you probably would be more likely to look through the weak data for a time before you reversed your earlier decisions. This threshold effect means that even well-anticipated decisions can have market consequences when the threshold is crossed and the anticipated policy action is initiated.

If I'm right that the decision to begin to normalize our balance sheet will be a tightening of uncertain magnitude, I guess the question I would ask is: Why would we want to compound the risk of a big outsized reaction by also announcing a rate hike at the same meeting? It seems much more prudent to me that we not take both actions simultaneously unless we want to tighten monetary policy aggressively, and, in the low-inflation world in which we currently operate, I don't think we are close to needing to demonstrate that type of urgency. I think it would be good for the Committee just to take this off the table—so that market participants aren't concerned that we could be very aggressive and pull both levers simultaneously—and that's why I want to raise that issue today. Thank you.

CHAIR YELLEN. Okay. I think we have general agreement on alternative B and need to settle the issue of "wealth." I have heard considerable support for President Kashkari's suggestion to remove "wealth." The Vice Chairman expressed a reason to keep it in, and I

would say that I agree with the reasons that the Vice Chairman expressed. You probably can now understand why it's there. But, on the other hand, like the Vice Chairman, I don't feel this is a life or death matter, and even without "wealth," we have given two reasons. I think it is very important to explain why we have confidence, as we express in paragraph 2, that consumption growth will pick up, and this helps do it. I don't think it's absolutely necessary. But before we decide this issue, let me offer anybody else who wants to weigh in a chance to do so. Governor Fischer.

MR. FISCHER. Madam Chair, if I thought that putting the word "wealth" in implied that there's a put on the FOMC every time the stock market goes down, I might agree, but "wealth" is such a common word. We're going to take it out and never use it again because it gives this connotation? It seems to me ridiculous, and I don't see why we should go down this route of political correctness, when it's not even logical.

CHAIR YELLEN. Well, we do the same thing with the exchange rate—we're very loath to mention the exchange rate. I think, similarly, it certainly matters for both net exports and national income, as well as inflation. However, we go to great lengths not to mention the exchange rate for a similar reason—to avoid any possible misinterpretation that we have a target for the exchange rate. So I think that's also an example of "political correctness."

MR. FISCHER. That's not political correctness. That is related to a particular policy we follow, which is, we do not want to take that into account. First of all, it's not our policy tool, and, second, we don't intervene in foreign exchange markets. But I don't understand this one, and I just don't see that there's a put. And I think if we start inventing things, somebody might think we're not going to speak the truth to anybody. It took me a long time to understand a variety of the conventions that exist with regard to the statement in which things that I think are

identical turn out to have totally different meanings if you were here in 2003 and remembered what it had meant then—that’s very disconcerting. I don’t think we should want to get rid of “wealth” in any way. I don’t see anything wrong with everybody’s wealth going up.

CHAIR YELLEN. President Kashkari.

MR. KASHKARI. I’ve never been accused of being politically correct before. This is a first. [Laughter] But I’ll just say this in response to Vice Chairman Dudley’s comments: Why now? This was true in December. This was true in February. This was true in March. Whenever we make a change, market participants are begging, “Okay. Why did they add this this month as opposed to the month before?” So everything you said was true. As a general statement, I agree with it. I just can’t understand why we’re adding it now.

VICE CHAIRMAN DUDLEY. I would say because consumption was quite weak in the first quarter, and we’re trying to explain why we’re not taking much signal from that weakness.

MR. ROSENGREN. It provides an explanation for the second sentence in the second paragraph.

CHAIR YELLEN. Exactly.

MR. ROSENGREN. So it’s explaining why we think that the weakness in consumption is transitory. There are a number of reasons. But this explanation is clearly supporting why we think household spending will be stronger.

VICE CHAIRMAN DUDLEY. Right.

MR. ROSENGREN. It gives three elements. If I was to run a consumption function, the element that I drop off would be consumer sentiment, not wealth. So I think that, because the addition to the second sentence in paragraph 2 is so key, this is setting up the explanation for

why we're fairly convinced that it's going to be transitory. Without that, I think it's a less compelling case.

I agree that it wouldn't be the end of the world if we dropped it, but I think it's actually a bad precedent to drop something that we think is an important modifier regarding how we estimate consumption because if it were in the opposite direction, if we'd had a 10 percent decline in the stock market, it would affect us, and it has in the past.

In 1987, the crash did affect monetary policy. It didn't affect monetary policy because of any Federal Reserve targeting of stock prices. It affected monetary policy because the Committee was worried about what the consumption function was going to look like after the crash and how it might affect business spending as well as household spending.

So I think it actually does belong in the first paragraph at times when it's modifying something like household spending. I don't think it's the end of the world if we include it or not include it. But I do think there's a pretty solid rationale for doing so.

CHAIR YELLEN. President Evans. Did you want to weigh in?

MR. EVANS. No, I was just listening. [Laughter]

MR. WILLIAMS. He was sighing.

CHAIR YELLEN. Sorry. President Bullard.

MR. BULLARD. I think, historically, the Committee has not wanted to refer to equity valuations because they are pretty volatile, and sometimes the valuation might go down, and you might feel like that was a welcome decline because the market seemed like it was out of line. Other times, such as 1987, it might go down, and you might feel like it is a significant move and we need to react. My interpretation of past behavior of the Committee is that you didn't want to put it in because there are different reasons why the market might move around, and you don't



want to be in the position of having to react or have the perception that you might react to every movement. I guess that's my feeling on it. So I'd take it out.

CHAIR YELLEN. President Evans.

MR. EVANS. Okay, I guess I will. Listening to this, I think if you're a macroeconomist, you're not bothered by this, thinking about the consumption function and all of that, right? I mean, you wouldn't mind putting "permanent income" in there either, but that's jargon, and so "wealth" is sort of another type of comment.

I'll be honest with you. President Kashkari, you mentioned "put." I looked at the statement. I wrote down "50 percent, 1 percent, 0.1 percent, and .001 percent." This is more about income distribution and who has the wealth. I think that this is not about macroeconomics but perceptions of the public, and "wealth" has a loaded connotation at the moment. That's why I suggested "balance sheet" or something that gets at the financial conditions if you thought that that was important, but if you can reduce it to two, I think that that's acceptable.

CHAIR YELLEN. Do you have suggested language on "balance sheet"?

MR. EVANS. No, I just said "balance sheet conditions," but I don't know that that would really pass muster with the folks who really write the statement. I think "real income and balance sheet conditions have improved."

CHAIR YELLEN. Or "household balance sheets are strong," something like that?

MR. EVANS. Could be, yes.

VICE CHAIRMAN DUDLEY. The problem with that is that it seems insensitive to all those households that don't have strong balance sheets.

CHAIR YELLEN. Yes.

MR. EVANS. Or all those households that don't have wealth. That's my whole point about 50 percent and 1 percent.

CHAIR YELLEN. Yes. David, did you want to comment?

MR. WILCOX. I enter the conversation with some trepidation. I wanted to mention that if wealth is removed as an explicit factor, that might put a little more of the spotlight on income. And it's worth noting that in the BEA release, real DPI increased at an annual rate of 1 percent in the first quarter, a little less than we had projected in the Tealbook. We're not particularly concerned about that, because we think about half of that shortfall is in transfer income, and that's going to be made up in the second quarter. That said, I wondered whether language that is a little more general might be helpful, something along the lines of "But the fundamentals underpinning continued growth of household spending remain solid." What that would do is generalize it away from resting quite so much on an income number that's a little softer than many analysts had expected.

CHAIR YELLEN. Will you say that again?

MR. WILCOX. "But the fundamentals underpinning the continued growth of household spending remain solid." For background, you can see the projected trajectories of some of the relevant variables on page 4 of Tealbook A. What this does is, it gives you a little bit broader time perspective, and I would add that the house price reading that we got yesterday was a little stronger than what we had projected. So house prices certainly factor into our assessment of balance sheet conditions.

CHAIR YELLEN. Okay. I think that's a good suggestion. Let me ask for some reaction to David's suggestion that we would say "Household spending rose only modestly, but the fundamentals underpinning the continued growth of household spending remain solid."

MR. HARKER. And “consumer sentiment remained high?” Leave that?

CHAIR YELLEN. No. We get rid of it. That’s part of the fundamentals.

MR. HARKER. Okay.

VICE CHAIRMAN DUDLEY. Seems fine with me.

CHAIR YELLEN. It’s fine with me, too. Governor Powell.

MR. POWELL. I like it, only we’re saying “household spending” twice. Maybe say “such spending” the second time. But I like this approach.

MR. WILCOX. Hearing the Chair read it, it sounded inelegant, but I was worried that I was engaging in Tealbook editing.

CHAIR YELLEN. “Growth of consumer spending” instead of “household”?

MR. WILCOX. Or “such spending.”

CHAIR YELLEN. How many people are favorably inclined toward David’s substitute—would you just raise your hand? Okay, I actually see a lot of support for that, David. That’s a really good suggestion. So I would suggest we substitute that. Let’s make sure we have this right: “Household spending rose only modestly, but the fundamentals underpinning the continued growth of such spending remained solid.”

VICE CHAIRMAN DUDLEY. Yes. We could say “consumption”—“of consumption remains solid.”

CHAIR YELLEN. “Remains”—how about “remained”? Of what?

VICE CHAIRMAN DUDLEY. “If consumption remains solid.” I don’t know that you have to say “such spending.” Just say “of consumption.”

