Meeting of the Federal Open Market Committee on December 18–19, 2018

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, December 18, 2018, at 1:00 p.m. and continued on Wednesday, December 19, 2018, at 9:00 a.m.

PRESENT:

Jerome H. Powell, Chairman
John C. Williams, Vice Chairman
Thomas I. Barkin
Raphael W. Bostic
Michelle W. Bowman
Lael Brainard
Richard H. Clarida
Mary C. Daly
Loretta J. Mester
Randal K. Quarles

James Bullard, Charles L. Evans, Esther L. George, Eric Rosengren, and Michael Strine, Alternate Members of the Federal Open Market Committee

Patrick Harker, Robert S. Kaplan, and Neel Kashkari, Presidents of the Federal Reserve Banks of Philadelphia, Dallas, and Minneapolis, respectively

James A. Clouse, Secretary
Matthew M. Luecke, Deputy Secretary
David W. Skidmore, Assistant Secretary
Michelle A. Smith, Assistant Secretary
Mark E. Van Der Weide, General Counsel
Michael Held, Deputy General Counsel
Steven B. Kamin, Economist
Thomas Laubach, Economist
David W. Wilcox, Economist

David Altig, Kartik B. Athreya, Thomas A. Connors, David E. Lebow, Trevor A. Reeve, 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

Matthew J. Eichner,[1] Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors; Michael S. Gibson, Director, Division of Supervision and Regulation, Board of Governors; Andreas Lehnert, Director, Division of Financial Stability, Board of Governors

Daniel M. Covitz, Deputy Director, Division of Research and Statistics, Board of Governors; Rochelle M. Edge, Deputy Director, Division of Monetary Affairs, Board of Governors; Michael T. Kiley, Deputy Director, Division of Financial Stability, Board of Governors

Jon Faust, Senior Special Adviser to the Chairman, Office of Board Members, Board of Governors

Antulio N. Bomfim, Special Adviser to the Chairman, Office of Board Members, Board of Governors

Brian M. Doyle, Joseph W. Gruber, Ellen E. Meade, 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

Shaghil Ahmed and Christopher J. Erceg, Senior Associate Directors, Division of International Finance, Board of Governors; Eric M. Engen, Senior Associate Director, Division of Research and Statistics, Board of Governors; Gretchen C. Weinbach,[2] Senior Associate Director, Division of Monetary Affairs, Board of Governors

Edward Nelson, Senior Adviser, Division of Monetary Affairs, Board of Governors

Marnie Gillis DeBoer,[2] David López-Salido, and Min Wei, Associate Directors, Division of Monetary Affairs, Board of Governors; John J. Stevens, Associate Director, Division of Research and Statistics, Board of Governors

Steven A. Sharpe, Deputy Associate Director, Division of Research and Statistics, Board of Governors; Jeffrey D. Walker,[1] Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Andrew Figura and John Sabelhaus, Assistant Directors, Division of Research and Statistics, Board of Governors; Christopher J. Gust,[3] Laura Lipscomb,[2] and Zeynep Senyuz,[2] Assistant Directors, Division of Monetary Affairs, Board of Governors

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

Penelope A. Beattie,[4] Assistant to the Secretary, Office of the Secretary, Board of Governors

[1] Attended through the discussion of developments in financial markets and open market operations.
[2] Attended through the discussion of the long-run monetary policy implementation frameworks.
[3] Attended the discussion of financial developments and open market operations through the close of the meeting.
[4] Attended Tuesday session only.

Michele Cavallo,[4] Section Chief, Division of Monetary Affairs, Board of Governors

Mark A. Carlson,[1] Senior Economic Project Manager, Division of Monetary Affairs, Board of Governors

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

Andrea Ajello and Alyssa G. Anderson,[2] Principal Economists, Division of Monetary Affairs, Board of Governors

Arsenios Skaperdas,[2] Economist, Division of Monetary Affairs, Board of Governors

Donielle A. Winford, Information Management Analyst, Division of Monetary Affairs, Board of Governors

Michael Dotsey, Sylvain Leduc, Daniel G. Sullivan, Geoffrey Tootell, and Christopher J. Waller, Executive Vice Presidents, Federal Reserve Banks of Philadelphia, San Francisco, Chicago, Boston, and St. Louis, respectively

Todd E. Clark, Evan F. Koenig, Antoine Martin, and Julie Ann Remache,[2] Senior Vice Presidents, Federal Reserve Banks of Cleveland, Dallas, New York, and New York, respectively

Roc Armenter,[2] Kathryn B. Chen,[2] Jonathan L. Willis, and Patricia Zobel,[2] Vice Presidents, Federal Reserve Banks of Philadelphia, New York, Kansas City, and New York, respectively

Gara Afonso[2] and William E. Riordan,[2] Assistant Vice Presidents, Federal Reserve Bank of New York.

Suraj Prasanna[2] and Lisa Stowe,[2] Markets Officers, Federal Reserve Bank of New York.

Samuel Schulhofer-Wohl,[1] Senior Economist and Research Advisor, Federal Reserve Bank of Chicago

Fabrizio Perri, Monetary Advisor, Federal Reserve Bank of Minneapolis

Transcript of the Federal Open Market Committee Meeting on December 18–19, 2018

December 18 Session

CHAIRMAN POWELL. Good afternoon, everyone, and welcome. As usual, today's meeting will be conducted as a joint meeting of the FOMC and the Board. I'll need a motion from a Board member to close the meeting.

MR. CLARIDA. So moved.

CHAIRMAN POWELL. Second?

MS. BRAINARD. Second.

CHAIRMAN POWELL. Without objection. Thank you. We've enjoyed having Governor Bowman here with us at the Board the past several weeks, and, today, I'd like to welcome her to her first official FOMC meeting. Miki brings with her broad experience in government as well as deep experience in banking, both as an executive of a community bank and as state banking commissioner. Miki, we look forward to benefiting from your perspectives on a wide range of issues. So join me in welcoming Miki, please. [Applause]

I'd like to also mention that this will be David Wilcox's final FOMC meeting before he retires early next year. Big news. And I'll have some congratulatory remarks for him at the end of the meeting, depending on how the meeting goes. [Laughter]

So let us now turn to our formal agenda. We'll begin with the long-run framework topic and with the staff briefings, which will be presented by Patricia Zobel, Mark Carlson, Kathryn Chen, and Sam Schulhofer-Wohl. Patricia, would you like to begin?

> MS. ZOBEL.[1] Thank you, Mr. Chairman. In November, Committee participants expressed a desire to transition to an operating regime that has a lower overall level of reserves. We have four presentations today that discuss considerations for the

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[1] The materials used by Ms. Zobel, Mr. Carlson, Ms. Chen, and Mr. Schulhofer-Wohl are appended to this transcript (appendix 1).

transition to lower reserves as well as the ultimate size and composition of the balance sheet. I will discuss how money markets might evolve, Mark will talk about approaches to interest rate control, Kathryn will discuss the long-run portfolio composition, and Sam will review potential ways to reduce the balance sheet and provide some key "takeaways."

For most of the past decade, money market rates have traded at a spread below IOER, as shown in figure 1 on exhibit 1 in your handout. This reflected a superabundance of reserves in the system. More recently, amid increases in Treasury debt issuance and ongoing declines in levels of reserve balances, money market rates have risen gradually relative to IOER, and most are now near or above IOER. As a result, a main form of overnight activity in recent years—banks taking deposits to hold reserves and earn IOER—has waned, and other money market dynamics have also started to shift.

As the level of reserves continues to decline, the federal funds rate is expected, at some point, to rise persistently above IOER. This may reflect more competitive deposit markets or some banks seeking short-term funding. It may also reflect continued high Treasury debt issuance or the LCR benefit of borrowing from Federal Home Loan Banks. However, if rates stay well connected to IOER, this will continue to be a system of abundant excess reserves, with IOER being the primary influence on money market rates. In some ways, it may be more like the floor that was expected when payment of interest on reserves was initiated in 2008.

We don't have perfect foresight on how money market rates will behave above IOER. There is a good chance that rates will rise very gradually. The FHLB system—which has broad reach across the banking system—will serve as an immediate source of funding for banks and can alleviate pressures in unsecured funding markets. In addition, the fact that banks with abundant reserves can lend in repo markets should help keep secured rates close to unsecured rates.

There is some risk, however, of increased rate volatility, even as reserves remain relatively abundant in aggregate. Most banks have not had to manage payment flows closely for many years, and some have meaningful changes to make in their business practices. In some circumstances, the FHLB system's capacity to accommodate funding needs may be insufficient, particularly for late-day payment shocks. And traditional bank lenders may require higher spreads than they did pre-crisis to redistribute reserves. These types of funding market pressures may abate, as market participants find more permanent funding sources.

At some point, higher or more volatile money market rates will indicate a steepening of the reserve demand curve. Distinguishing transitory pressures from permanent pressures related to an aggregate reserve need will be both a "science" and an "art," and we expect that there will be considerable learning during this process. The staff has detailed data and relationships across markets that should provide insight on conditions. I will briefly describe two areas of monitoring and outreach.

First, the staff is broadly monitoring unsecured and secured markets for any signs of reserves scarcity. For example, as shown in figure 2, we haven't yet seen a meaningful relationship between daily changes in reserve levels and changes in the federal funds rate. But if this arises—particularly on days when there are large changes in reserve supply—it may be one early indicator of emerging scarcity. Separately, in secured markets, we understand that banks with excess reserves are investing in repo when the spreads are attractive. Signs that banks are less willing to take advantage of these opportunities may suggest that reserves are less abundant.

Outreach and surveys also help the staff better understand banks' reserve positions and their reserve management strategies. Figure 3 shows, with the triangles, each bank's ratio of its lowest comfortable reserve level, as reported in the September Senior Financial Officer Survey, to its most recent 60-day median balance. As depicted, there is wide variation in how close banks are to their minimum levels. Some banks have already adapted their business models to hold fewer reserves and closely monitor flows, while others hold sizable reserve buffers that absorb payment shocks. In aggregate, banks have substantial reserve buffers. The minimums they reported will likely continue to evolve, and the staff will update these figures through outreach and additional surveys.

As shown in figure 4, aggregate reserve balances are projected to decline at an average pace of about $45 billion a month and reach $1 trillion in the second quarter of 2020. This is the staff's current rough estimate of the lowest level of reserves consistent with an abundant-reserves regime. There is considerable uncertainty associated with this level, though, and the steeper part of the reserve demand curve could be encountered earlier or later than that date.

There are several actions that the Committee could consider to help smooth the path to lower levels of reserves. Open market operations can be an effective tool to moderate large swings in reserve supply during periods when portfolio redemptions or changes in autonomous factors are particularly sizable. In this case, the overall pace of the decline would be maintained, but the smoothing out of daily changes could enhance interest rate control. In addition, as signs of scarcity are detected, the Committee could consider using open market operations to provide reserves while continuing to redeem longer-term assets at the current pace. This combination would be effectively slowing the pace of decline in reserves.

The Committee may also consider reducing the pace of portfolio redemptions or ceasing them altogether. This would most directly slow the pace of decline in reserves but may have some communication costs, as altering the speed of redemptions could be perceived as signaling a change in the stance of policy. Mark will now describe approaches that the Committee might take to control interest rates during the transition.

MR. CARLSON. Thank you, Patricia. I will refer to exhibit 2, which describes some options for mitigating potential risks to effective interest rate control that might be needed during the transition to a long-run operating regime. The options listed are presented such that the amount of action required by the Federal Reserve increases as one goes down the page.

For the past year, the balance sheet has been running off in accordance with the plans the Committee announced in mid-2017. This gradual and predictable decline helps market participants form expectations of the future supply of reserves and should encourage them to plan how they will manage their liquidity and should also support market functioning. If money markets adjust smoothly to lower reserve levels, then the Committee may not need to take additional steps to maintain a high degree of control over interest rates during the transition period.