CHAIR YELLEN. How about “of consumption” and “remained solid.”

MS. MESTER. “Growth,” right? “Consumption growth,” as opposed to just “consumption”?

CHAIR YELLEN. “Of consumption growth.”

MR. WILCOX. Well, in what I had suggested earlier, there was a “growth.”

CHAIR YELLEN. Yes. You had, “But the fundamentals underlying the continued growth of consumption—”

MS. MESTER. Oh, I didn’t hear that. I’m sorry.

CHAIR YELLEN. —“remained solid.” Okay. Everybody okay with that?

VICE CHAIRMAN DUDLEY. Yes.

MR. FISCHER. Yes.

CHAIR YELLEN. All right. I think we’re ready to vote. Brian, could you just make clear what we’re voting on? [Laughter]

MR. MADIGAN. Maybe before I actually call for the vote, I should make sure that I do understand exactly what the Committee wound up with. What I think I have is, “But the fundamentals underpinning the continued growth of consumption spending remain solid.”

MR. SKIDMORE. The other sentences are in the past tense.

CHAIR YELLEN. So it should be “remained.” “Of consumption spending” or “consumption”?

MR. FISCHER. Just “consumption” is fine.

CHAIR YELLEN. Just “consumption.”

MR. HARKER. Just “consumption.”

CHAIR YELLEN. No “spending” after “consumption.”

MR. MADIGAN. “But the fundamentals underpinning the continued growth of consumption remained solid.”

CHAIR YELLEN. Okay.

MR. MADIGAN. Thank you. This vote will be on the statement for alternative B shown on pages 5 and 6 of Thomas Laubach’s briefing package from yesterday, except that the second clause of the third sentence would be amended as was just discussed. The vote will also be on the directive to the Desk as included in the implementation note for alternative B on pages 9 and 10 of Thomas’ handout.

Chair Yellen	Yes
Vice Chairman Dudley	Yes
Governor Brainard	Yes
President Evans	Yes
Governor Fischer	Yes
President Harker	Yes
President Kaplan	Yes
President Kashkari	Yes
Governor Powell	Yes

MR. MADIGAN. Thank you.

CHAIR YELLEN. Okay. Thanks to everybody for a very good policy round.

We have two sets of related matters under the Board’s jurisdiction: corresponding interest rates on reserves and discount rates. I first need a motion from a Board member to leave the interest rates on required and excess reserve balances unchanged at 1 percent.

MR. FISCHER. So moved.

CHAIR YELLEN. Second?

MR. POWELL. Second.

CHAIR YELLEN. Okay. Without objection. And, finally, I need a motion from a Board member to approve establishment of the primary credit rate at the existing rate of

1½ percent and establishment of the rates for secondary and seasonal credit under the existing formula specified in the staff's April 28 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. Let me just wrap up our discussion with a few words concerning likely changes that we're going to need to make in the statement at coming meetings. This is something that Thomas also mentioned in his presentation.

Obviously, one area in which modifications will be needed concerns our reinvestment policy, which now appears likely to change in the not-too-distant future. Aside from its technical aspects, the phasing out or ceasing of reinvestment raises important communications issues.

Here we're making good progress. The staff has distributed illustrative statement language that could help ensure that this policy change goes smoothly, and in the next round we'll have a chance to discuss this topic.

Further language changes may also be needed later this year or early next year if we tighten sufficiently to bring the actual funds rate in line with our assessment of the neutral rate. At that point, we will no longer want to say that monetary policy is accommodative or that we anticipate a further tightening in labor market conditions. Instead, the statement should convey that monetary policy is focused on sustaining the economy at full employment with inflation running around 2 percent.

It may also be appropriate to note that this maintenance strategy will likely require further increases in the funds rate over the medium term. But I think in that context it will be appropriate for us to stress that our forecast of a rising neutral rate is uncertain. These

considerations and the potential for improving the statement in other ways suggests that we should probably discuss the advisability of making significant changes to the structure of statement language at future meetings, and that's something I hope we will be able to bring to you.

So that concludes our discussion of policy, and I think we're now ready to move along to our next topic. Why don't we start on this, and then later on we'll be able to take a coffee break. We'll move along to reinvestment policy. We have two goals for this session. The first is to get closer to nailing down the specifics of the approach we will eventually take in phasing out or ceasing reinvestments. In a few moments, Lorie will present the revised staff proposal, which was detailed in a memo circulated last Friday. The second goal is to firm up the key elements of communications about our plan that will need to be released well in advance of an actual change in our reinvestment policy. We don't have a staff presentation on this topic, but your handout includes a draft of some potential bullets that were discussed in another staff memo.

As many of us judge that a change to our reinvestment policy will likely be appropriate later this year, releasing a high-level summary of our plan in connection with our June meeting would position us well for making such a change, provided, of course, that the economy continues to perform about as expected. In particular, I would like to release bullets that augment our 2014 Policy Normalization Principles and Plans at the time of our June FOMC statement. That would enable me to discuss them in my press conference. Delaying release of this information beyond that time would seem to needlessly prolong uncertainty about our general approach and, as we will have been discussing this topic for several meetings, could convey a misleading impression that we're having a hard time coming up with a plan.

In our go-round, I'll look forward to hearing your views on both the general bullets and the plans for phasing out reinvestments. Of course, these two items are closely linked, and one issue that needs to be settled sooner rather than later is whether to phase out reinvestments, which I believe many of us support and is a feature of the staff proposal, or, alternatively, cease them all at once.

In addition, I'll be interested to hear your views on the specific staff proposal that involves gradually rising caps on redemptions for Treasury securities and agency MBS. As noted in the staff memo, such gradually rising caps would help smooth the monthly variability in the runoff of our portfolio. Smoothing that variability might help reinforce our earlier communications indicating that balance sheet normalization will be conducted in a gradual and predictable manner. These caps may provide a relatively inexpensive form of insurance against tail risks in which large monthly redemptions in our securities holdings prompt a deterioration in market functioning or outsized movements in yields. These gradually increasing caps also seem straightforward to communicate.

My hope is that, following today's discussion, we will be able to circulate a revised set of general bullets, with the intention of finalizing and releasing them at our next meeting. Regarding the specific proposal, here, too, it would be good to get as much agreement as possible, although a deadline for releasing this detailed information to the public may not be quite so pressing.

I would also like to hear any thoughts you may have about how we should communicate the timing of a change to our reinvestment policy. As noted in the staff's memo, signals about the timing of a change seem best suited for paragraph 5 of our policy statement as well as in the minutes and other communications. Indeed, as Simon noted yesterday, the minutes of our March



meeting were helpful in aligning market expectations for a change to reinvestment policy with our own views. Well, let me stop there and turn the floor over to Lorie for a briefing.

MS. LOGAN.<sup>6</sup> Thank you, Madam Chair. I'll be referring to the handout labeled "Material for the Briefing on System Open Market Account Reinvestment Policy."

In light of your discussion of reinvestments at the March FOMC meeting, the staff examined different ways in which to reduce the System's securities holdings in a gradual and predictable manner, with an aim to limit the risk of triggering financial market volatility.

In a memo distributed on April 21, we outlined a proposal to phase out reinvestments over 18 months by reducing the share of repayments of principal that would be reinvested each month. The reinvestment shares would decline in steps of 15 percentage points at quarterly intervals. This approach would allow for a gradual shift of securities purchases to the private sector, providing time for markets to adjust to an environment without regular securities purchases by the Federal Reserve.

That memo also noted the possibility of including fixed limits, or caps, on the dollar amount of securities that repay without replacement through the period of balance sheet normalization. We noted that caps would limit the effect of the spikes in monthly maturities of Treasury securities or of a possible surge in MBS prepayments, helping to ensure that the reduction, or runoff, of the portfolio would be both gradual and predictable.

In response to the April 21 proposal, some Committee participants indicated that they preferred the smoother runoff that resulted from caps but saw the combination of caps and declining reinvestment shares as unnecessarily complicated. Consequently, the staff, in consultation with the Chair, developed the revised proposal contained in the short memo that you received on April 28.

The revised proposal is outlined in the upper-left panel, and it includes gradually increasing caps on the dollar amounts by which the System's holdings of Treasury and agency securities would be allowed to run off each month. Under this proposal, only repayments of principal that exceed the cap during any month would be reinvested. The cap for reductions in our holdings of Treasury securities would start at \$5 billion per month and would be raised every quarter for 18 months in increments of \$5 billion up to a maximum of \$35 billion per month. The cap for agency securities would begin at \$3 billion per month and would be raised every quarter for 18 months in increments of \$3 billion up to a maximum of \$21 billion per month. The maximum caps would then be maintained until the size of the balance sheet is normalized.

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<sup>6</sup> The materials used by Ms. Logan are appended to this transcript (appendix 6).

Compared with the initial staff proposal plus fixed caps, the revised proposal with increasing dollar caps alone achieves an almost identical outcome for portfolio runoff under the modal projection, ensures a smoother runoff of the balance sheet in more scenarios than the earlier proposal, and has some communication advantages.

The top-right panel illustrates how total System holdings are projected to evolve under the staff's revised proposal, shown by the solid blue line, consistent with interest rate assumptions in the Tealbook baseline. This also assumes a change to the reinvestment policy is announced at the September FOMC meeting, with implementation starting in October. Comparing this with a scenario in which reinvestments are fully and immediately ceased starting in October, the blue dashed line, normalization of the size of the portfolio is projected to be delayed by about a year; projections of income and macroeconomic outcomes, which aren't shown, differ by negligible amounts.

The middle panel illustrates the projected amounts of securities that would be allowed to repay without reinvestment, shown by the bars above the line, and the amounts that would be reinvested, the bars below the line. Under the revised staff proposal, the amount of Treasury securities that are not reinvested, shown in red, is \$5 billion per month in the fourth quarter of this year and gradually increases as the cap is raised through the first year of the plan. Further out, the amount of Treasury securities allowed to mature without reinvestment begins to vary more since some months have total maturities below the cap. The Treasury securities cap eventually binds only on midquarter refunding months, when the volume of maturities of Treasury securities is particularly high.

Informal conversations with Treasury staff in the debt management office have indicated that the midquarter increases in the amount of holdings of Treasury securities that would run off the Federal Reserve's balance sheet could be accommodated by prefunding with gradual increases in the Treasury's bill and coupon security issuance to the private sector. However, the cap on reductions in the System's Treasury security holdings would further reduce the risk that these large runoffs (and corresponding large increases in Treasury debt issuance to the private sector) might cause market-functioning difficulties in the Treasury securities market. Implementing an ongoing cap may also be prudent since there is some uncertainty about the outlook for debt issuance. In particular, the Treasury could face substantial increases in financing needs in 2018 and 2019, but clarity on this issue is unlikely for some time.

With regard to agency securities, projected reductions in the SOMA's holdings of agency debt and MBS, the blue bars above the line in panel 3, likewise are initially low at \$3 billion per month but gradually increase as the cap is raised. Under the baseline interest rate scenario, reinvestment of principal payments received from holdings of agency debt and MBS would end after one year because the proposed caps become larger than the projected repayments of principal coming from agency securities.

Of course, unlike the maturing of Treasury securities, MBS prepayments are uncertain. They depend in part on the path of interest rates. Actual prepayments could increase or decrease if rates are lower or higher than expected. Another consideration is that, even under a fixed path of interest rates, predictions of prepayment speeds are uncertain. Prepayments depend on individual borrowers' behavior and characteristics as well as varying underwriting standards, and different models often generate divergent forecasts regarding how these factors will affect the evolution of prepayments under the same interest rate scenario.

Under a lower rate scenario, which would typically also be an economically adverse one, both the pace of prepayments and the uncertainty of prepayment risk on individual MBS would increase. For example, if primary mortgage rates were to fall to 3½ percent and remain there for some time, our models suggest that MBS principal repayments could increase to \$25 billion to \$30 billion per month as refinancing becomes an attractive option for more of the underlying mortgages. The caps would provide a means of helping to clarify in advance how the portfolio would be managed in response to such a scenario. The caps would also limit possible spikes in the net flow of securities back to the private sector—reducing uncertainty surrounding the possible variation in the size of this net flow.

Market expectations with regard to the change in reinvestment policy generally incorporate a gradual approach to reductions in the portfolio. The bottom two panels are based on the results of the May surveys of primary dealers and market participants.

As shown on the left, the market places the highest probability on the announcement of the change to reinvestment policy occurring in 2017:Q4, which corresponds to a target funds rate of 1.375 percent. However, as expectations regarding the announcement of the change are tied to the level of the funds rate, expectations regarding the timing of the change could adjust if expectations for the federal funds rate path changed.

As shown on the right, respondents continue to place the highest weight on Treasury security and MBS reinvestments being phased out over a 12-month period or longer. In terms of the features of a phaseout, survey respondents commented that a phaseout would likely employ either a dollar-based or percentage-based approach to a gradual reduction in reinvestments. They also indicated a desire for more clarity on the details of the change to reinvestment policy.

The second exhibit of the handout provides a draft of bullets that the Committee could release ahead of a change in reinvestment policy. The revised staff proposal required some alterations to the bullets circulated in the April 21 memo. As shown, the current draft includes more details on operational plans as a means of building market confidence that the FOMC will reduce the size of the balance sheet in a gradual and predictable manner. The draft also includes a more concise version of the bullet regarding the determinants of the ultimate size of the balance sheet.

The third exhibit of the handout repeats the questions for discussion that were circulated with the earlier memos.

Thank you, Madam Chair. We're happy to take any questions.

CHAIR YELLEN. Questions for Lorie? President Kashkari.

MR. KASHKARI. Lorie, you mentioned, in discussions with Treasury staff, that they could prefund any expected spikes in Treasury security roll-offs, so that's what my expectation was. I'm trying to get a sense of what the actual risk is? If the Treasury knows when a spike is coming, it can prefund it. What's the actual risk of refinancing or auctions, et cetera, that we're worried about that would push us to adopt a cap?

MS. LOGAN. I think it's just the total size, particularly if there are new additional fiscal net financing needs. If you look at the financing needs that they have that are estimated by the primary dealers for 2018 and 2019, those are around \$800 billion plus the SOMA piece. That would put you well over \$1 trillion in 2018 and in 2019. And those are numbers that look similar to what they needed to finance during the financial crisis, when the environment was quite different. The Federal Reserve was buying, but also there was a flight to safety. So I think just the total amount of financing, even if they know in advance and can make it gradual, might have some risks.

MR. KASHKARI. Okay. Thanks.

MS. LOGAN. The cap just takes off a little bit of that volatility.

MR. KASHKARI. I understand. Thank you.

CHAIR YELLEN. Are there other questions? [No response] Okay. Let's begin our go-round, and then we'll take a break. We'll have a few presentations and then take a break for coffee. Let's start with the Vice Chairman.

VICE CHAIRMAN DUDLEY. Thank you, Madam Chair. I support the staff's revised proposal for normalizing the balance sheet. Doing this in a carefully controlled way, with caps on the redemption amounts stepping up over an 18-month period to \$35 billion for Treasury securities and \$21 billion for agency MBS per month, should help minimize the risks of market disruption. Staging the ramp-out in caps over time reduces the risk of an outsized market reaction to the beginning of balance sheet normalization. It gives market participants and the U.S. Treasury time to adjust to the increase in the supply of Treasury securities and agency MBS that will need to be absorbed by investors.

In terms of length, I favor an adjustment period somewhat longer than expected by market participants both as a risk mitigant and because it will give the U.S. Treasury more time to adjust its debt issuance schedule should it choose to do so. With the dealer and buy-side surveys suggesting a central expectation of about a 12-month-long phaseout of reinvestment, I think this 18-month ramp-out in redemption amounts that's being proposed here accomplishes this.

The revised proposal, as Lorie mentioned, differs from the original staff proposal in that it starts with a focus on the amount redeemed each month—in other words, the amount of additional supply the market will have to absorb—rather than on the percentage of maturities and repayments that will be reinvested each month. Focusing on the amount redeemed each month seems like the right metric if one of our primary goals is to minimize the risks of market disruption. In the original proposal, the amount redeemed would be quite volatile from month to month, due to differences in monthly Treasury security maturities. And that could have been contained by a cap, but that would have increased complexity as you added another component

to the proposal. In contrast, I find that the revised proposal does this a lot more elegantly by focusing directly on the volume of securities that will have to be absorbed by the market.

There are a number of other advantages compared with the original proposal. One advantage is that when you're below the cap, you redeem the full amount, not a percentage of what is maturing as in the original proposal. This means that during the initial stages of normalization, you can actually run off the balance sheet a bit faster in those low-volume Treasury redemption months. A second advantage is that the revised proposal addresses more directly those months when the Treasury security maturities are very high, the quarterly refunding months. The caps limit the amount of redemptions in those months. A third advantage is that the new proposal, as Lorie mentioned, is better able to accommodate unanticipated swings in agency MBS repayments. I also think the new proposal is relatively easy to understand and to communicate.

Now, the revised proposal does change the concept a bit from the phaseout of reinvestments to the ramping up of redemptions to fixed caps, so we're going to have to work on how to clearly communicate this shift in orientation. But, obviously, the minutes of this meeting will be a good place to start on this.

In terms of language proposed for updated normalization principles, I favor language that indicates that we are moving toward a regime with sufficient excess reserves so that the fluctuations in reserve supply and demand do not require frequent interventions by the Desk to keep the federal funds rate stable. I think there is a strong consensus among the Committee to go to a floor system, and if that's where we think we're headed, then I think we should just say so explicitly in the guidance. This is important because it defines more clearly for people how much we're ultimately likely to shrink our balance sheet.

I also very much favor the final bullet point provided in the communications memo, which makes it clear that while we intend to reduce securities holdings in a gradual and predictable way, the autopilot notion is not so strong that we couldn't change course should the economic outlook dictate it. I think it's important to have this in our communications so market participants understand that under certain conditions, conditions that presumably lie pretty far away from our baseline forecast, we might want to bring the redemption process to a halt for a time or even resume reinvesting. I think it's important that we retain some flexibility in case the economy evolves in a way that differs considerably from our current set of expectations, and I think we want to make that clear to market participants so they understand that as well.

I would not, however, want to be any more explicit than this. For example, I wouldn't want to say that the balance sheet runoff would stop if we were to cut the federal funds rate. I think we want to be sort of general and a little bit vague rather than specific on this. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Madam Chair. I support the revised staff proposal as well. I'm going to go through the questions as they were posed to us.