If upward pressures on money market rates do materialize—owing to market frictions, transitory funding needs, inefficient distribution of reserves, or as the steep part of the demand curve is reached—there are existing tools that could help manage the risks to effective rate control. I will briefly discuss some of these tools.

The first is to continue to make technical adjustments to IOER. Doing so will provide more space for the policy rate to exceed IOER without moving out of the target range. Rates above IOER could also provide greater incentives for banks to adjust their operations and to economize on reserve holdings. However, there is limited space in which to reduce IOER further within the current range without considering other adjustments to the framework. In particular, there is a possibility that making the spread between IOER and the ON RRP rate too narrow could lead to higher take-up at the ON RRP at the expense of private money markets. There would be additional room to reduce IOER if the ON RRP rate were lowered below the bottom of the range. However, communications about such adjustments to the framework could be difficult because of the perception of the ON RRP rate as a hard floor.

Primary credit can help deal with funding market pressures, especially those related to market frictions and distributional issues. However, the current rate—set 50 basis points above the top of the target range—may be too high to limit upward pressure on rates. In addition, stigma associated with borrowing at the window—which partly reflects concerns about the signal associated with borrowing at a rate well above typical market rates—may further limit the ability of primary credit to curb upward pressure on rates.

If those adjustments are not sufficient, then there are some additional measures available to the Committee. First, the width of the target range could be widened. That could signal that the Committee is willing to tolerate some volatility without changing the stance of policy and also provides space in which to use other tools—for instance, the Committee could lower the bottom of the range, reduce the ON RRP rate to the new bottom of the range, and have more space to make adjustments to IOER—but widening the range may make communications about the stance of policy more difficult.

As discussed by Patricia, the Committee could also smooth or slow the pace at which it is shrinking reserves once it begins to see signs of upward pressure on rates.

Fixed-quantity open market operations could be used as a way of temporarily adding reserves. Such operations could be used to smooth the effect of declining reserves, to respond to predictable exogenous pressures—such as heightened Treasury bill issuance—or to add some reserves back when there are signs that the steep part of the demand curve may have been reached. However, some temporary pressures could be difficult to predict, and calibrating discretionary operations to offset these pressures could be challenging. In addition, such operations might not be effective if reserves provided through open market operations did not land at the banks that need them, and it is not clear how efficiently they would be redistributed. For instance, it might take some time for banks to rebuild their interbank lending relationships.

If the Committee were concerned that these incremental measures might not mitigate the risks to effective interest rate control, it could consider new approaches that would provide a firmer ceiling on rates. Such approaches would be of a fixed-rate full-allotment nature. In that case, one key question would be the position of the ceiling operation rate. The rate could be set at the top of the target range. This would help keep interest rates within the range; but if the ceiling rate were set too close to IOER, then that might result in the Federal Reserve providing a relatively large amount of funding on an ongoing basis. Alternatively, the rate could be set well above IOER. This would leave more room for rates to rise above IOER, perhaps providing greater incentives for market participants to adjust to the longer-run regime, but increases the possibility of volatility in funding markets.

Ceiling operations could be conducted using the Federal Reserve's open market operation authority, its discount window authority, or both (by offering two parallel operations). A ceiling tool under open market operation authority could involve fixed-rate full-allotment repo operations, with the primary dealers using OMO-eligible collateral. It would be relatively straightforward to communicate the message that such a tool is for monetary policy purposes, and such a tool is less likely to be affected by stigma. But, as with traditional fixed-quantity open market operations, this may not be fully effective if the rate pressures are related to distributional issues at banks. It would be helpful to expand the set of counterparties to include banks. This would help reduce distributional problems and increase the effectiveness of the ceiling tool. But it is likely to require significant lead time to establish a broad set of bank counterparties, and operational constraints would likely limit repo counterparties to larger banks.

Discount window authority could also be used to help establish a ceiling or to limit upward pressures on rates. In this case, transactions would be directly with banks; this would facilitate liquidity distribution. A discount window ceiling could be established by simply lowering the primary credit rate. However, the primary credit facility suffers from a stigma problem, especially among larger banks. It is possible that the stigma issue might be partly mitigated by establishing a new lending program labeled as being related to the transition period and featuring a lower lending rate but that in other respects closely resembles primary credit. The new program could be further distinguished from primary credit by limiting the number of draws over a particular time interval. Another option for distinguishing a new program from primary credit would be to limit acceptable collateral to high-quality assets, such as OMO-eligible collateral. This would help communicate the fact that any lending is for monetary policy purposes; however, most OMO-eligible collateral is pledged by large banks, so smaller banks might have limited ability to access this program. Kathryn will now discuss options for the composition of asset holdings.

MS. CHEN. Thank you, Mark. The SOMA domestic portfolio has declined almost $350 billion since October 2017 and is anticipated to decline further to its long-run size within the next few years. Today, agency MBS represent a large share of portfolio holdings, and the overall portfolio is much more heavily weighted toward longer-dated Treasury securities, including those with 10 to 30 years to maturity, than it was in the past. Therefore, you may wish to consider options regarding long-run asset composition and portfolio management, as well as how these choices might be communicated to the public to support a smooth transition. I'll discuss options related to sales of MBS and the maturity composition of the Treasury securities portfolio in turn.

When the size of the portfolio has normalized, MBS are expected to make up about 40 percent of the asset holdings. After the transition to a system with lower reserve levels, you may wish to consider whether you prefer to more quickly return to a "primarily Treasuries" portfolio by gradually selling MBS in addition to allowing MBS paydowns, or whether you are comfortable with letting the MBS holdings passively run off over an extended period through only principal payments. For example, a modest program of MBS sales that begins after the normalization of the size of the portfolio and that reduces the portfolio $20 billion per month through sales and paydowns could extinguish the portfolio within about six years. Without sales, it is likely that MBS will remain a substantial portion of the portfolio for some time, as shown in panel 1 of exhibit 3. The Policy Normalization Principles and Plans stated that "the Committee does not anticipate selling agency mortgage-backed securities as part of the normalization process" but noted the possibility of sales of residual MBS holdings.

Even if you prefer to reduce MBS holdings more quickly by incorporating a program of modest MBS sales, you may still want to hold some small amount of MBS in the long run. Holding a small MBS portfolio would help maintain operational readiness should MBS purchases be desired in the future.

With regard to the Treasury securities portfolio, as shown in panel 2, the average maturity of the portfolio lengthened over the past decade—a direct consequence of the large-scale purchases of longer-term securities and the maturity extension program conducted in the wake of the Global Financial Crisis. Once the supply of reserves reaches the point of normalization, the Desk will need to begin to purchase Treasuries to keep pace with balance sheet growth and to reinvest proceeds received from MBS paydowns and maturing Treasury securities. As we approach this point, you may want to consider objectives for the long-run portfolio as well as approaches the Desk should use to reach the desired composition. This would allow the staff to formulate more detailed strategies regarding how to manage the portfolio in line with these objectives; additionally, you may want to communicate a strategy to the market in advance.

I'll discuss two objectives that you might want to emphasize: neutrality and flexibility. Different weightings of these objectives would result in different portfolio compositions. You may choose simply to hold a portfolio that broadly reflects the outstanding maturity structure in the Treasury securities market. You might prefer this composition if you want to prioritize the objective of market neutrality—in other words, not having a disproportionate effect on any segment of the Treasury yield curve. Under the current composition of Treasury securities outstanding, this portfolio would have approximately six years to maturity overall and about 15 percent held in Treasury bills. Or you may prefer to hold a greater proportion of short-dated securities. This would be consistent with greater weight on the flexibility objective. Pre-crisis, prioritization of this objective led to a portfolio more heavily weighted toward short-dated securities than the overall market, as is also illustrated by Figure 2. The motivation then was the desire to be able to quickly contract the portfolio without sales in order to offset a potential large provision of liquidity through the discount window. As you go forward, the rationale for a relatively short-dated portfolio in an abundant-reserves regime may be the desire to have significant holdings of securities that could easily be sold or allowed to mature as part of a maturity extension program, or MEP.

A key decision, then, would be to determine how many bills are needed to satisfy this objective and what the potential considerations are for a portfolio that is more heavily weighted toward bills. For example, staff projections suggest that a portfolio with a maturity distribution that roughly matches that of the Treasury securities market would allow for an MEP similar in size relative to GDP as the one conducted in 2011 and 2012; the "flexibility" scenario described in the memo provides the ammunition to conduct a larger MEP.

On the other hand, holding a portfolio weighted toward short-dated securities could lower Federal Reserve net income. Also, if the Federal Reserve chose to hold a large share of its portfolio in the form of bills, there could be an effect on bill yields, and the Treasury may then need to make adjustments to its debt management practices.

The operations to realign the composition of the portfolio to the long-run target allocation could be done in a "passive" or "active" manner. These polar approaches imply different timelines for achieving the desired composition. The passive approach, involving the long-standing method of reinvesting maturing holdings at auction, constrains the ability to achieve, quickly, desired allocations—that is, because reinvestment purchases would be driven to a large extent by how SOMA maturities line up with issuance of new securities. On the other hand, an active approach, in which all reinvestments are conducted in the secondary market, would provide greater ability to select which maturities on which to concentrate purchases and in what proportions—and therefore would achieve a desired composition more quickly. Other options in between these approaches are also possible, including altering the current proportional rollover method to be weighted toward short-dated securities. Of course, many of these decisions could interact with the Treasury's debt management decisions and have broader market effects. Should policymakers wish, the staff could return with more detailed discussion of approaches that span from less to more active. Sam will now discuss considerations related to the overall size of the balance sheet.

MR. SCHULHOFER-WOHL. Thank you, Kathryn. The preceding presentations described how you might transition to a long-run operating regime and asset portfolio. I'll now turn to steps you could take if remaining in a regime of abundant excess reserves appears initially to require keeping the balance sheet larger than you would like.

Since the end of the financial crisis, the size of the balance sheet has been determined in large part by decisions about asset purchases for economic stimulus. In the long run, as asset holdings unwind, factors affecting the size of liabilities will become more important determinants of the total balance sheet. The upper panel of your fourth exhibit breaks down the Federal Reserve's liabilities. I'll touch on the most significant ones.

Reserves are currently the largest liability item, about $1.8 trillion. Reserve balances allow banks to absorb payment flows without borrowing funds or selling assets. Banks say they want to hold notably higher reserve balances than pre-crisis because of decreases in their risk appetite, new approaches to liquidity management, and the payment of interest on reserves. However, in the aggregate, banks say they would be comfortable holding substantially lower balances than at present even if market interest rates remained near the rate on excess reserves.

Federal Reserve notes in circulation have roughly doubled since the crisis, to about $1.7 trillion. U.S. currency is an important store of value and medium of exchange, both domestically and abroad. With the supply of reserves falling and currency in circulation continuing to grow, Federal Reserve notes will soon resume their historical position as the largest liability item.

The Treasury General Account and liabilities to foreign official institutions have also grown, as both the Treasury and foreign central banks have sought to increase their liquidity buffers.

If Federal Reserve policymakers wanted to reduce total liabilities—and I'll note that some liabilities are under the purview of the FOMC, while others would require action by other governance bodies or other agencies entirely—there are three broad avenues you could pursue. You could try to reduce banks' demand for reserves. You could try to operate closer to the steep portion of the reserve demand curve. Or you could try to reduce nonreserve liabilities. In a recent memo, we cataloged many possible steps along these lines, and we would be prepared to carry out more complete analysis of any options that you find of particular interest.

That said, each of the Federal Reserve's liabilities plays an important role as a safe and liquid asset for the public, banks, the government, or other institutions. If you considered reducing any of the liabilities, you would need to weigh the social benefit of that liability against the perceived cost of the additional balance sheet required. Also, most of the available approaches would reduce the size of the balance sheet only in the long run, and some could be challenging to implement.

Another avenue would involve placing the size of the balance sheet in better context for the public. One way to do so would be to emphasize in your communications the balance sheet's size relative to GDP rather than in nominal dollars. The lower panel of your fourth exhibit provides some international context. Our balance sheet is about 20 percent of GDP. This is smaller, relative to GDP, than the balance sheets of other reserve-currency central banks currently operating in a system of abundant bank reserves, such as the European Central Bank, the Bank of Japan, and the Bank of England. Of course, the Federal Reserve is much further along than these central banks in the process of normalizing its monetary policy after the crisis.

We might learn a bit about what's possible in the long run in an abundant-excess-reserves regime by looking at the central banks of Norway and New Zealand. Both aim to operate at a relatively low level of abundant reserves, both have much less currency in circulation than we do relative to the size of their economies, and both have balance sheets that are modestly smaller than ours relative to GDP. By way of contrast, our balance sheet is more than twice as big relative to GDP as those of the Bank of Canada and the Reserve Bank of Australia, which operate systems of limited excess reserves. Let me stress, though, that any international comparison of central bank balance sheets is only suggestive at best because of the large differences in financial systems around the world.

You might also emphasize in your communications the portions of the balance sheet that are under the direct control of monetary policy—in particular, the supply of reserves and reserve-like liabilities such as ON RRP balances. You could de-emphasize the total size, which also depends importantly on currency growth and the Treasury's decisions about the size of its General Account—both of which have much less to do with monetary policy.

Let me conclude by summarizing the policy tradeoffs that our briefings today have raised. The broadest tradeoff is between the costs of a large balance sheet and the benefits of providing reserves or other liabilities. I just discussed that tradeoff in terms of the long-run balance sheet, but it also exists during the transition. After all, if you were indifferent to the size of the balance sheet, you could simply stop the reduction in reserve supply now and greatly limit the risk of rate volatility. If you want instead to explore the lowest level of reserves necessary for efficient and effective policy implementation, there are several important considerations. First, what is your tolerance for volatility or upward pressures in the policy rate? Second, strategies are available that could provide some insurance against those pressures, including smoothing or slowing the pace of decline in reserves, adjusting the target range, and conducting various operations. Do you see the benefits of that insurance as worth the costs of providing it? Third, as you approach the steeper part of the demand curve, how do you weigh the costs of insuring against turbulence against the costs of steps to reduce reserve demand or limit other liabilities, or just bearing any costs that may come with a large balance sheet? Lastly, you could also consider whether your choices about asset composition might have some of the same benefits, in terms of policy space, as operating with a smaller balance sheet.

That concludes our prepared remarks. We would be happy to take questions and would welcome your thoughts on topics that would be worthwhile to pursue further.

CHAIRMAN POWELL. Thanks very much. So now, any questions of the staff before we move on to the opportunity to comment?

MR. ROSENGREN. Just one question on that last point. When you think of the United States as being a reserve currency, I wonder whether the comparison with small countries abroad is quite as relevant. And I wonder if breaking down the liabilities between those domestically-held and foreign-held—if foreign countries or foreign individuals want to make interest-free loans to the United States, that doesn't seem like something that we should be discouraging; we should encourage as much interest-free lending as they want to provide. [Laughter] So I think there are some aspects of this that, if we're thinking about communications, we could communicate a little bit more about.

CHAIRMAN POWELL. Thank you. Further questions for the staff? [No response] Okay. Seeing none, let's move to the opportunity to comment on the long-run framework memos and related issues, and we'll begin with President Harker.

MR. HARKER. Thank you, Mr. Chair. And thanks to the staff—all the staff working on these memos on the long-run framework. It was really another excellent analysis.

Now, as we approach the final leg of normalization, we face a lot of uncertainty surrounding the demand for reserves, as has been mentioned, and also market functioning and, ultimately, as has been discussed, interest rate control.

Some time ago, I said publicly that we would make the balance sheet normalization as boring as "watching paint dry." Well, it looks like it's a little more interesting than that right now. We may not be able to resolve all the uncertainty ahead of time, but I think what we can do is to insulate the asset side of the balance sheet from some of the uncertainty stemming from the liability side. We could stop redemptions at a prudent level of reserves—somewhere in the upper range of the estimates for the minimum required for a floor system. We would then keep total assets constant via reinvestments, letting reserves slowly decline with currency growth. When we assess that reserves are at their desired level, we then reinitiate asset purchases. This plan would effectively decouple the normalization of the size of the balance sheet from the normalization of the supply of reserves and, thus, remove a lot of uncertainty regarding the future path of our asset holdings.

Proceeding in this fairly prudent manner would ultimately allow us to better ascertain the minimum quantity of reserves necessary for conducting monetary policy effectively and efficiently. The slower pace in the decline of reserves will assist the staff's monitoring efforts and decrease some of the risk associated with uncertainty, like an abrupt or premature end to the normalization. It would also buy us some time to develop initiatives to curb the demand for reserves and improve interest rate control. More importantly, this approach would enable us to communicate our plans both clearly and in advance. Doing so would allow markets and depository institutions to better prepare for a more proactive management of reserves and would ultimately reduce the risk of encountering unexpected behavior that could be difficult to interpret. It would also be in keeping with our commitment toward greater transparency.

Now, the downside is that the minimum level of reserves would be achieved later, with the risk that this entails. Preliminary simulations made by our staff in Philadelphia indicate that if we stop redemptions a year from now, for example, at around $1.2 trillion in reserves, we would reach $1 trillion in reserves just about a year and a half later than in the baseline Tealbook projection. The difference in the overall balance sheet size is quite small, though, and only temporary. However, if the minimum level of reserves turns out to be much lower than expected, the delay can be substantial and the differences quite large.

Overall, I believe that there is no need to pass through all of the uncertainty surrounding the demand for reserves to the asset side of the balance sheet. An early stop to redemptions followed by reinvestments decouples the normalization of total asset holdings from that of reserves, decreases risks, and enables us to communicate better and ahead of time. In other words, we'd be making normalization boring again, though I'm not going to make a hat saying those words. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I'd like to thank the staff for preparing these memos on how we might effectively manage our transition to a long-run operating regime. The memos outline a number of concerns related to the transition and provide several options for how to deal with these concerns. To reiterate a point I've made before: We believe that any number of the options proposed can be consistent with achieving our dual mandate effectively. Therefore, the choices before us should be determined primarily by operational efficiency, ease of public communications, and mitigating political repercussions.

The St. Louis Fed continues to support a corridor system with ample reserves as the best operating regime. It is worth noting that the corridor system is not an experimental design—it is used extensively and effectively by many other central banks today. We believe that a corridor system should serve us well, both in the long run and in the transition. The corridor would have two permanent standing facilities, with a reverse repo rate setting the floor and a repo rate setting the ceiling. These facilities should be made available to a wide range of counterparties, including, at the very least, depository institutions.

The prospect of converting Treasury securities rapidly into reserves on demand at the repo facility should, in our estimation, greatly reduce the demand for reserves—consistent with the 2014 Policy Normalization Principles and Plans of minimizing the level of reserves necessary for the effective and efficient implementation of monetary policy.

While not essential, the IOER rate could be set to zero and required reserves could be paid interest. Ample reserves in the context of this system means nearly, but not completely, satiating the demand for reserves, so that the targeted money market rate remains just above the reverse repo floor rate.

Our preferred policy framework does not let us determine the ultimate size of reserve balances. The supply of reserves will be whatever is needed to achieve the interest rate control in a corridor system with money market rates trading near the floor. Before 2008, reserve balances averaged around $10 billion. By 2014, they had risen to $2.8 trillion and have since declined to a present level just above $1.7 trillion.

The fact that the effective federal funds rate has recently risen to the IOER rate suggests that reserves may already be minimally abundant. That reserves of this magnitude appear necessary for the conduct of monetary policy today largely reflects an enhanced post-crisis regulatory demand for liquidity among banks. Any effort made on our part to enhance the economic or regulatory liquidity of Treasury securities should serve to reduce the demand for reserves in a manner consistent with our Policy Normalization Principles and Plans.

In terms of the long-run composition of assets in the SOMA, we prefer a Treasuries-only portfolio with a maturity profile roughly consistent with that of the outstanding supply of U.S. Treasury securities. The current redemption policy appears to have been absorbed smoothly in money markets. We support continuing with the current runoff pace and composition, with careful monitoring as additional reserves are drained. If anything, we would prefer to see a more rapid decline in the portion of the SOMA portfolio consisting of MBS while maintaining the current overall pace of balance sheet runoff.

As I mentioned earlier, we believe that our preferred operating framework will serve us well in transition. The primary concern in transition is how money market rates will behave as reserves are drained. Although fixed-quantity open market operations may possibly be used to smooth unwanted spikes in money market rates, this action would require the Desk to monitor and know exactly what quantity to inject at the appropriate time. We think a permanent repo facility will manage the risk in a more effective and systematic manner.

There are many outstanding issues associated with implementing a corridor system, especially in regard to the repo facility. It would be desirable for the staff to report back to policymakers on how soon such a facility could be implemented and what parameter decisions need to be made—such as the offering rate, counterparties, capacity limits, and so on. Again, I want to thank the staff for their excellent work, and I look forward to reading their forthcoming analysis in this area. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chairman. As I emphasized at the previous FOMC meeting, I think our communications on the implementation framework should focus on principles. In particular, the framework should focus on facilitating monetary policy transmission, should be able to address effectively a likely return to the effective lower bound, and should be able to address significant changes in the demand for reserves. Consistent with those principles, I have three brief comments on the memos.

First, when determining how to allocate our balance sheet, I would skew the composition of the balance sheet toward shorter-maturity Treasury securities, so we have the flexibility to lengthen the maturity of our balance sheet during economic downturns. Moving to a portfolio more heavily weighted toward Treasury bills would give us the flexibility to use duration extension as a way to lower longer-term interest rates as a countercyclical tool, especially when we are near or at the effective lower bound.

Second, I agree we should be doing much more communicating about the balance sheet. Some of the options discussed in the staff memos would have us take actions that minimize political-economy concerns about the size and volatility of our balance sheet but incur costs in the form of increased variability of short-term rates, perhaps weakening the monetary transmission mechanism. I would prefer to highlight the fact that our balance sheet grows for natural reasons—such as rising demand for currency as the economy expands—and the point that the Federal Reserve's balance sheet is quite small relative to GDP compared with many other countries.

Third, we should adopt a framework that enforces more of a ceiling on rates. I might first try to use a primary credit rate to act as a ceiling on the federal funds or OBFR rate. To do so, we would likely need to reduce the spread between the primary credit rate and the top of the policy rate range. Should that be less effective than we wish, perhaps because banks are leery of borrowing from the discount window on account of stigma, we should be prepared to put in place a standing repo facility. Such a facility might reach a smaller set of counterparties than the window, but those it did reach would be among the largest and most influential in determining short-term market rates. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. At our previous meeting, there seemed to be an emerging consensus favoring an abundant-reserves framework but also a desire to reduce the size of the balance sheet. The reduction would demonstrate that the FOMC was able to unwind the LSAPs. This might help to engender public acceptance of this tool and ensure its future availability.

Due to the uncertainty about the level of reserves at which the demand curve flattens, it’s possible there could be tension between the desire to use an abundant-reserves framework and a desire to reduce the size of the balance sheet. And we each may have different preferences over which of these goals should dominate.

Before we can make a decision about the operating framework and communicate it, we’re going to need to confront this issue. At this point, the staff estimates that reserves can be reduced further by $700 billion to $800 billion from current levels to about $1 trillion. The staff’s dashboard of indicators suggests that we haven’t reached the point of scarcity of reserves. This set of indicators and the planned regular outreach to market participants will help us in getting, over time, a better sense of where the boundary lies between abundant and scarce reserves.

In transitioning to a smaller balance sheet, I would not support altering the current pace of redemptions of Treasuries and MBS in the SOMA portfolio. Maintaining the pace should help convey the fact that, as planned, we are following through with unwinding LSAPs, and we want our balance sheet to be no larger than is necessary to effectively implement monetary policy.

A change in the announced redemption pace could be misinterpreted as a change in the stance of monetary policy. If it becomes necessary to slow the pace of reserves decline temporarily, fixed-quantity open market operations will help preserve a distinction between this unwinding and normal monetary policy.