Regarding question 1(a), I strongly believe that we should taper rather than stop reinvestments. Tapering only slowly alters the path of the overall balance sheet, which should minimize the risk of a taper tantrum response to our announcement that we are shrinking the balance sheet. We are starting by reducing the balance sheet by less than \$10 billion for each of the first three months on a \$4½ trillion balance sheet. So I think that certainly is gradual.

On question 1(b), an 18-month schedule seems an appropriate phaseout period. So I agree for the reasons the Vice Chairman highlighted.

With respect to question 1(c), the original proposal had a taper percentage of maturing and prepaying securities rolling off the balance sheet. However, the ability to communicate this plan to the public could be problematic. Announcing redemptions on the basis of percentage reductions in reinvestments is likely to be more difficult to communicate than just announcing dollar amounts. Because we used dollar amount increments as the balance sheet expanded, the consistency of using them as we begin to contract the portfolio may be more clearly understood by the public.

In addition, there will likely be variations in the amount that our portfolio shrinks in any given month, and the reasons for these variations may be difficult to communicate and could potentially pose problems for the Treasury during times of fiscal stress. Hence, the revised proposal—which communicates in dollars redeemed, under which we redeem up to a maximum amount—is certainly an improvement. Maximum dollars redeemed on a regular schedule is predictable and is somewhat smoother. The communication is closer to how the purchase program was conducted and avoids particularly large spikes. On net, I think the cap proposal is easier to communicate and is predictable. Thus, I would prefer it over the alternative plan for percentage reductions and redemptions.

Regarding question 2(a), which is getting more at the communication, perhaps the most important decision is how high to raise the funds rate before we begin the program. And, correspondingly, how much policy buffer do we build before we begin decreasing the balance sheet? What magnitude of buffer should we target? Our current inflation target, labor force growth, and productivity growth suggest an equilibrium funds rate of about 3 percent or a bit less today. Because recessions usually require much more than a 300 basis point reduction in the federal funds rate, this in turn implies that even mild recessions are likely to result in the federal



funds rate hitting its effective lower bound. That means the size of the policy buffer we are aiming for must be something less than what is required to respond to a full-blown recession with reductions in the federal funds rate alone. Instead, we might consider delaying reductions in our balance sheet until we are confident we have sufficient room to lower the federal funds rate to offset a medium-sized negative shock. I have in mind the stock market crash of 1987, in response to which we reduced the federal funds rate 75 basis points, as an example of a medium shock.

A more general way to calibrate the buffer is one sufficient to offset a negative shock that would otherwise result in an increase in the unemployment rate of 40 to 50 basis points. In the Boston model, that is roughly the effect on the economy of a 100 basis point decrease in the federal funds rate. Once we have raised the federal funds rate target range one more time to between 100 and 125 basis points, I believe the funds rate will have attained a level sufficient to begin shrinking the balance sheet.

On question 2(b), in terms of timing and communications, at the June FOMC meeting, I would raise the federal funds target to between 100 and 125 basis points and announce our intention that soon thereafter we will begin a gradual reduction in our balance sheet—while possibly providing details on the tapering strategy that could be discussed at the press conference. I would then announce in the July statement—and this is all assuming that the economy continues to evolve as we expect—that we were starting with a very gradual redemption program beginning in August. This timing is consistent with having built a sufficient buffer in the funds rate to offset a medium-sized shock. It is also consistent with a concern that most of our projections entail the significant risk of an overshoot in labor markets, which would justify a slightly earlier start to shrinking the balance sheet. Of course, if the Committee prefers

a larger buffer, it could instead choose to follow the same process in September, at the time of our next funds rate increase, assuming the economy develops as forecast.

In terms of the comments the Vice Chairman made about the timing and the meetings, I view the March meeting and this meeting as already highlighting that it's quite likely that we're going to start this program. So, what I'm suggesting here is actually that in June, we're not announcing the start of the program but announcing that the conditions have been set and that we have a program in place. And then—again, assuming that the economy evolves as expected—we're making the actual announcement in July, with a start in August. So it wouldn't be timed as an announcement at the June meeting but would actually be off cycle at the July meeting. Again, you could obviously do that same sequencing in the fall if that was your preferred choice. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Governor Powell.

MR. POWELL. Thank you, Madam Chair. I, too, support the revised staff proposal. In the statement of policy normalization principles and plans, the Committee noted that we would normalize the size of the balance sheet in a gradual and predictable manner, and that we would do so primarily by ceasing reinvestments of principal payments on our existing holdings.

I thought that the original staff proposal, presented in the memo distributed a couple of weeks ago, was reasonable. In particular, the taper feature under that plan would have helped market participants become accustomed to a declining level of the Federal Reserve operations in Treasury securities and MBS. However, under that proposal, after the phaseout period, which was 18 months, redemptions of Treasury securities in some months would have been very sizable, and, depending on the path of interest rates, redemptions of MBS as well could have been sizable and variable. So, for me, there were shortcomings and challenges with the

percentage approach, both on the complexity of it and on the “gradual and predictable” dimension. And I think that the revised proposal in the staff memo that we got on Friday addresses those concerns very well.

This approach seems to me to ensure that the runoff of our securities will be relatively smooth over time and eliminates the possibility of especially large runoffs. So it accords well with our message that we’ll be normalizing the balance sheet in a gradual and predictable manner. It really hammers home that message very well. In addition, by eliminating the possibility of large runoffs in any given month, it should help reduce the chances that the process of normalizing the balance sheet will have adverse effects on market liquidity or cause outsized reactions in interest rates.

As discussed in the memo, the revised proposal has about the same profile for the expected date of normalization and remittances as the original proposal. So the smoother path in this approach seems to provide insurance against tail risks at very little, if any, cost. The approach is straightforward and, in my view, should be easy to communicate to the public, so that’s why I support it.

I think that, in terms of communication, releasing the augmented principles along these lines in June would allow the Chair to provide more detail during her press conference and would allow sufficient time for the market to absorb the information before the phaseout might begin.

A couple of thoughts: First, I guess I was thinking more of doing this in the fall for effect in the first quarter of next year. I think that’s preferable. Second, I think that when the market gets a look at just how gradual and predictable this is, it’s not likely to be any kind of a shock that would provoke some sort of another taper tantrum. So it isn’t clear to me that we should

take off the table the idea of a contemporaneous interest rate move. I would leave that possibility open. I was very pleased by the market's reception of the earlier discussion, and I think there's a decent chance that in this case there just isn't going to be a reaction, because of how gradual and predictable we're being.

Finally, we've had a large number of discussions about the long-run framework, which have shown a pretty strong consensus regarding some sort of a floor system, something that I favor. I like the language in the top half of exhibit 2, which, without using the term "floor system," refers very clearly to a floor system. So I like that language as written. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Williams.

MR. WILLIAMS. Thank you, Madam Chair. I agree. I think we have a good plan. Now, I could just stop there, but I've got a whole bunch of things to say. [Laughter]

At our March FOMC meeting, the prevailing view was that a change in our reinvestment policy would likely be appropriate later this year. We also reiterated the key elements of our strategy—reducing holdings in a gradual, predictable, and passive manner and primarily holding Treasury securities in the long run. And our FOMC statements have also set out a clear criterion for starting to draw down our balance sheet—that is, after normalization of the level of the federal funds rate is well under way. Again, I agree with all elements of that strategy.

Another key element of our normalization process that I support is keeping management of the balance sheet in the background, with the focus of policy actions and communications squarely on the funds rate. That implies that we should incorporate explicitly as part of our policy normalization statement that the stance of monetary policy will primarily be conveyed through adjustments in the range for the federal funds rate. At the same time, of course, we

should indicate that the Committee could restart reinvestments if required by severe deterioration in the economic outlook. So I agree with all of those elements.

Of course, at some point, we will need to decide on the level of reserves that we're going to hold in the long run, and the current policy normalization statement leaves open options for this choice of post-normalization operating procedure and the level of reserves. And although these decisions don't have to be made today or before we start reducing the balance sheet, there are some advantages to clarifying our views on the ultimate size of the balance sheet and our operating procedures sooner rather than later. So if we agree that we plan on continuing with a floor system, I think our communications should be forthright on that view even if we don't specify today or in the near future the precise expected future level of reserves. In that case, I actually would prefer even simpler language. I don't know why we're afraid of saying "floor system." I think people in the markets actually understand what that means, so my suggestion is to be explicit and say "At the end of the normalization process, the Committee expects the level of reserves will be sufficient to maintain the federal funds rate close to the target level without the need for regular open market operations." And I would just describe that as a floor system. I think it's simple—people will understand that.

Now, let me turn to some of the operational details. Although I support the phasing out of reinvestments and I understand the arguments for doing that, it may be a little bit of a "dovish" action by going out 18 months, which is further than a lot of people in the markets expect. This is going as slowly as we could possibly imagine, and I think this has some risk of communicating excessive trepidation on our part regarding the potential negative effects of normalization. Remember, it took us only 10 months to do the taper back in 2014. Again, I'm not going to argue forcefully against this, but I think 12 months would be plenty of time to

accomplish everything we've talked about. I think 18 months may be just belts and suspenders and maybe another pair of suspenders to make sure that there's no disruption associated with this.

We should structure the phaseout to facilitate clear communications. I prefer having the schedule of adjustments to the amounts of the principal payments established up front and not decided in a successive FOMC meeting unless, again, we have a fundamental change in the economic outlook. So, again, I think the proposed language is really good on this point.

I think that the caps are a much better solution to the problem. Some of the earlier versions of this were remarkably complicated. This is quite simple, and I agree with everybody who says it's really easy to explain. You have a predetermined, gradual, quarterly pace of adjustments that is symmetric in its treatment of agency MBS and Treasury securities, which I think makes that easy to explain. And it makes sense for the reasons that are in the memo.

In terms of the timing of communications, the minutes for this meeting will be taken by the market as something of an update, just as we saw with our March FOMC minutes. Of course, we need to formally communicate our intentions. It would be good to do so, as the Chair said, at the June meeting with some bullet points and in her press conference. As she said, if we can put out a policy normalization statement after the meeting, that will give the Chair an opportunity to discuss this at the press conference. I think it should include both the strategies and some of these higher-level operational features that are in this document.

Now, regarding future revisions to paragraph 5, we should use language that's consistent with our previous statements regarding the criterion for starting to reduce the balance sheet and avoid introducing new criteria. I think we can keep it short and sweet, for example, at the appropriate time by saying "Given realized and expected further progress in the normalization of

the level of the federal funds rate, the Committee now anticipates it likely will begin the process of phasing out reinvestment in all such securities before the end of the year.”

I know people will say, “Oh my goodness, he’s using date-based guidance here.” But I think—and I’ve mentioned that we’ve done it before—in this case, it is very appropriate because we want this to be in the background. We want this to be a passive part of our policy framework. By putting in a lot of conditionalities and “depending on the economic outlook” and all of that, I think you’re moving it to the front and adding uncertainty about this. Of course, that also argues for not making the statement until we’re very confident that we’re ready to do this. But I just think that, at the end of our careers, we will have to ruminate on how many times we did date-based guidance and accept that in certain circumstances, it is actually the appropriate thing to do. Thank you.

CHAIR YELLEN. Thank you. President Evans.

MR. EVANS. Thank you, Madam Chair. I think we’ve been well served by date-based guidance in so many cases, and often it’s taken once we hit a particular juncture.

All right. As I noted last time, as long as we accomplish our macroeconomic goals and reduce the balance sheet over three or four years, I do not have strong feelings on the precise details. I’m fine with the latest proposal. It reduces the balance sheet within an appropriate time frame. This proposal has an autopilot approach that puts the normalization process in the policy background. That’s the most important part. And the caps should avoid potential disruptions to Treasury and agency security markets.

Furthermore, by preannouncing such a mechanical rule, we keep appropriate distance between our balance sheet policy and future Treasury financing decisions. I agree with the suggestion that the Committee issue a refresher to our Policy Normalization Principles and Plans

that describes this phaseout schedule. I expect that we can afford to wait until the June or July FOMC meeting. That still gives plenty of forewarning for a change in reinvestment policy at either the September or the December meeting.

I like table 1 in the memo. It answered several questions for me. I think the Fed-watching public would benefit from seeing some version of column 1 of table 2. Other useful FAQ-type information could be included in the note as well.

Also, there's the question of what the update to the normalization principles should communicate about our long-run framework for monetary policy implementation. I guess we're coalescing around a floor system. I had written here, "Well, this is a momentous decision, and we ought to do this in our typical deliberate way, and maybe we need another agenda item to do this." Or maybe, I guess, we have a strong consensus here. But I would note that even if we're close to agreement on a floor, I think we are much further away from deciding the level of reserves needed to best operate a system. So when you say "floor system," it has so many different varieties that that's what I think we need to really talk about. There's a lot more we need to know before making that decision. Indeed, as we reduce our balance sheet, I expect that the staff and the Committee will learn a good deal more about reserve market functioning that would help us make this determination.

In any event, our policy of gradual balance sheet reduction means we're going to be operating with a large quantity of excess reserves for at least several more years. When we do update the principles, we can simply say that the Committee is still in the process of determining the appropriate longer-run level of reserves. I guess that means I prefer the bullet after the "or," as opposed to the bullet that's got "autonomous factors" in there.



On the question of when we should begin the reinvestment phaseout, if the economic outlook and federal funds rate path evolve in line with the current median SEP expectations, then I could see beginning the phaseout at the September or December FOMC meeting.

With regard to communications, I favor the generality in the first offering for paragraph 5 given in the communications plan memo.

Finally, I'm fine with releasing this guidance at the time we put out the update to the normalization principles. As I said earlier, if economic developments transpire in line with our current expectations, I could see doing so after the June or July FOMC meeting. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Mester.

MS. MESTER. Thank you, Madam Chair. Once again, I want to thank the staff for the helpful set of memos on reinvestment policy this time and last time.

Taking a step to end reinvestments is likely more important than the precise way we do it. Nonetheless, I see that my views are somewhat different from my colleagues', so let me put into context where I am.

Once we commence the plan, I think the bar should be high for deviating from it. Only if the economic outlook materially deteriorates and we begin reducing the funds rate further below its long-run level and the probability of nearing the effective lower bound rises significantly would I want us to consider restarting or increasing reinvestments. That is, we should reserve our passive balance sheet tool for when the economy exits a normal policy environment and use interest rates as our primary tool to respond to changes in economic and financial conditions.

I would like a high level of commitment to whatever plan we opt for, and I do have some preferences about that plan. So let me address the questions posed for discussion. First, on

phasing out reinvestments versus ceasing, my preference would be for ceasing reinvestments with little or no phaseout. Note that our normalization principles say we intend to reduce the size of the balance sheet in a gradual and predictable manner. We've made no commitment to use a phaseout of reinvestments. Given the pattern of redemptions, cessation is consistent with a gradual reduction in our balance sheet. The staff memos from our earlier discussion indicate that there's little difference in the macroeconomic effect, and that the markets and Treasury can handle the pattern of redemptions this would entail. I note that the redemption pattern regarding Treasury securities is certain because our Treasury security holdings are known.

If one wanted to smooth out the pattern of Treasury security redemptions, one could introduce a cap on Treasury securities that would remain in place as redemptions proceeded. An argument against cessation is if one thought it would more likely engender a reassessment of market expectations about the speed of withdrawal of accommodation—that is, create the next taper tantrum. I found Governor Fischer's recent speech about market expectations that drew on remarks of former Governor Jeremy Stein persuasive. In the period leading up to the mid-2013 taper tantrum, the median expectation about the timing of commencement of tapering aligned with Chairman Bernanke's communications. Nonetheless, there was a sharp rise in interest rates after the Chairman spoke. Such a reaction might have occurred if the market comprised agents with firmly held beliefs about the timing of tapering. Those who held a strong belief that quantitative easing would continue and tapering be delayed would have been surprised by the Chairman's communication and would have unwound their trades, leading to a spike in interest rates. This means that in assessing the probability of market reactions to policy communications, one needs to know not only the dispersion of beliefs across participants, but also the degree of uncertainty for each individual participant. There's considerable dispersion across participants,

but individual participants have firmly held beliefs and little uncertainty. This would imply a high likelihood there could be a sharp market reaction to a policy announcement that didn't confirm those beliefs, all else being equal.

As Governor Fischer indicated in his speech, the recent surveys of market participants show that the beliefs of individual participants are fairly diffuse. They assign a positive probability to a fairly wide range of outcomes. This would tend to lower the likelihood of a taper tantrum this time around, but it doesn't rule it out. But communicating the details of our plan early, before implementation, and giving guidance about the timing of implementation will be important in reducing this risk.

If cessation has little disadvantage over phaseout, does it have any advantages? I see a few. I think it would be clearer to communicate. It would make clear our commitment to reducing the size of the balance sheet, and this will help allay political concerns about the use of this tool. It would send a clearer signal of our confidence that the economy has returned to normal times. It would help underscore the point that we view short-term interest rates as our main policy tool, with the balance sheet reserved for extraordinary times of economic and financial stress. I don't believe we can appropriately commit to the phaseout plan. The slower the phaseout, the more likely the Committee could face a communications conundrum—having to lower rates while it is raising the amount of assets it lets run off its balance sheet. It might be very hard to keep a commitment to the reinvestment plan in this circumstance.

Now, while I prefer cessation, should the Committee decide a phaseout plan is preferable, I believe that dollar caps in the revised proposal are somewhat easier to communicate than the first proposal, although market participants who are the main audience for this could handle

either. I would argue for a shorter phaseout period under either proposal and therefore higher caps.

If the argument for phaseout over cessation is that it aligns better with market expectations and so is less likely to engender a taper tantrum, then one should align the phaseout period of market expectations, too. The May surveys of primary dealers and market participants indicate market participants expect a 12-month phaseout. So why not confirm their expectations with a less timid plan? Also, why not simplify and have equal caps on runoffs of Treasury securities and agency securities? It seems there's little to be gained with separate caps. And I note that the cap on MBS runoffs may not even be needed, because, as market rates rise, prepayments—and therefore redemptions—fall.

Regarding communications, I think it's important that we communicate well before we implement. And should sufficient agreement be reached on the plan, I would support communicating in June along the lines suggested in the staff memo, with a revision to the reinvestment paragraph 5 in the FOMC statement and with amendments to the normalization principles.

Regarding statement language, I don't believe we need to communicate a firm federal funds rate trigger or threshold, although I do think that the same conditions used to determine the appropriate target for the federal funds rate are the ones to determine a change to our reinvestment policy. I believe something along the lines of the first suggestion in the staff memo for paragraph 5 of the statement would work, because it links the change in reinvestment policy to evolving economic conditions that warrant an increase in the funds rate and gives an indication of the timing—in particular, before year-end.