If it turns out there is less scope for reductions in the size of the balance sheet than currently anticipated, I believe appropriate communications could help ensure that LSAPs remain a viable tool for the future.

I endorse the suggestions in the memos about putting the size of our balance sheet into context, better explaining the sources of demand for the liabilities on our balance sheet, and explaining why our balance sheet will be larger than it was before the crisis. We can do this now, even though we have yet to determine our desired operating framework. It’s not too early to put together a communications plan.

Regarding the transition to a smaller balance sheet, one fundamental question is, how much of the burden of adjustment should be placed on the market and how much on the FOMC? My expectation is that the market will be able to adapt quite well. I doubt that it would be hard for banks to ramp up their activity in the federal funds market, if need be. The Cleveland staff’s analysis indicates that all of the very large banks and 70 percent of all commercial banks have been active in the federal funds market each year since 2008. They have maintained staff and systems to trade federal funds. Before deciding whether the Federal Reserve should develop new facilities and intervene, I'd like to see more assessment of a likely market adjustment.

Another fundamental question is, how much policy rate volatility should we be willing to accept? How much volatility is compatible with interest rate control? Presumably, volatility can be expected to be higher than it has been for much of the post-crisis period, when volatility across all markets has been extremely low by historical standards. Since 2010, the daily absolute deviation of the effective federal funds rate from the midpoint of the target range has averaged just 3 basis points. Volatility used to be much higher, with average daily absolute deviations of 24 basis points in the 1980s, 14 in the 1990s, and 7 in the 2000s. It's possible we might be able to have adequate monetary control even without new facilities.

While widening the target range to 35 basis points may be a way to signal that during the transition we expect to see more volatility, if we miss that wider range it could undermine our credibility. I'd like to see more staff analysis of volatility to get a better sense of whether additional rate control facilities will be needed. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I'd like to thank the team for an excellent set of memos. They helped me better understand a number of tricky issues associated with our goal of getting to the smallest balance sheet at which we can efficiently and effectively implement monetary policy. But perhaps my biggest "takeaway" is the same one I had from our discussions last round. There are significant advantages to operating monetary policy in a regime with abundant enough reserves to confidently keep us on the flat part of the reserve demand curve. Such a regime allows us to closely control the target interest rate in a way that is operationally simple, provides financial stability benefits, and works well in normal times as well as in circumstances that take us to the effective lower bound.

Of course, our Policy Normalization Principles and Plans indicated that we aim to hold no more securities than was necessary for the efficient and effective implementation of monetary policy. This commitment means we should probe for the lowest level of reserves at which the demand curve is still reliably flat. But we need to be mindful of the fact that the “efficient and effective” criterion would not be met if we spent a lot of time on the steeply sloping portion of the reserve demand curve. We should also not forget another benefit of abundant reserves—namely, the role of reserves in providing liquidity buffers. Without an adequate substitute, we don’t want to negate this important financial-stability benefit by reducing reserves too much.

I had mentioned benefits. What about the cost side of the larger balance sheet? Basic Milton Friedman monetary economics says that creating reserves uses no resources and has zero marginal cost. So reserves shouldn’t be made unnecessarily scarce unless there are other important costs neglected in this accounting.

I understand that several on the Committee see some costs in terms of external criticisms of a large balance sheet. Needless to say, these costs lie outside the realm of standard monetary accounting. Perhaps it is reasonable to give up some degree of economic efficiency and allow more complexity, in order to avoid these political-economy-like costs. But when deciding the long-run level of reserves that we should aim for in order to conduct monetary policy, my preference would be to put more emphasis on efficiency and less on “as small as possible.” I would prefer putting my thumb on the scale for simplicity, in this case.

In any event, we are committed to searching for a lower level of reserves than today’s level. As we draw closer to the point at which the reserve demand curve steepens, we will likely encounter some volatility in the federal funds and OBFR rates, as well as in related short-term money market rates. If this volatility is not expected to be too large or too costly, then I would prefer to avoid a "belt-and-suspender" approach using the various interest rate control tools mentioned in the staff memo. Instead, I think it would be helpful to move IOER further below the top of the range.

I think this is a simpler way to help keep the policy rate in the target range and has a reasonable chance of success. Indeed, it might be best to have IOER near the bottom of the range. After all, as we reduce reserves further, transitory upward rate spikes seem much more likely than sharp declines. I also would favor doing this sometime early next year.

What about the next step in the process? I am concerned about the following possibility. Suppose we collect enough information to determine the lowest level of reserves that puts us on the flat part of the demand curve, and this is larger than some on the Committee might find comfortable. What if it is, say, $1.5 trillion or $1.2 trillion? To operate on the flat part of the demand curve with a smaller balance sheet, we would then have to do something to substantially lower banks' demand for reserves or to reduce our other liabilities. But my reading of the staff memos is that our options for doing either of these come with pretty notable uncertainties and costs. Indeed, I think they may actually add enough risk that they wouldn't be worth doing at all. In particular, the institutional remedies in the memos undertaken to avoid "optical" concerns about a large balance sheet might come with their own optical concerns. For instance, a new standing facility used only by large financial institutions might be "spun" as a case of the Fed favoring access for large Wall Street banks over smaller Main Street institutions.

So we may end up being left with a choice between one regime with large and abundant reserves that easily operates on the flat portion of the reserve demand curve and another regime with a substantially smaller balance sheet. But we may not be able to have both. A flat demand curve and a comfortably-small balance sheet simply may not be compatible. If so, I would be skeptical about the possibility that incurring the costs of reducing our balance sheet in order to avoid nonstandard costs would be consistent with promoting monetary and financial conditions to support maximum employment and price stability as best we can. Our long long-run framework choices need to be consistent with this monetary policy objective. For example, I am uncomfortable with the political-economy argument that maintaining the viability of future QE operations at the effective lower bound requires us to select a small SOMA, or balance sheet, today. We should at least discuss the economics of these arguments much more.

In sum, I still think we have some hard work ahead of us to get a ful understanding of the issues and tradeoffs before we make our final decisions regarding the implementation framework. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Bostic, please.

MR. BOSTIC. Thank you, Mr. Chairman. First, I'd like to also thank the staff for their work on these memos. The proposed toolkits for assessing funding market pressures and enhancing monetary control, as well as the institutional detail on how banks and other market participants might change their behavior as reserve levels shrink, provide valuable context for thinking about monetary policy implementation as the balance sheet gets smaller.

The memos, however, left me a bit confused on the bigger picture. I came out of the previous meeting feeling as though we had achieved a fair degree of consensus regarding a preferred new long-run framework: to run an abundant-reserves regime—that is, operate on the flat portion of the demand curve—and rely upon the overnight bank fund rate. Further, there was acknowledgement that the FOMC's communications at the outset of the implementation of its balance sheet policy—that the actions were temporary, in response to a deep emergency—needed to be respected, implying that reserves should not be too abundant even in an abundant-reserves regime.

Against that background, the memos left me with the impression that my presumption about that consensus is in doubt. In my reading of the memos, many of the descriptions of potential commercial bank behavior and market functioning suggest that we may be transitioning to a world in which reserves will be scarce with some frequency. Such transitions would, as the memos nicely outline, involve complex operations, and perhaps new tools, in order to achieve reasonable monetary control. But I fear this assumes the answer to a question that has not been directly asked—namely, whether the Committee is comfortable operating a switching regime, toggling between abundant- and scarce-reserves states.

The answer to this question has clear implications for how the Committee would resolve the challenge of operationalizing the notion of reserves that are not too abundant. As written in the memos, there is an implied view that we should get as close to the margin as possible and take on fully all costs and risks associated with going beyond that. Is that where the Committee is? I'm not sure this is where I am. The complexity associated with executing this and the possibility of less monetary control represent significant costs and, for me, only reinforce the position that I took at the November meeting in favor of an abundant-reserves regime—a continuous abundant-reserves regime—as our long-run framework.

So where are we now? As we continue with passive runoff of our LSAPs, we have an opportunity to learn a great deal and perhaps resolve some of our current uncertainty about how funding markets and rate volatility are related to the level of reserves. The metrics and outreach plans proposed in the memos provide a good foundation on which to build a monitoring program—one that I hope will be presented to the Committee on a regular basis.

I would like to note that the discussion of possibilities for reducing the size of the balance sheet by lowering the demand for reserves and nonreserve liabilities was something of a surprise. I interpreted this memo as suggesting that we might like to move the kink to the left. Put another way, this memo suggests that reducing the absolute quantity of reserves to some particular level is important for the Committee. This possibility was certainly not in my mind during our previous meeting. I am open to discussing this option, but the pursuit of active management of the demand for reserves would, in my mind, require an extensive conversation—one that explicitly considers the costs and benefits of driving to much lower levels of reserves as well as the efficacy and risks of the reserve demand management options.

I will say that I am very supportive of exploring communications strategies to increase the public's understanding of our balance sheet. Like others, I prefer a focus on the reality that the balance sheet evolves for reasons beyond our control.

Finally, I am curious where we stand on the question of the preferred policy rate. I heard from my staff that work has been done on a timeline for transitioning from EFFR to OBFR, and that the entire changeover may take as much as a year. I would appreciate hearing updates on this process as well. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman, and thank you to the staff for the excellent memos. I'm just going to make a few comments. First, as your memo suggested, I do think it's important to work on tools that will manage rate turbulence, even if it's transitory, if we're to find out how low it is appropriate for the balance sheet to go. So I would encourage the staff to make a deeper study of ceiling facilities, I think as you suggested, whether it's a standing repo facility or some modification discount window.

Two, I think as I discussed in the previous meeting, I am in favor of looking at a tiered remuneration of reserves, which would provide banks with incentives about managing their demand for reserves. I am also in favor, as was mentioned earlier, of a facility to allow banks to monetize their holdings of Treasury securities more quickly. This would also make reductions in reserves more feasible. And so I'd like to see those tools, and the viability of those tools, examined more fully.

I am in favor of thinking sooner rather than later about the composition of the balance sheet, and it may be worthwhile taking actions in the near future by fine-tuning reinvestments or, as some have said, even selling mortgage-backed securities—in other words, gravitate the portfolio to a higher percentage of Treasury securities. And I do think it makes sense to explicitly examine what's happening with our weighted-average life on Treasury securities. I think President Rosengren mentioned that it might be wiser to have a shorter maturity, and I think that does make sense. And I'm very cognizant of the fact that our weighted-average maturity is actually lengthening, because we're buying nonbill issuance by the Treasury in proportion that they're issued. I just want to make sure we're explicitly deciding that we want to lengthen our weighted-average maturity of Treasury securities.

Lastly, I do think it's worth, as we said in the previous meeting, suggesting to our supervisory group to study the topic of excess reserves and how excess reserves relate to bank leverage standards and whether there are ways—without compromising prudent supervisory policy—to encourage the removal of excess reserves from bank leverage standards, as a means of reducing reserves. I think those are all my comments. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. Governor Clarida.

MR. CLARIDA. Thank you, Mr. Chairman. First, like others, I would like to thank the staff for the set of memos. A lot of thought and hard work went into these—in particular, covering a large amount of complex information at a very high level.

I myself continue to support the view that we want to have the smallest balance sheet consistent with effective implementation of our monetary policy. With regard to composition, realizing the challenges ahead—primarily, the Treasury securities portfolio—I believe that this will involve taking a relative assertive stance in testing how low that we can go, and I think it will likely be important for the Committee to be willing to be patient and tolerant of some uncertainty and volatility as we explore how far we can go in this direction. And although I think we've learned a lot, I think it's important, at least as of today, not to close off too many options at this point. In particular, I hear different views about abundance, for starters. I think that, while we have thought deeply about what the demand for reserves might look like in the future, we are still learning a lot as we go along, and I think we'll need to be flexible about the steps that we take.