Regarding the proposed amendments to the normalization principles, because the Committee really hasn't decided on its longer-run monetary policy framework, I think it's premature to indicate this in the principles. So I'd opt for the second version of the second bullet point unless we do have a further discussion and come to agreement.

The last bullet point in the phaseout version seems to run counter to the idea that we're committing to the reinvestment phaseout plan. It suggests we'll be adjusting the reinvestment plan at subsequent meetings as economic and financial conditions change. This seems counter to the reinvestment plan running in the background, so I'd drop this. I don't think it's needed, because the current version of the principles indicates that "the Committee is prepared to adjust the details of its approach to policy normalization in light of economic and financial developments." I prefer that we keep this, as it applies more generally and doesn't point to the reinvestments *per se*.

Finally, the staff memo did not indicate whether the FOMC statement will continue to have a paragraph on reinvestments after the plan is implemented. I'd opt for not including such a paragraph beyond commencement of a plan. This would help ensure that the public understands that the plan is running somewhat on autopilot, in the background. Obviously, any decisions to deviate from the plan would need to be communicated in the statement, but my hope is that those would be rare events. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Bullard.

MR. BULLARD. Thank you, Madam Chair. I've long argued that we should normalize monetary policy through balance sheet normalization first and interest rate normalization later. I thought that we should have normalized the yield curve effects—the "twist" effects on the yield curve that we got through balance sheet policy, at least according to our rhetoric. We didn't go

that way, and now I think we have some contradictions in how we're approaching policy. I think that, to an outsider, it looks like the balance sheet part of the policy is pretty easy or as easy as it was even at the height of the crisis, whereas we're proceeding with interest rate normalization and telling everyone that the economy is getting better. And I think this is, in my mind, not ideal. This is why I've been an advocate of getting going on normalizing the balance sheet. In my view, we're way behind schedule on this, so I do think we should get going.

I do think the revised proposal is reasonable, and I appreciate the staff efforts to put this together. I am struck by how cautious this is. This is quite cautious—maybe excessively cautious. Because it's a very cautious proposal and almost nothing happens during the early months of ending the reinvestment policy, I think we could actually move ahead with this quite quickly, perhaps during the summer. Frankly, I think it could be implemented right now without much effect because almost nothing happens initially.

There's been talk here about the taper and the worry that we might induce a taper tantrum. So let me give you "Jim's view of the taper tantrum," which is that I would like to remind the Committee that we actually did nothing in terms of tangible action in June 2013, nor did we take any tangible action in September 2013. The actual taper began only in December 2013, and, at that point, there was no ripple in global financial markets. In fact, the entire taper went on without incident, in my view.

What was happening at the time of June 2013 was all about communication and all about the unexpected effect on markets because they didn't realize what the Committee was thinking. And I'd just remind the Committee that the decision that day was to do nothing with the statement but to send the Chairman out to give a press conference that would explain how we were going to approach the taper. I think that didn't work out very well in retrospect, because

the Committee actually did not have a plan. But here we're talking about something that's well communicated and will be easily understood, and I would expect the whole thing to come off without much effect.

On a broader point, I think the Committee has to be realistic that we're probably going to have to consider quantitative easing at some point in the future. The policy rate probably will be driven back to the zero bound at the point of another recession. Recessions, I'm sure, have not gone away. So there will be one at some point in the future. And, in my opinion, we should be doing more to create the policy space that we're going to need to at least be able to entertain a possible quantitative easing program at that juncture. So, in my opinion, we should be doing more to create the policy space now by shrinking the size of the balance sheet during relatively good times. This proposal is okay, but it's generally extremely slow from the perspective of creating a better optionality for the Committee in future recession states. So I would be open to considering ways to speed this up in the future. I wouldn't do that now—we're trying to get the program under way—but it may be something that we want to consider further down the road. Thank you, Madam Chair.

CHAIR YELLEN. Okay. Thank you very much. I suggest we take a 10- or 15-minute coffee break. We're making good progress, and we'll come back and finish up.

[Coffee break]

CHAIR YELLEN. Okay, folks, let us resume. Our next speaker is Governor Fischer.

MR. FISCHER. Thank you, Madam Chair. I support the revised staff proposal for reinvestment policy and suspect that the market participants are sufficiently flexible to have been able to deal with the pre-revised proposal as well. But this one at least enables me to understand what's going on, so it's preferable.

I think that the key issue is going to be the communications, and that we should give them as much as we can once we affirm that we know it and not have some document hanging around here that is a full plan that we reveal no details of until a key moment. I think if we can feed it out, we'll probably do it better. Thank you, Madam Chair. Oh, and thank you to the team or teams that came up with these proposals.

CHAIR YELLEN. Okay. Thank you. Acting President Gooding.

MS. GOODING. Thank you. I support the staff's proposal to use increasing caps over an 18-month period to begin normalization of the balance sheet. Phasing out reinvestment seems a prudent approach to managing potential risk related to market function. The proposed plan will allow for maximum control over the pace of balance sheet shrinkage while also being gradual and predictable. In addition, it's similar to the plan used to taper purchases at the end of the most recent LSAP. For all of these reasons, the plan should allow for clear communication to, and understanding among, market participants.

I also support what seems to be the rough consensus of the Committee that beginning a phaseout of reinvestment later this year will be appropriate if the economy evolves as expected. In other words, the default right now, in my mind, is to begin, absent a change in the economic outlook. I do not support formally tying the beginning of the program to a particular level for the federal funds rate.

As an overarching principle, I would like to see the Committee communicate its intentions as soon as it is reasonably certain that beginning the phaseout is likely to occur within the next 12 months. Furthermore, I'm in favor of the Committee laying out its specific plans for how the phaseout will be implemented, including the planned pace and any plans to assess and potentially change implementation once under way.



Given these principles, I support the bullet points proposed by the staff for addition to the plans and principles document and would like to see this document released after the June FOMC meeting. If the consensus of the Committee in June is that phaseout will likely be appropriate later this year, inclusion of such language in the June FOMC statement would, in my mind, be worthy of consideration. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Madam Chair. I support the staff's revised plan, and I want to thank the staff for doing a good job and being flexible enough to revise their plan. I think this is a good improvement.

On account of the gradual nature of the plan over 18 months and the nature of the caps, I think I would be comfortable announcing this plan once we get to a meeting at which we raise the target range for the federal funds rate to 1 to 1¼ percent. So I guess I agree with President Rosengren. For me, under this plan, I'd be comfortable with that trigger, which I would assume would be either in June or September, although we'll see. Then, when we announce it, I would give probably a two- to three-month timetable telling the market we will start two to three months hence, and I'll come back to that in a moment.

Regarding the language on the quantity of reserve balances, I agree with the comments made by Governor Powell, Vice Chairman Dudley, and, with some amendments, President Williams. I'm comfortable with that language. And regarding the language in the second bullet point that suggests if there is a change in economic conditions, we might reverse course, I agree that it should be added, but I would insert the concept that it has to be a material future deterioration, not just a deterioration.

Stepping back, alluding to something that Governor Brainard talked about earlier, I would also say that my SEP submission has been based on the assumption that we begin the process of letting the balance sheet run off sometime this year. So my base case of three funds rate increases has that balance sheet runoff subsumed in it, and I assumed that it would be done gradually. That's what I've always assumed for my path of rates, so I agree with comments that have been made that we may want to have the option to separate the timing of our start of the process of letting the balance sheet run off from a federal funds increase. While I'd like that option, I want to make sure we don't promise or commit to a so-called pause, because, especially with this plan, I believe it overstates in the mind of the market the effect of ceasing reinvestments and the effect on the level of accommodation. I think if this plan is done as has been expressed, I would actually hope that we could do it in a way that materially limits the effect on those two markets. And those are my comments. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. President Harker.

MR. HARKER. Thank you, Madam Chair. As I mentioned in our previous go-round on this topic, the basic factors I see influencing the timing of normalization involve the level of the funds rate, the state of the economy relative to our goals, and the balance of risks facing the economy. While I would anticipate beginning the normalization process after one or, preferably, two more rate hikes, I also do not want to explicitly tie the timing of normalization to the level of the funds rate. I can also envision conditions evolving in a way that would make it desirable to start normalization later this year. This would imply the need for some form of communication in June, as others have discussed previously.

Although my modal forecast is that normalization will have only small effects on yields and market functioning, I do have concerns about the uncertainty surrounding that view. For that

reason, I do prefer the use of caps at the onset of normalization and for normalization to be tapered. That tapering can be more cleanly done by adjusting the caps as in the revised memo. I also appreciate the work by the staff and the willingness of the staff to listen to some of the feedback and revise the original proposal.

Regarding the caps on Treasury securities, they do seem to me to be a little bit conservative. We could start at \$10 billion or \$15 billion and work our way up to \$40 billion or \$50 billion unless the Desk indicates there would likely be operational problems with this larger cap. The Treasury securities market is well functioning, and \$40 billion to \$50 billion does not seem like a large amount relative to overall Treasury security issuance.

Communication of the simpler plan seems rather straightforward, especially in view of the sophistication of the target audience. I will, however, defer to the Desk on this issue, as they have the pulse of the market participants and understand the possible risks of a larger cap, although the larger cap would, I hope, accelerate the process a little bit, which I think is a helpful thing, as some others have mentioned.