I'll just conclude with a thought, because some of what I've said has already been mentioned by other participants. And in particular, the one factor in this that I continue to look at is how the system that we're currently in would operate if it became more like the original thinking that a floor system would operate, in which IOER would be a floor and the funds rate would regularly trade above it, but obviously not too far above so it wouldn't endanger achievement of the range. And I think there's a lot of uncertainty about this, but I think it's important that we at least understand, because, to me, the tradeoff is between being willing to allow the funds rate to trade above the floor—a willingness that might entail a reduction in the balance sheet size that we would need to have to make the system operate—and trying to keep the funds rate at or below the IOER rate. So, again, a range of things to consider, and I encourage further work on this. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Barkin.

MR. BARKIN. Thanks. I'd like to focus my comments on the size and composition of the balance sheet. As I said last time, I think it's important for our credibility that we find a visible way to "tie a bow" around the end of our balance sheet expansion, and my comments, I think, echo very much President Kaplan's.

I think it's worth trying to find a way to encourage banks to hold fewer reserves in a floor system, in the way the memos outlined. This could potentially be done with a pricing mechanism, maybe by paying lower interest on excess reserves above some threshold. Or we might also want to create facilities that allow the monetization of Treasuries at very short notice, such as late in the day. Unlike others, I believe this is doable without creating inefficiency or losing control of monetary policy. But, like President Evans, I'd welcome analysis on this to learn more.

I also think we'd benefit from a more targeted communications strategy than that defined in the memos. The political concerns are mainly over the quantity of excess reserves more than the size of other Federal Reserve liabilities. I think we can explore an approach to balance sheet accounting and reporting that separates reserves from the rest of our liabilities and communicates directly about the reductions we make to excess reserves. Doing so will lessen confusion and I think it has the ability to lower the number we're discussing to billions, not trillions.

Finally, an additional way to underline the change in regime would be to make explicit a plan to move to Treasuries-only over a set time frame. Treasuries represent a much less politically-charged portfolio item. The current path of the reduction of MBS holdings still envisions us having MBS on our balance sheet in 2040. That's just too distant a horizon to be credible. We can and should outline a plan to reduce such holdings to zero in a predictable and timely manner. In my mind, such a plan would end reinvestments. It would define a timetable like the one Kathryn suggested for selling MBS that manages market reaction and loss realization. And, frankly, it would also be a strong signal if we ceased operational testing.

All of the above helps send a clear message that this particular balance sheet expansion period has come to an end.

CHAIRMAN POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chairman. Like everyone, I want to thank the staff for those extremely clear and concise memos. They just keep getting better and better—even in the short year that I've been here.

So, for me, there are a few questions that I think we particularly ought to focus on, although they're obvious. When do we stop the balance sheet runoffs? For some time, we've been saying: We will get there when we get there; we'll know that when we reach the steep part of the demand curve for reserves. But it turns out that—as one thinks more about that—that still implies a potential range of sizes for the balance sheet. It's not as though there's a clear and precise number that comes from reaching the steep part of the demand curve. So when do we stop the balance sheet runoff? How do we maintain interest rate control in the presence of the temporary shocks that there are likely to be to the demand for reserves—not just during the transition, but even when we reach whatever it is that we define as normal? And what do we want a normalized balance sheet to look like?

On the first question of when to stop, I think, like many of you—although there doesn't seem to be as much of a consensus in this meeting as there was in the previous meeting—I would prefer to operate with the smallest balance sheet possible while still maintaining effective interest rate control. And, absent a lending facility that would provide a ceiling on rates, I think that decision at the most basic level hinges on how comfortable we are in conducting open market operations to meet temporary shocks to demand. And maybe that explains a little bit of the difference between what had seemed sort of a universal view favoring the smallest balance sheet possible and the current discussion saying, well, yes, as small as possible, but not smaller.

The bigger the balance sheet, the less likely a temporary shock would push the interest rate outside the target range, and the smaller the balance sheet, the more likely we'd have to take action to offset temporary increases in the demand for reserves. So, really, it's our assessment of the balance between the cost of a large balance sheet and the cost of frequent open market operations that's key to determining what the size of that normalized balance sheet is.

I think, at least, that we have a good handle on the "cosmic" costs of a large balance sheet, but I think we could—I, at least, would appreciate more staff analysis on the cost of more frequent open market operations. And I, at least, took that sort of as the call—like President Evans and President Bostic, I've been thinking about "Why does this sound different from last time?" It really is, what are the costs to the system—again, the cosmic costs to the system—of more frequent open market operations if we're on that track?

On another track from this fundamental tradeoff on volatility is what actions we might take to decrease the steady-state demand for reserves. And the staff has provided a helpful menu of options. I'll comment on only a few of them.

One option was the introduction of a facility to monetize bank holdings of Treasuries on demand. That obviously could certainly lead to an increase in the volatility of our balance sheet if we do that. As a practical matter, the memo cites as an example of when a bank might want to use this facility as when the bank thinks it would receive a below-market price if it tried to sell a large quantity of securities. But if a bank believes that the price it gets for selling the securities into the market is not the market price, then how would we determine the market price if we're doing that, this unobserved market price? I think that the practical difficulties of doing that would be significant.

On the question of how to maintain interest rate control, I liked the suggestion of President Evans. Particularly with respect to IOER, this sort of gradual stepping-down that we seem to be doing with each meeting—I think that's different from feeling our way down the staircase with respect to the size of the balance sheet. And we could sort of quickly move down to something much closer to where we think that IOER would get. I think that's a separate question. And maybe that's 5 basis points above the ON RRP rate, maybe it's something different, but I think I'd benefit from more staff analysis of where that gap ought to be. And if we have a feeling as to where we ought to be comfortable with that gap, couldn't we just move IOER down now to be at what we think is a safe floor rate, even before we have any shrinking of the balance sheet?

On the option of widening the target range, I myself don't find that very appealing principally as a communications matter. I think it would be difficult to communicate that change in a way that didn't sound like we were simply defining away the problem, in a manner similar to my middle son explaining that "in the larger scheme of things, a B is a very good grade, Dad." [Laughter]

And then, finally, on the question of what we want a normalized balance sheet to look like, at some point I would be in favor of actively running off holdings of MBS. I think we wouldn't want to do that before we reached whatever we thought the normalized size of the balance sheet ought to be because then we'd get very confused in communicating what it is that we're doing. Is runoff in MBS holdings part of shrinking the size of the balance sheet? I think it's easier to explain that as a different task once we've got the size of the balance sheet that we want. And then, in connection with accelerating the reduction of the MBS portion of the portfolio, I too agree with President Rosengren and others who have argued for shortening the average maturity. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. I also want to thank the staff for the excellent memos, which were mercifully concise but also thorough.

My preference continues to be for reserves, as many others have said, to be as small as possible within the floor system. And I think the staff memos were very helpful in laying out techniques, in order to try to explore how small that is. I think there is still a lot of uncertainty about where the destination is, and so I like what was presented.

I do support the development of enhanced ceiling facilities. I think the usage of the facilities would give us additional information, and I'm open-minded as to whether they're temporary or might be permanent.

One point that I found somewhat confusing is that some of the facilities sounded like temporary ceilings, some of them sounded like these Treasury-security monetization facilities. Are those the same facilities? Are those different facilities? So I thought there was a lot of complexity buried underneath these various facilities.

I would prefer the facilities to be OMO-eligible collateral only and the counterparties to include all depository institutions (DIs), not just dealers. But I think President Evans said this—I would put a premium on simplicity. When we think about primary credit still being out there, the potential for these new facilities in certain situations, I think it gets very complex very quickly.

And one thing that struck me was the last memo about all of the nonreserve liability elements of the balance sheet. It really put a spotlight for me on how limited we may be in, in fact, shrinking the balance sheet. And so we may not get as many benefits, in terms of political economy, as I expected when we started this work. And so then that would be a tradeoff. Maybe the benefits of going a very complicated route are not going to be realized, in view of the fact that there are all of these other parts of our balance sheet that we've got limited ability to try to shrink.

In terms of the long-term balance sheet, I, too, prefer a Treasuries-only balance sheet, and my gut tells me that we're safest having the composition match the market rather than just, as a general statement, always trying to weigh in on the shape of the yield curve. But I'm open to hearing other arguments about that. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. I think I'm 12th, so let me "12th" the thanks to the staff for the excellent memos and, as President Kashkari said, for their being mercifully short and concise.

As we transition to a new long-run operating framework, one important principle—which many, many people have mentioned—is transparency, clear communication. Making it clear to markets and the public and the Congress what we are trying to achieve and how we plan to get there will help avoid uncertainty and ultimately support a smooth transition. When I'm talking about this with contacts in the field, whether they're from financial institutions or businesses, they continually say that "If we know the rules, we can adjust to anything; but in the absence of knowledge, it's very difficult." So I think that's an important principle to remember.

In this context, I'm very much in favor of the multifaceted—I always call it dashboard—approach that the staff reviewed to monitoring and assessing whether we have reached the steep part of the demand curve for reserves. But clear communications there about what we are doing and why it's important to do this monitoring is going to be important. I think it's important to emphasize that we need to know where the kink is, in order for us to understand how to manage our portfolio. Similarly, ending redemptions is an example of where communication can help. As we get close to ending redemptions, it might very well be useful to taper them. I don't have an answer for that today. But we did do this when we started, and it might be useful to do it again.

So communicating such a soft landing well in advance, along with the rationale for such an approach, is essential. It will allow banks to plan ahead and will minimize, importantly—and I underscore this—confusion and misperception that we are varying the pace of redemptions to change the stance of policy. To keep it in the background and make it like paint drying, we have to be more communicative, so that people understand why we're doing it.

As we get closer to the stopping point, good communication can also help us in concerns about temporary funds movements above the range. It looks like we might face those, so it's important to have people understand that could happen and how long that's likely to persist. And here I'm not very confident that the discount window will be a good tool to control rates. The stigma concerning borrowing looks, to me, tough to overcome—no matter what we might say—and some insurance against spikes will be important. In that regard, I support doing more staff analysis of a repo facility to set an effective ceiling on the target range.

Finally, I think, like others here—and I just want to emphasize this point—I'd like to step back from the details and actually advocate that we could do a better job, at least by my assessment, of communicating to the public what was detailed in the final memo. And that is that the simple fact is that growth in our balance sheet is going to be driven in large part by nonreserve liabilities, such as U.S. currency and the Treasury General Account. And that's just going to be a fact that's going to be hard for us to overcome. Increasingly, that number is going to get closer to 3 trillion dollars and approach the size of the balance sheet after the crisis, and this will have nothing to do with whether we choose an abundant-reserves regime or not. I think building the public's understanding of this, starting immediately, while no doubt challenging—I won't say this will be easy—will, to my mind, be far better than trying to economize on nonreserve liabilities whose provision is a natural function of a central bank in serving the public. So that's a principle I don't want us to lose sight of. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. I, too, want to commend the staff for the excellent memos. In refining and communicating our balance sheet framework, I would indicate my own ranking of the principles that should govern it as, first, demonstrating effective control of interest rates; second, maintaining the IOER as our key tool for setting and communicating monetary policy away from the effective lower bound but giving ourselves capacity and flexibility to deploy the balance sheet effectively when we get toward the effective lower bound; third, providing as much clarity and simplicity as possible on the framework governing the balance sheet—as we've seen in a few other instances, market participants do adjust their behavior effectively when we communicate clearly in advance; and, finally, normalizing reserves at a level that's no more than necessary for effective implementation of policy in an abundant-reserves system, while recognizing that the balance sheet will continue to grow, because of autonomous factors, and that the demand for reserves is also likely to fluctuate over time.

That prioritization leads me to be inclined to explore the feasibility of communicating in advance a rough target for the amount of reserves at which balance sheet runoff will cease, allowing for a comfortable buffer. That might be akin to what President Harker suggested and would have the benefit of "tying a bow" on it, as President Barkin suggested. There are obvious risks associated with such an approach: on the one hand, the risk that we encounter volatility before that target is reached and, on the other hand, the risk that that inflection point occurs before the absolute minimum is achieved—before we've identified that kink.