To reiterate, the conditions for starting normalization are roughly those I expect to prevail close to the end of this year, when I anticipate the funds rate could be in the target range of 125 to 150 basis points. As I indicated, I do not favor explicitly linking the level of the funds rate with the start of normalization. First, communication would need to be carefully crafted to avoid confusion over whether the level of the federal funds rate that starts normalization is a threshold or a trigger. Second, a tie-in between the level of the funds rate and the start of normalization would raise the stakes on what should be mundane 25 basis point increases. It seems preferable to me to rely on data-contingent language in a manner analogous to that deployed for the federal funds rate. In that regard, I am in favor of communicating through the

release of additional bullets that summarize operational plans, with information being fleshed out in the Chair's June press briefing. As indicated, a more detailed explanation could be subsequently issued by the Desk, guaranteeing minimal market confusion.

I'm also in favor of releasing the likely timing of normalization in the bullets as well as in the FOMC statement. Doing so would place all of the basic information in one place. But because this is an important change in policy, it deserves to be included in the statement as well. I found the draft language on page 3 of the memo to be quite well done and strongly prefer the second paragraph after the "or"—that is, the simpler language. The first alternative, in my mind, goes into too much detail and commits the Committee to using a floor, and I want to come back to that in a minute. The second alternative is clear and concise. The last paragraph does the job of making normalization policy state contingent, which, due to the uncertainty I alluded to earlier in my remarks, makes, in my mind, perfect policy sense. I believe that communication along these lines will help avoid occurrences similar to what happened during the taper tantrum. My only disagreement is with the overly conservative approach taken with respect to the caps on Treasury securities and the question of whether they could be higher.

Finally, the proposed change to paragraph 5 of the statement seems well thought out and may very well be appropriate for the June policy statement. But I also agree with some others that the announcement of the phaseout should not be at a meeting at which we're also raising the federal funds rate. I think separating those two, as Vice Chairman Dudley said, makes some sense.

But I'd like to raise one additional issue that the Committee needs to come to grips with, and it's whether we end up operating in a floor system or a corridor system. Now, preliminary work at the Philadelphia Federal Reserve—and I really do want to emphasize "preliminary"—

drawing on a recent model of Afonso, Armenter, and Lester finds that in the current institutional environment, we could see ourselves operating firmly in a corridor with somewhere in the neighborhood of \$400 billion in reserves and could possibly enter a corridor with as much as \$1 trillion in excess reserves. If further work bears out these initial estimates, a corridor system would not suffer the operational costs associated with a very small quantity of reserves, and, in that case, political economy considerations might favor a corridor system.

Again, this is very preliminary work. But the reason I raise it—and they're going to continue research in this area—is that it implies to me that we should be careful about saying, in any statement we make, that we're going to be using a floor system, because we may not. We may say we want to use a floor system, but it may be that we'd actually be in a corridor system, if some of this work is even close to correct, under the level of reserves we're talking about. And that's another reason I would prefer the simpler language rather than trying to explain whether we're going to be using a corridor or a floor system. We will know that as we reduce the reserves over time. I'm not sure we necessarily need to state it publicly. Thank you, Madam Chair.

CHAIR YELLEN. Thank you. Acting President Mullinix.

MR. MULLINIX. Thank you, Madam Chair. Let me preface my comments on the staff's questions by saying that what seems most important to me is that our actions with regard to the balance sheet be well communicated, predictable, and, to the extent possible, divorced from the path of interest rates—or in the background, as Presidents Mester and Williams put it.

Assuming that interest rates continue along the upward path we currently expect, it appears that the economic differences between different approaches to winding down reinvestment are small. Accordingly, with regard to the first question, I would be comfortable

with the phaseout described in the April 28 staff memo. I would also be comfortable with the proposed caps.

With regard to the second question, on communications, I can see the case for an abundance of caution, which would warrant communicating the phaseout in a statement of principles and plans in the June press conference before we actually begin. In this spirit, I also believe, Madam Chair, announcing that the phaseout will commence in October at the September press conference seems to be a reasonable approach, assuming, of course, economic conditions continue to warrant it. Thank you.

CHAIR YELLEN. Thank you. Governor Brainard.

MS. BRAINARD. I support communicating the conditions under which the balance sheet would start to be reduced in paragraph 5 of our June statement and issuing a statement of principles and plans for balance sheet normalization at the June FOMC meeting. Let me take each in turn.

First, I prefer an approach that clearly and directly implements the statement language that was introduced in December 2015 and has remained in the statement since then. Under this approach, the Committee would simply need to clarify the level of the federal funds rate that it views as being consistent with normalization being well under way. This approach clearly ties the commencement of phasing out reinvestment to the federal funds rate, and thereby to economic conditions, rather than reintroducing time-contingent language, which has created challenges for us in the past and I view as unnecessary today.

The original intention of the “well under way” threshold was to ensure that our most proven tool, the federal funds rate, will have reached a level at which it can be cut, if needed, to buffer adverse shocks and thus help guard against the asymmetric risks associated with the

effective lower bound. At the time the language was discussed, the staff analysis suggested a threshold of 2 percent, which was midway to the SEP median of the longer-run value of the federal funds rate at that time. Since we originally introduced that language, the SEP median of the longer-run value of the federal funds rate has fallen to around 3 percent currently. With 3 percent as the longer-run value, it would seem simple, elegant, and economically compelling for the Committee simply to clarify that it views the “well under way” threshold as being midway to its longer-run equilibrium value.

Thus, I would prefer a simple amendment to the statement language along the following lines: “The Committee intends to commence phasing out reinvestments once normalization of the level of the federal funds rate is well under way, after the target range for the federal funds rate reaches  $1\frac{1}{4}$  to  $1\frac{1}{2}$  percent, midway to the expected longer-run federal funds rate.” The Chair could further clarify in the June press conference that, under the SEP median estimate, this would mean commencing the phaseout of reinvestment at the meeting or press conference meeting after the target for the federal funds rate has reached that range, which could be as soon as September if economic conditions evolve in line with the median SEP number. At the meeting when the federal funds rate is raised to that threshold, the statement could simply acknowledge that the Committee now judges that normalization is well under way—thus paving the way for the well-communicated change in reinvestment policy to commence at the subsequent meeting or press conference meeting.

On this matter, there has been some confusion as to whether the Committee would put adjustments in the federal funds rate on pause for some time during which the phasing out of balance sheet reinvestment gets under way. It would be prudent to clarify the Committee’s expectation that it will not adjust the federal funds rate at the meeting at which it commences the

phaseout of reinvestment, out of an abundance of caution, but that this would apply only to the initial change in balance sheet policy and not any subsequent meetings.

With regard to the statement of principles and plans, it's important to make clear that the balance sheet will, in general, be subordinate to the federal funds rate. So I support our clearly stating that the Committee will use changes in the target range for the federal funds rate as its primary means for adjusting the stance of monetary policy. Predictability, precision, and clarity of communications all argue in favor of this approach when the two tools are largely substitutes for one another.

Second, I like the approach that would cap monthly redemptions at a gradually increasing level over an 18-month period. In my view, this approach is the least likely to trigger an adverse market reaction or encounter market liquidity challenges, because it would gradually and predictably increase the amount of securities the market will be required to absorb each month while avoiding spikes. It also has an appealing symmetry in relation to the predictable dollar approach taken during the purchase process, as noted by President Rosengren. I appreciate the staff's effort to respond to our request for a predictable and gradual approach that avoids spikes and is easier to communicate. In addition, I'd be inclined to apply the change in our reinvestment policy symmetrically across Treasury securities and MBS as proposed.

Next, it's important for the principles to set expectations about the framework that will govern the size of the balance sheet once it reaches its "new normal." The Committee's deliberations suggest there is substantial support for maintaining the current floor framework for establishing the System's short-term interest rate target, especially because of its greater relative simplicity, and I favor stating this clearly in the normalization plans and principles. Of course, it's difficult to know with precision in advance the minimum level of reserves that will



efficiently and effectively implement monetary policy in a floor system. Ultimately, the Committee is likely to have to gauge the appropriate supply of excess reserves in the “new normal” by relying on monitoring money markets for indications that any further reduction in the supply of reserves would put upward pressure on money market rates as the balance sheet gradually declines.

Finally, while subordination of the balance sheet to the federal funds rate will be our baseline policy, it’s also important to indicate that there will be circumstances when we may need to rely on the balance sheet more actively. During the period when the balance sheet is running down, for instance, if the economy encounters material adverse shocks, it may be appropriate to commence the reinvestment of principal payments again in order to preserve conventional policy space. I support stating clearly that the Committee is prepared to use its full range of tools if future conditions warrant a more accommodative stance of policy than can be achieved through the use of the federal funds rate alone. Informing markets of our intentions in this regard could promote stability and resilience in the economy. Thank you, Madam Chair.

CHAIR YELLEN. Thank you very much. President George.

MS. GEORGE. Thank you, Madam Chair. I, too, support phasing out reinvestments along the lines of the revised staff proposal, with the sequence of increasing caps and redemptions throughout the normalization process. I do think there’s scope to consider a shorter phaseout horizon than 18 months—again, on the basis of the Desk survey of dealers and market participants, in which those expectations seem to be more in the one-year time frame.

In terms of the timing of this, I favor starting the phaseout process this year and support releasing the detailed information as outlined in the draft refresh of the Committee’s communications. Market expectations seem to be coalescing around some announcement in the

fourth quarter of this year regarding the reinvestment policy, and communicating relatively soon about the approach seems appropriate. So I support the idea of releasing the normalization principles with new bullets along with the statement and having the Chair speak to this at the press conference and, of course, using the minutes for additional context regarding these discussions today.

I think it's also important to communicate about this issue of the interaction between the funds rate and balance sheet normalization, and I liked Governor Brainard's proposal about using the SEP, perhaps, to think about how to explain that more in June. In terms of the proposed communications about reinvestment, I agree that at some point we'll need to address the longer-run size and composition of the balance sheet as well as how to determine the appropriate timing of phaseout of the ON RRP facility. Understanding that many participants did see advantages for a floor system when we talked about a long-run framework, I still think it's premature to foreshadow that direction, though, in our communications until we have an explicit decision about the long-run framework and thinking about the implications for its future use. For that reason, as we release new bullets augmenting the normalization principles, I prefer the third bullet over that second one, which reiterated that reductions of our securities holdings and reserves would be to levels "no larger than necessary to implement monetary policy efficiently and effectively."

Also, I would favor stating in the last bullet that reinvestments will resume only if the target for the federal funds rate is again constrained by the effective lower bound. This approach adheres to the principle of using the tools we understand best to their fullest extent before implementing other tools and conforms to the message we sent in the minutes of the November

meeting that signaled the balance sheet would not be used as an active tool away from the lower bound. Thank you.

CHAIR YELLEN. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Madam Chair. I struggle with these caps. At first, I liked them. The more I thought about them, the less excited I got about them, and here's why. First, substantively, I can't figure out why we need them. I think about Lorie's explanation about the Treasury market. The Treasury will know when these refundings are due. It can prefund. I don't see a market-functioning issue arising unless the U.S. government is running huge budget deficits—which is the Treasury's problem, not our problem, to deal with. Second, it's not like we're selling off our portfolio. This is literally the bond just coming due on schedule, so I don't really see how the caps are necessary for the Treasury securities market. And, by the way, there are lots of professors saying the world is short of safe assets, so I further don't see this as being a problem. If you take the MBS side of the market, the only way this is a problem is if rates drop and then people refinance quickly. But we've already said that if rates drop, we may suspend this program anyway. So I don't feel like this is a real problem that we're going to have in either the MBS market or the Treasury securities market. The best argument I have for caps or a phaseout is just a psychological one—that maybe, on the margin, it's less likely to trigger some form of a taper tantrum. And that may well be a good enough reason to do it, but, just hearing the arguments, I don't see a technical reason why we need to have these caps.

In terms of the specific questions, I would prefer a slightly shorter phaseout—12 months rather than 18—though I don't feel strongly about this.

I do support putting out something in June because the most important thing we can do is to give markets as much advance warning as possible so there are no surprises. And I would say

that if the Desk is going to put out some form of an operational memo, I would encourage that sooner, maybe even in June if it's ready, rather than delaying it.

I like the idea of making this date based. I agree with President Williams and others. Around year-end feels right to me. It gives markets plenty of advance warning. I don't like the idea of tying it to a federal funds rate hike, because that, then, becomes a momentous move, as opposed to just putting this in the background and letting it take its own course.

Lastly, I also agree with President Williams that if we're going to call it a floor system, let's just call it a floor system. When I saw "autonomous factors," it raised all sorts of questions in my mind: "What does this mean? Oh, it means a floor system." Why don't we just call it a floor system? Thank you.

CHAIR YELLEN. Okay. Vice Chairman.

VICE CHAIRMAN DUDLEY. I went at the beginning, and I've been listening to all of this discussion. I had just one comment. I said in my remarks that I was more in favor of an 18-month phaseout than 12 months because I want to minimize the risk of market disruption. But I heard that a lot of people around the table thought the 12-month was sufficiently good. I think there are a couple of points to make in favor of 12 months, so I'm going to make them, having listened to what everyone else said. The first reason is that you're not really fully phased out even after 12 months, because there are caps in place beyond that. So in some ways, it's really 12 months plus. The second advantage of 12 months is that you could end up with rounder numbers. I just did this back-of-the-envelope: If you did MBS starting with 4, you go 4, 8, 12, 16, and 20, and, for Treasury securities, you go 18, 16, 24, 32, and 40. To me, 40 and 20 feel sort of like more round numbers than the 21 and 35 that seem to be very arbitrary. It would be hard to explain to people that we had whole numbers, and we had seven increments, so that's

why we ended up with the 21 and 35. So I think I'd be open minded about going to 12 months with that kind of program. It also addresses President Harker's point that the market probably could absorb more than \$35 billion in Treasury securities a month, provided that there is enough time for the U.S. Treasury to adjust its debt management program. So I think that's a potential alternative.

CHAIR YELLEN. Agreed. Thank you for a very good discussion. I heard, I believe, unanimous support around the table for the idea that we should try to issue a set of bullets on our approach that we would discuss. Clearly, there are a couple of things that are important that we need to work out between now and the June meeting to make sure we can agree on the bullets. I think the issue of how long the phaseout period is, which many of you mentioned, is something we need to talk to the staff about and come back with a proposal. Also, the bullet that essentially says we'll use a floor system—although I heard considerable support for going to a floor system, I also heard some reservations about announcing that now. So I think we'll need to sit down and think about what the best approach is and come back to you in a timely fashion. Maybe we'll need some back-and-forth in order to make sure we can converge on what these bullets look like in the June meeting. We'll try to sort that out, but I did hear quite a bit of support for the general sort of approach that the staff has recommended and for issuing these bullets.

CHAIR YELLEN. I think that concludes our discussion of reinvestment policy. We have just a couple of administrative items to cover. First, I want to confirm that our next meeting will be Tuesday and Wednesday, June 13 and 14.

Second, I think you know that the staff has circulated a tentative schedule of meetings for 2018. If you haven't already done so, I would ask you to review that schedule and let the

Secretariat know by Friday whether that schedule is acceptable. We're hoping to release the schedule to the public next week.

Finally, I want to turn to Governor Fischer, who is going to brief you on a proposal by the communications subcommittee that would more closely align the securities trading blackout period—which is not a policy of the FOMC but is rather something that's approved by the Board of Governors and the Conference of Presidents—with the blackout period in the FOMC's external communications policies. So let me invite Governor Fischer to brief you on that.

MR. FISCHER. Thank you, Madam Chair. As everyone here knows, earlier this year, the FOMC advanced by a few days, or 50 percent, the start of the FOMC communications blackout period so that it now begins on the second Saturday before each regularly scheduled FOMC meeting.

The earlier start to the communications blackout aligns it with the distribution of draft monetary policy alternatives to Committee participants. The Federal Reserve has also long observed a securities trading blackout period, which was jointly approved in 1998 by the Board of Governors and the Conference of Presidents. A question has arisen—and I don't think we were fully aware of the question when we discussed the change in the communications blackout period—as to whether certain provisions of the securities trading blackout period should be aligned with corresponding provisions of the communications blackout period.

The subcommittee on communications met yesterday to consider a staff proposal on this matter. The subcommittee supports the staff proposal, which has three parts. And I'll now briefly summarize them. The subcommittee will forward to you—that is, the presidents and Governors—the staff memo that analyzes the issues and provides these three recommendations.

Number one, the start of the securities trading blackout period should be advanced to the second Saturday before FOMC meetings, aligning it with the start of the communications blackout period. The idea was, we moved it to Saturday because draft statements are distributed on the Friday evening, and that information must become available to a larger group than just the presidents—which group we’ll describe in a moment—and it didn’t seem appropriate for that information to be potentially usable by people who were making their own portfolio adjustments. We’re not, as far as I know, discussing people who spend their day at the Federal Reserve managing their own portfolios. These people, I assume, are those who make transactions from time to time when they reach a point at which they want to change their portfolios.

The staff recommends, and the subcommittee concurs—this is point two—that the conclusion of the securities trading blackout period should remain the end of the last day of the FOMC meeting rather than be pushed back one day to the end of the day after the meeting. Specifically, for the securities trading blackout period, the staff recommends that they be allowed to start trading on Thursday after the meeting, whereas the presidents, the members of the FOMC, and those System staff associated with it—we’ll come to whom this relates to in a moment—can’t start speaking in public until the Friday unless they happen to be the Chair. The purpose of this blackout period is—I don’t know how to say this politely—we want the message of the FOMC meeting decision to get out very clearly and not with a chorus of 12 or more saying things in the background that conceivably are not fully in tune with what the Chair and the postmeeting statement, jointly, say. So that’s why.

Now, the people who are covered by the securities trading blackout period will not be giving speeches. They’ll just be buying and selling securities, and presumably the market will

have adjusted by the end of Wednesday. So it doesn't much matter if they maintain a one-day difference in the concluding date with the presidents and members of the FOMC.

Finally, the securities trading blackout will obviously apply to all members of the Board of Governors, all Reserve Bank presidents, and all first vice presidents. For the staff, however, the coverage of the policy would be slightly broadened, aligning it with that of the main blackout provision of the communications policy. For example, it would apply to the staff who had access to Class I information pertinent to the previous FOMC meeting—not just the current meeting.

These are the proposals. With regard to governance, as the Chair said, this is a decision that has to be made separately by the Board of Governors and by the Conference of Presidents. We'll be sending the detailed proposal to you immediately after this meeting adjourns and would appreciate receiving your views by Friday, May 12, as to whether the changes that are proposed are acceptable to the Conference of Presidents. Okay. Thank you.

CHAIR YELLEN. Okay. Lunch is served. That concludes our meeting.

END OF MEETING