From where we are today, it doesn't appear to me that the risks associated with the reserve target being too large are very great. Reserves are currently $1¾ trillion. On the basis of the survey, it appears that reserves below $800 billion will likely put us in a regime of reserves scarcity. To avoid the risk of stumbling onto the steep part of the demand curve, we may want to allow a comfortable buffer above that level. Suppose, for instance—and I chose a number that happens to be the same as President Harker's—we announce a target of $1.2 trillion. As the balance sheet is projected to grow because of autonomous factors over time, it's an open question whether the optics of having that inflection point occurring around $1.2 trillion in reserves rather than at, for instance, $1 trillion in reserves are dramatically different.

A further reason for announcing a target level for reserves well in advance is to limit any confusion as to the stance of monetary policy during the final stages of that transition. If we announce a rough target, there'll be clear conditions known well in advance associated with the contours of the balance sheet. If, instead, we try to fine-tune the level of reserves by driving them down to the point at which we identify that kink in the demand curve between the steep part and the flat part, in that case, as the staff memo points out, it may well be necessary to slow down the pace of balance sheet runoff in that final stage to avoid disruptive volatility; and that, in turn, may run the risk of confusing the public as to whether the slowdown represents a shift in the stance of monetary policy, particularly considering the time at which we anticipate that process to be taking place.

Furthermore, an approach that seeks to reach the minimum level of reserves by driving them down to that kink at which we see some volatility raises the question of whether that would, in effect, be a permanent feature of the operating framework. And I think this gets to the points that Presidents Bostic and Evans were raising. Because the balance sheet will presumably resume growing after the inflection point is reached and the demand for reserves will continue changing, the question we would want to ask ourselves is whether we would want to maintain that tightness in the supply of reserves right at that kink between the flat and steep parts of the demand curve as an ongoing feature of the new operating framework indefinitely. If so, that new framework would feature some amount of volatility and active intervention as a permanent feature, not just at the minimum. Alternatively, if we don't see the necessity of maintaining the supply of reserves close to that kink, then the final stages of the normalization risk being much more volatile than necessary, and it's not clear that will have benefit beyond that point.

All of that said, in the case in which we do decide to move toward identifying that kink, I'm comfortable supporting the innovations the staff proposed—in particular, a repo ceiling facility with an expanded set of counterparties. But, again, the question is whether those won't be transitional but will, in fact, become permanent features of the new framework. In any case, I support moving IOER further down toward the bottom of the range.

Finally, apart from the stopping point, I do think it's very important to communicate well in advance to market participants the target composition of our portfolio. Over time, I strongly support moving to a Treasury securities-only portfolio. In addition, I would be very inclined to explore the benefits and risks of moving to a predominantly bills-only allocation of between 40 and 60 percent, including better understanding the implications for our footprint in the market. Like Presidents Rosengren and Kaplan, I think that, from a monetary policy perspective, there's a benefit from a larger share of Treasury bills in our portfolio, in providing space for a maturity extension, should the economy weaken. So I'd be very interested in seeing further analysis that would help us decide how large a share of Treasury bills in our portfolio might be feasible. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. Vice Chair Williams.

VICE CHAIRMAN WILLIAMS. Thank you, Mr. Chair. I think everything has been said several times. [Laughter] But there's plenty of time left, so I will embark.

I want to go back to President Bostic's question, because I think it's kind of at the heart of the matter here. We did have a pretty good discussion in November, and I think there was, as you said, strong support for a particular approach. But the approach had two elements: One was with regard to abundant reserves, and the second was—and it's been repeated by many around the table—subject to this minimum size of the balance sheet consistent with the effective and efficient implementation of monetary policy.

So, as Governor Brainard pointed out, if you say, "Well, $1.2 trillion is good, that kind of achieves our goals"—then a lot of our discussion in the memos and some of these issues just don't arise. But if you really think that the definition of the condition of minimum size of our balance sheet consistent with efficient and effective implementation of policy is a smaller balance sheet or one that could potentially be smaller, then I think a number of these issues rise to being of more practical importance.

I do want to go back to what President Rosengren started with and Governor Brainard ended with and many others commented on. It's going back to principles regarding what we're trying to achieve here. In the first, when I think of principles, I try to separate out monetary policy decisions. What's the stance of monetary policy needed to achieve our dual-mandate goals, and how do we exactly operationalize and execute that? I think the one concern I have, as many have mentioned, is that adjustments to, say, how quickly we shrink the balance sheet could spill over into a statement about our policy stance or our view of future monetary policy. I do think we really do want to be careful and not inadvertently signal what are taken to be monetary policy intentions through decisions we make concerning the operational framework.

I also believe that interest rate control is absolutely essential here. It's easy to say that there's daily volatility in the funds rate or OBFR, and that wouldn't be problematic. But we really want to make sure that, when the Committee says we want interest rates in a certain range or a certain point, our framework can deliver that and with a great deal of confidence. I think that's another concern I have or principle that I have.

The other—I'm cheating here. I'm looking at President Rosengren's list, because I agreed with it completely, and it's been mentioned by others too. [Laughter] We need to—well, he wrote it all out very clearly—have a framework that allows us to, in the case of what I think of as a likely return to the effective lower bound in the future, again, a framework that is well suited for that.

I come to a couple of conclusions on the basis of that. One is, I do think that, to the extent that we are likely to try to bring the size of our balance sheet or the level of reserves down to what we think the minimum is consistent with our principles, we do need to have some facilities, or at least preparations, regarding how we're going to maintain interest rate control. My main concern is with respect to spikes in interest rates that are persistent—interest rates running consistently higher during that period. It could be due to a transitory shift. This is why some of the memo discussion about transitions versus a more persistent scarcity, I think, is important for thinking about this,. Whether it's open market operations or a ceiling facility or something like that, I do think that the Committee would be well served by further work by the staff presenting us sometime next year with some concrete options. Like, if we want to make sure we have interest rate control even as the balance sheet shrinks over the next period of time, what are the concrete options? How would they work? What are the pros and cons of those? I think that's an important lesson coming out of the briefings and today's discussion.

I also think that the communication, as many people have said, is really important here. But it's important for two reasons. One is the "paint drying" issue. One of the reasons the balance sheet normalization has gone well is because we thought about it hard. We worked it all out in advance, and we communicated and communicated and communicated it. We want to be in that same situation when we eventually get to this point at which scarcity maybe starts to show itself. We want to have communicated effectively how we're going to maintain interest rate control and how we will operationalize that, whether it's a transitory shift in reserves or in other liabilities or more persistent developments.

I also think it's really important for us to start wrapping our minds around how we communicate the balance sheet in the long run. This issue about the decomposition of the balance sheet between MBS and Treasury security holdings—we don't need to make decisions on that today, but I think it's very helpful to understand we're at a 40 percent MBS share of the SOMA portfolio today. We're going to be at 40 percent MBS for a long time. It's going to be a very long time before we are completely free of the MBS in our portfolio. Thinking through that in advance—not necessarily to make a decision in the short run, but to think about how we would approach deciding on how to maybe move us more quickly toward an all-Treasury securities portfolio and how to communicate that.

But more importantly, this issue of the composition of our portfolio of Treasury securities is going to hit us once we stop reinvesting—I mean, once we get to this "pivot point," once we start buying securities again. This is not a decision that is theoretical over the next 20 years. This is a decision that arises because, once we get to this minimum balance sheet, we're going to be buying stuff; and when we start buying stuff, we really need to be thinking about, what's the desired composition of the portfolio, T-bills versus the rest? How do we view that? And, again, on the "paint drying" principle, it would be best if we make those decisions well in advance and communicate that well in advance. And then it's just a question of executing on that, when we do get there.

So, again, like everybody, I thought the staff memos were wonderfully concise and helpful, but also it would be really helpful for us to take that next step early next year in coming to some very concrete decisions on these matters and communicating them as soon as possible and, again, I'm looking for the staff to help us with some specific ways to move forward. Thank you.

CHAIRMAN POWELL. Thank you, Vice Chair, and thanks, everyone, for a very interesting set of comments. My kudos, as well, to the staff, for producing a set of memos that were not only helpful, but light, in the sense of being able to be carried around without a wheelbarrow.

I also share that I have a feeling of continuing to learn more and more about this. I feel like every time we talk about it, I learn more things. I also suspect that we're going to get to the end of this process in a year or so and look back—and see a bunch of what will be blindingly obvious things in hindsight, but that we're just going to be learning along the way. And I think that means we'll have to remain flexible and open-minded as we go forward.

Last year, we began the process of normalizing our balance sheet. And the Committee has long emphasized that we would eventually return the balance sheet to a size that's no larger than it needs to be to conduct policy in our chosen framework. I do see this as a high-profile commitment that we need to honor; and doing so, in my view, would do much to support the legitimacy of future large-scale asset purchases—by showing that QE is not just a one-way street to an ever-larger Federal Reserve balance sheet relative to GDP. I think that the bigger picture is that we are probably in a lower-rate environment for a long period of time, and I think we should be doing everything we can to find, locate, and manufacture every scrap of policy space that we possibly can, because we may need it. And this is one way to go about that. It is not found in monetary textbooks, but it nonetheless, in my view, is important.

I also agree, though, that a big part of this load needs to be carried by more and better public communications, as many of you have noted. We will have to do much more explaining of what's really driving the size of the balance sheet's demand for our liabilities and, particularly, reserves and currency and the social benefits of all the other liabilities. I believe strongly in all of that.

I do think, in the end, it will not be sufficient to convince those who have concerns about QE as implying an ever rising balance sheet as a percentage of GDP. So I do think it's necessary to do what we can to be seen to have worked hard to get to a smaller balance sheet. It's not just that we get down to scarce reserves, it's that we be seen to work hard to do it—that we take the commitment seriously. In effect, to me, that means we "reserve" judgment, in a sense, until we have really made further progress.

That said, at the previous meeting there was very broad support for remaining in a framework with abundant reserves, and I think the process over the next year is going to tell us the extent to which we can have a much smaller balance sheet alongside abundant reserves. And my strong sense is that if we can get to a much smaller balance sheet, then the choice of a regime with abundant reserves would be straightforward. The words "much smaller" are in the eye of the beholder. As I said in my remarks at the previous meeting, to me, a case that's close to the staff baseline of $1 trillion or $1.2 trillion would do the trick for me.

I think what I would be concerned about is a case in which we find, counterfactually or counter to our expectations, that equilibrium reserve demand is $1.5 trillion or something like that, and then I think I would have buyer's remorse if we had made a formal decision to go ahead. I don't think that's going to be the case. I mean, in anything like the cases we were talking about, there won't be difficult tradeoffs. I sense a lot of angst around the table about tradeoffs and efficiency and things like that. I don't think they're likely to emerge, really. The work that Simon, Lorie, and their colleagues have done is very persuasive to me that there is significant "room to run" on reserves, and that means that we won't eventually face these tradeoffs. Nonetheless, I think it behooves us to be seen to be taking our time in getting to the answer of what corresponds to abundant reserves.

As for the memos, I think they do a great job of laying out some of the issues we'll face along the road to normalization. To begin, how do we know we're reaching scarcity of reserves, and how can we tell the difference between temporary pressures on short-term rates—as market participants adjust to a shrinking pool of reserves—and more permanent pressures associated with being on the steep portion of the demand curve? There's also the related question of the policy tools we may want to have at our disposal, should our transition to a smaller balance sheet become bumpy as temporary pressures on money market rates build up.

I found quite helpful the staff's discussion of various guideposts that we could use to assess where we are on that road, and I take some comfort from seeing that none of those guideposts discussed is signaling that the end of the road is near. I especially appreciated the two pages, I guess, in the second memo that laid out the reserves-scarcity indicators, and I'll be interested to see that be updated over time. In addition, I applaud the idea of relying on surveys and outreach as means of assessing banks' demand for reserves and other market conditions.

While the process has been remarkably smooth so far, the first and second memos raised the possibility that things could get bumpy. For instance, as reserve balances fall, some banks might not adjust their liquidity management practices quickly enough, which could cause the federal funds rate to trade above the target range for a while. Further technical adjustments to the IOER rate might prove inadequate to sustain the desired level of rate control, so I look favorably on other approaches—such as standard open market operations and a standing repo facility—that would mirror our existing reverse repo facility. Ceiling tools that could be more easily accessed by smaller banks, such as a discount-window-based facility, could also help, and I look forward to further analysis of the potential benefits and costs of these various tools.

These “ceiling tools” could also smooth out our transition to a substantially smaller balance sheet, and they could give us greater comfort to probe further along the demand curve for reserves—reducing the chance that we stop shrinking our balance sheet too soon. We will, of course, slow and eventually stop the normalization process as we approach reserves scarcity or, more accurately, approach the lowest level of abundance that we can achieve. Along the way, I’d like to resist for as long as possible—as I suspect many would—the temptation to use the pace of redemptions as an active tool, because pressures on money market rates may turn out to be temporary. Doing so could pose communications challenges, in view of our “gradual and predictable” mantra for the redemptions process. Of course, in real time, it may be very difficult to know whether scarcity is fleeting or permanent, and I’d be prepared to see some volatility as the balance sheet declines. I’d rather see that volatility show up through varying uptake in a ceiling facility rather than through federal funds volatility.

I am, like some others, skeptical of the idea of widening the target range, because of what I think the staff has landed on—which is the communications difficulties. As you try to explain that to yourself, you can imagine there’s a lot of grounds for confusion by the public about why the ON RRP rate is now out of the range and what is the range—it could be confusing. Like many of us, I hope that banks’ demand for reserves will be even smaller than suggested by current estimates, and I’d be interested in additional staff work on what we all can do to further reduce that demand, like creating a facility to make it easier for banks to monetize their Treasury holdings rapidly. I, like others, see substantial public good in our nonreserve liabilities, and I am skeptical that there’s much room for reducing them.

On the question of the composition of the balance sheet over the long run, once the balance sheet reaches a “new normal,” I like the idea of having very gradual sales that reduce our

MBS holdings. It probably goes without saying that any such program would need to be carefully rolled out and involve only small quantities, at least at the start. As for our Treasury security holdings, I would favor the largest possible allocation to bills, as this would maximize our policy space for a maturity extension program and other Operation Twists. As I mentioned and as I know others have, it's really important that we find every scrap of policy space we can. The memo used a 40 percent allocation to bills as a placeholder. I didn't sense that you saw that as a really hard limit, and I'd like to know how much higher we could go and what would be costs and benefits, although I think you dealt with that well.

Those are my comments. Thank you for your comments, and with permission from Mr. Clouse and others, I hereby call a 20-minute coffee break until three o'clock. Thank you very much.

[Coffee break]

CHAIRMAN POWELL. All right, everyone. Welcome back. Let's go to our second agenda item, which is the Desk report. Over to you, Simon.

MR. POTTER.[2] Thank you, Mr. Chairman. With regard to the top-left panel of your first exhibit, declines in interest rates and risk asset prices have been notable over the intermeeting period, as shown in the left column. While U.S. equity markets continued to decline this period, interest rates have fallen, credit spreads have widened, and the market-implied path of the policy rate has shifted lower. This pattern reflects a broader risk-negative sentiment that some have characterized as reflecting heightened downside risks to the global economic outlook. The pattern of price moves is noticeably different from that observed at the time of the November meeting, shown in the middle column. Recall that, in November, I reported that the volatility exhibited in the U.S. equity market was largely driven by increased downside risks to corporate earnings growth and the valuation effect of the sharp increase in yields in early October, which was in part a reaction to strong U.S. economic data.

The most notable moves over the period were seen as in reaction to developments in U.S.–China relations—seen by many as the major determinant of the direction of risk sentiment—and Federal Reserve communications, which led to substantial moves

[2] The materials used by Mr. Potter and Ms. Logan are appended to this transcript (appendix 2).

in interest rates. Specifically, evolving interpretations of the G-20 agreement reached between Presidents Trump and Xi, aggravated by the arrest of a senior Chinese technology executive in Canada, drove significant volatility in the S&P 500 over the period, shown by the red line in the top-right panel.

With respect to the outlook for monetary policy, comments by the Chairman and by Governor Clarida on proximity to the neutral rate, as well as a perceived increase in risks to the global outlook, drove declines in short-dated Treasury yields, shown in the blue line, and in the market-implied path of the policy rate. Recall that that is in contrast to some FOMC communications that had pushed rates higher during the November intermeeting period.

Declines in Treasury yields over the period were notable across tenors, and the curve flattened. The intermediate part of the curve—specifically, between the 3- and 5-year Treasury yields—also inverted very slightly, as shown in the red line in the middle-left panel. While some equity market contacts cited the inversion as adding to negative sentiment and contributing to equity market weakness, contacts in the Treasury securities market generally downplayed the importance of the inversion of this specific part of the curve, preferring to look at the difference between the 2-year and 10-year yields or 3-month bill and 10-year yields, shown as the blue lines, for more meaningful signals of potentially weaker U.S. real GDP growth ahead. These segments of the curve did not invert, but they flattened notably, with the respective spreads narrowing to 15 and 47 basis points.

A substantial portion of the decline in long-dated nominal Treasury yields, shown in the middle-right panel, has been in TIPS-implied breakeven rates of inflation, shown as the light blue lines. While breakevens often tend to be sensitive to broader risk appetite, the narrowing was likely driven in part by the sharp drop in oil prices across the futures curve. As shown in the bottom-left panel, front-month oil futures fell about 16 percent over the intermeeting period and are now down by around 30 percent since early October. Contacts continued to attribute the decline in oil prices to a sharp increase in global supply in recent months and a somewhat more gradual than expected implementation of Iran sanctions; however, some speculate that the moves could also be signaling downside risks to demand due to a potentially weaker global growth outlook.

Investment-grade and high-yield corporate credit spreads widened notably over the period, as shown in the bottom-right panel. In contrast to the narrative that applied to the previous intermeeting period, some have pointed to this widening as a reflection of investor concern over the U.S. real GDP growth outlook. High-yield spreads widened by roughly 90 basis points, with triple-C-rated bonds widening to a much greater extent, indicating that investors are demanding higher compensation for credit risk. Some of the widening in high-yield has been driven by energy companies, affected by the decline in oil prices.

The risks associated with the triple-B segment of the investment-grade market continue to garner particular attention. This segment has grown nearly fourfold to

$3 trillion over the past decade and now comprises about 50 percent of outstanding investment-grade debt, as shown by the dark blue area of the top-left panel of your second exhibit. Over the intermeeting period, two large firms, GE and Pacific Gas and Electric, exhibited substantial spread-widening in response to company-specific news. While the combined debt of these two firms represents only a small fraction of total investment-grade debt outstanding, the developments have focused credit market investors on "fallen angel" risks—that is, the potential for substantial dislocations in credit markets in the event of more widespread downgrades to triple-B-rated firms. This dislocation could arise as funds with mandates precluding them from holding sub-investment-grade debt would be forced to sell these bonds.

Levels of implied volatility are elevated across many markets, especially relative to the summer, as shown in the top-right panel. In addition to the aforementioned sensitivity to U.S.–China relations, FOMC communications, and vulnerabilities in U.S. corporate markets, contacts also see both Brexit and the situation in Italy—as well as emerging political concerns in France and Germany—as posing important risks to global financial markets.

While these various concerns had a notable effect on financial markets, U.S. economic data have continued to come in broadly in line with expectations, and Desk survey respondents' economic growth forecasts still point to relatively strong growth. Furthermore, the likelihood assigned by respondents to the United States entering a recession in the near future is little changed from the previous survey. The middle-left panel shows the distribution of responses to the Desk's survey on the probability of when the United States will first enter a recession. Responses in the December survey, shown on the right-hand side in dark blue, are quite similar to those in the November survey, shown in light blue, and indicate an average cumulative perceived probability of entering a recession by end-2021 of around 70 percent.

In contrast to the U.S. picture, European data have continued to come in weaker than expected. That said, the ECB last week officially announced an end to its net purchases of public- and private-sector debt at the end of this month while continuing to reinvest principal payments for an extended period after the first rate increase. The middle-right panel shows changes in securities held by the ECB in dark blue, the Bank of Japan in light blue, and the Federal Reserve in red. With the ECB no longer increasing the size of its balance sheet, the Bank of Japan slowing down the pace of its JGB purchases, and the projected runoff in the SOMA portfolio, the total monthly change in securities held in aggregate, shown as the black line, has turned negative and is projected to decline further in coming months. A number of Desk contacts have cited this deceleration and decline in total assets held on global central bank balance sheets as exacerbating market volatility associated with rising risks to the outlook.

Amid the sharp swings in asset prices over the period and the attention to FOMC communications, the market-implied path of policy as well as the PDF-implied means in the Desk's surveys shifted lower, as shown in the bottom-left panel. Market participants' shifting views on future FOMC policy over the period suggests that markets will be very sensitive to the rate decision and communications coming out of this meeting. According to the Desk survey, the probability assigned by respondents to a rate increase at this meeting was 79 percent—lower than that seen ahead of recent meetings at which the Committee had increased the target range. We could therefore observe some market reaction even if rates are increased, as nearly all contacts expect at this meeting.

Respondents also expect policy rate projections in the SEP to shift lower, with the median "dot" expected to show two 25 basis point rate increases in 2019, with one final increase in 2020, shown as the blue circles in the bottom-right panel. The expected changes to the median dots are of roughly similar magnitude to those observed in respondents' own modal expectations of the path of the target range from September to December, shown as the red diamonds; however, many of our respondents expect a decline in the policy rate in 2021, even with a continued expansion.

On the statement, many survey respondents expect the Committee to alter or remove the language referencing "further gradual increases," with several instead expecting the inclusion of text emphasizing the data-dependent nature of future monetary policy. Many respondents also expect the Chairman to emphasize in his press conference the data dependence of the Committee's decisions. I will now turn the briefing over to Lorie.

MS. LOGAN. Thank you, Simon. Starting on your third exhibit, I'll begin with a discussion of money markets over the intermeeting period and then turn to updates on the SOMA portfolio and Desk operations.

As shown in the top-left panel, the effective federal funds rate printed at, or just 1 basis point below, the level of IOER throughout the intermeeting period. Notably, the risk factors we outlined in the November briefing as having the potential to put further upward pressure on the effective federal funds rate—such as decreases in FHLB lending or changes in trading dynamics once the effective rate reached IOER—did not materialize.

Although term money market rates rose relative to OIS, as shown by the LIBOR–OIS spread in red in the top-right panel, this does not appear to have added upward pressure to rates paid by banks borrowing in the federal funds market to enhance their LCR—something we also highlighted at the November meeting as a potential risk for further upward pressure on the effective rate.

Indeed, ahead of year-end, term rates have not increased as much as some market participants had anticipated. This is reportedly due to better preparation and more prefunding activity compared with last year. In addition, cross-currency swap bases spanning year-end have narrowed recently, as shown by the light and dark blue lines. Contacts have pointed to the combination of these factors as indicating that year-end pressures are likely to be more moderate.

While trading dynamics in the federal funds market were relatively stable, Treasury repo rates increased slightly on average. As shown in the middle-left panel, the SOFR and TGCR printed on some days 10 to 15 basis points above IOER and occasionally above the top of the federal funds rate target range.

Repo rates continue to be affected by the Treasury's supply of securities, with Treasury bills outstanding increasing by $175 billion in the fourth quarter and peaking in early December, as shown in the middle-right panel. However, the effect—like the episode in July and August—was more moderate than in the first quarter of this year. This might be because the increase in supply was on a smaller scale, and came to the market more gradually, than was the case earlier in the year.

Furthermore, as illustrated in the bottom-left panel, net dealer inventories of Treasury securities have also increased to a new high. Dealer inventories are mostly funded through the repo market, which is another way in which the supply of Treasury securities tends to affect repo rates.

With some of the FHLBs reportedly reaching their respective counterparty limits in repo markets, we did not see further reallocation by FHLBs from federal funds to repo following the rise in repo rates this period. However, we did see a few banks that had large reserve holdings reallocate excess reserve balances into repo investments. As Treasury repo investments are considered a Level 1 HQLA asset and yield a return greater than IOER now, market participants have reported more interest on the part of banks to lend funds currently held as reserve balances into various segments of the repo market, in order to capture the extra return. This activity, shown in the bottom-right panel, is primarily concentrated in a few large banks and has reportedly been a factor holding back further sustained increases in repo rates stemming from Treasury security supply and dealer inventory pressures. This is comforting in that banks have shown a willingness to lend excess reserves when secured money market rates have risen to levels moderately above IOER.

As Patricia discussed earlier, we will continue to monitor bank lending in repo as one potential indicator of abundance of reserves. In other words, a reduced willingness of banks to deploy their excess reserves into repo when the opportunities are attractive may indicate that these banks are nearing their minimum comfortable reserve levels and would no longer mitigate upward pressure on repo rates.

As we look ahead, respondents to the Desk surveys were asked to provide their expectations of money market rate spreads following FOMC meetings through the end of 2019. The results are summarized in the top panel of your fourth exhibit.

With respect to the spread between the top of the target range and IOER, shown as the dark gray dash, median expectations are consistent with a technical adjustment of 5 basis points at this meeting and a further 5 basis point technical adjustment by mid-2019. Expectations regarding the timing of this third technical adjustment moved forward slightly, from the second half of 2019 to the end of the second quarter. As we noted in November, the staff expects that a 5 basis point technical adjustment to IOER at this meeting would pass through approximately one-for-one to market rates.

As we look further out, median expectations are for the effective federal funds rate, represented by the dark blue diamonds, to trade about 5 basis points above IOER by December 2019 and around 10 basis points below the top of the range, little changed from the November survey. The median IOER–OBFR spread expectation closely tracks the IOER–effective federal funds rate spread through the end of next year.

Reflecting higher repo rates over the intermeeting period, respondents' median expectation regarding the Tri-Party General Collateral Rate, relative to other money market rates, increased slightly. As you can see, the TGCR, shown as the pink diamonds, is expected to be roughly 4 to 10 basis points above IOER but within the Committee's target range for the federal funds rate.

Respondents were also asked about their expectations regarding the size and composition of the Federal Reserve balance sheet, on average, in 2025, conditional on not moving to the effective lower bound. The median respondent expected the balance sheet to average around $4 trillion in 2025, roughly $370 billion larger than the median forecast of the June 2018 survey, with the interquartile range of responses running from $3.6 trillion to $4.3 trillion.

With respect to the liability side of the balance sheet, as shown in the middle-left panel, the median expected level of reserve balances was $1.1 trillion—just a touch higher than the estimate the staff provided in a memo before the November meeting. Survey responses also assumed higher levels of currency, which were mostly offset by a slightly smaller foreign RP pool and overnight RRP estimates. As shown in the middle-right panel, the lower overnight RRP estimate is consistent with recent overnight RRP take-up, which remained low, averaging $4.5 billion per day over the intermeeting period.

As usual, the Desk will use these updated expectations, along with the December interest rate forecasts given in the surveys, as inputs into the balance sheet projections we release in the annual report on open market operations in the second quarter of next year.

The bottom-left panel shows the preliminary results for projected SOMA holdings under alternative liabilities scenarios. Under the path implied by the median December survey results, shown by the solid dark blue line, the portfolio normalizes in the first quarter of 2020, slightly earlier and to a slightly larger size than implied by the staff Tealbook profile. The projected sizes under the smaller and larger aggregate-liabilities scenarios are now closer to the median than they were in June.

With regard to recent developments in the SOMA portfolio, since the phase-in of maximum redemption caps in October, caps for Treasury securities have been binding only in November, while caps for MBS have not been binding. However, in light of the declines in U.S. Treasury yields over the intermeeting period, it is worth noting that the cap on MBS redemptions could become binding again if there were a further decline in long-term interest rates.

As an illustrative example, under a scenario of a 50 basis point downward shock to market-implied interest rates, staff forecasts suggest the cap would once again bind in the summers of 2019 and 2020, concurrent with the pickup in seasonal turnover. This is shown by the pink bars breaching the red line in the bottom-right panel.

With regard to other operational updates, the Desk recently circulated a memo providing an overview of the Desk's operational readiness framework and the current readiness status of SOMA operations. The memo also provided advance notice of all small-value exercises planned for 2019. Through these efforts over the course of the year, we have identified and addressed a number of opportunities for enhancing both our readiness as well as the readiness of our counterparties—highlighting the value of conducting such tests. We will continue at each FOMC meeting to provide updates on the results pertaining to the previous period and inform you of the upcoming exercises.

As shown in the appendix, during the intermeeting period, the Desk conducted six types of small-value exercises under the domestic authorization and two under the foreign authorization. Over the upcoming intermeeting period, we plan to conduct only one type of small-value exercise, outright MBS TBA purchases.

In looking ahead to the January meeting and the annual review of the Committee's authorizations for domestic open market operations and foreign currency transactions, the staff identified some small changes for your consideration related to the governance over counterparties as well as a minor item related to limits on small-value exercises. We plan to deliver a memo in the weeks before the January meeting to describe these recommendations. Thank you, Mr. Chairman. That concludes our prepared remarks.

CHAIRMAN POWELL. Thank you. Are there any questions for Simon or Lorie? [No response] While you think about that, I have one. In panel 23—Lorie, did I hear you say that, essentially, at today's longer-term Treasury rates, the caps are not binding?

MS. LOGAN. Yes.

CHAIRMAN POWELL. So no binding-ness. So it would take—this is 50 basis points from today's level, not from a forecast.

MR. POTTER. It's 43. It's 282 right now. We did this on Friday.

CHAIRMAN POWELL. Say again?

MR. POTTER. We're 43 basis points away from this right now.

CHAIRMAN POWELL. I see.

MR. POTTER. The Treasury 10-year is just above 280, not 289.

CHAIRMAN POWELL. Okay. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. One quick question, Simon, regarding your panel 10, exhibit 2, looking at the quantitative easing balance sheets of central banks around the world. I'm just curious—I think this goes back to the fundamental view of stock versus flow versus path. I mean, I think the Committee did an outstanding job communicating what our path is going to be on the roll-off, so I had always assumed that markets would probably see the end immediately. I'm just curious, as you have observed QE on the way up, and now the gradual reduction, what do you read from the market signals? Do you think this is the balance sheet runoff, or do you think it is just global economic slowdown? And I know it's hard to tell. I'm just—

MR. POTTER. Let's start with the basic problem. The Ph.D. I have in economics means I wouldn't believe this argument.

MR. KASHKARI. Okay. [Laughter]

MR. POTTER. That's a bit of a problem. What seems to be the case is that a lot of people do believe it. They believe that the way that QE worked was to put a floor under risk asset prices. And what is happening right now is, the market is searching without that support provided by central banks to find the right level for those asset prices. And there are many people who seem to believe that. And I don't think we can ignore the fact that this type of chart—which I think was featured earlier this week in a newspaper article— can have some effect on how people think about that. But I find it hard, myself, to give you a mechanism.

MR. KASHKARI. Sure. Thank you.

CHAIRMAN POWELL. Further questions? [No response] Okay. Seeing none, we now need a vote to ratify domestic open market operations conducted since the November meeting. Do I have a motion to approve?

VICE CHAIRMAN WILLIAMS. So moved.

CHAIRMAN POWELL. All those in favor? [Chorus of ayes] Thank you very much. Next, we'll turn to a review of the economic and financial situation. I'm turning it over to you, Andrew.

MR. FIGURA.[3] Thank you. I'll be referring to the handout "Material for Staff Presentation on the Economic and Financial Situation."

Your first slide compares the December Tealbook forecast with the one in June—the last time we gave you a chart show. Now, as then, the ongoing tightening in the stance of monetary policy and slowly fading fiscal stimulus lead real GDP, shown in the top-left panel, to decelerate gradually over the medium term. As in June, we project the unemployment rate, shown at the top right, to move lower next year but then flatten out in 2020. The sharp fall in oil prices in recent months led to the one notable change in our forecast—a lower projected rate of total PCE inflation this year and next, shown in the bottom-left panel. But we continue to project that some further tightening in resource utilization and a small increase in underlying inflation will lead to a modest step-up in core PCE inflation over the medium term.

As shown in your next slide, the strengthening in the labor market over the past year has been widespread across race and ethnicity groups. Over this time, most groups experienced falling unemployment rates and rising prime-age participation rates. However, the persistent gaps between the different groups have remained.

In the remainder of my remarks, I will build on Eric Engen's presentation at your previous meeting and consider some downside risks to our federal funds rate projection, the black line in the left panel of slide 3. In the December Tealbook, the federal funds rate rises to 4¾ percent over the medium term, well above the median SEP path, the red line. As described in the bullets to the right, to arrive at our projection, we start from the same place you do—namely, an inflation target of 2 percent. We then add a neutral real rate of 50 basis points. We currently have output a little more than 2 percent above its potential level and expect that gap to widen over the projection period. With a coefficient of 1 on the output gap in the Taylor '99 rule that we use to specify the forecast's setting of the federal funds rate,

[3] The materials used by Messrs. Figura and Erceg are appended to this transcript (appendix 3).

it's therefore not surprising that we get to a peak funds rate of 4¾ percent. For us, the question is, "Why don't you arrive at a similar path?" As shown on your next slide, I consider two possible answers to that question, which I frame as risks to the staff projection.

First, I consider the possibility that current resource utilization is significantly lower than the staff is estimating. Second, even if the staff's estimate of the current output gap is correct, it could be that the economy's self-correcting forces when economic activity is well above its potential level are significantly stronger than the staff assumes and that, as a result, a reversion back to a zero output gap will require much less tightening of monetary policy than the staff believes.

Your next slide considers the first possibility: a near-zero output gap. The staff's current output gap estimate is similar to that using one of the state-space models that we maintain, shown in the black line in the left panel. But uncertainty about the output gap is quite high, and the 90 percent confidence bands using our model—the light green shaded area—currently encompass zero.

The table to the right explores one possible alternative configuration of slack margins in which the output gap is close to zero. Specifically, I assume a slightly lower unemployment rate gap than in the Tealbook, line 3, and continued slack along the participation rate margin, line 4. This leaves the gap for the employment-to-population ratio—the combination of the unemployment and participation rate gaps—close to zero, line 2. With the employment–population gap close to zero, it seems reasonable to assume that the other gaps, line 5, are also close to zero. In total, the alternative output gap is only slightly positive currently.

Much of the difference between the Tealbook and the alternative output gaps lies in the participation rate margin—which your next two slides examine in more detail.

With regard, first, to the staff's view, as shown in the top-left panel, the staff estimate of the participation rate trend—the black line—has declined since 2007 as a result of both population aging—the light blue shaded area—and downward trends in the participation rates of some demographic groups—the darker shaded area labeled "Within-group component."

Staff views on the within-group component have been influenced by research, including at the Reserve Banks and the Board, suggesting that changes in technology and trade have reduced the returns to work, and the participation rates, of lower-skill individuals. For example, the participation rate for prime-age individuals with a high school degree or less, the black line in the bottom-left panel, has declined much more than the participation rate of those with at least a bachelor's degree, the red line, over the past two decades.

In addition, recent research by Rob Valletta and Nathaniel Barlow of the San Francisco Fed uses changes in the share of routine manual-occupation jobs—which may have been particularly vulnerable to displacement due to trade or technology—to identify the effects of labor market polarization. Their research shows that states with relatively large declines in routine manual work, the *x*-axis in the right panel, tended to also experience relatively large declines in prime-age participation, the *y*-axis. As a result, Rob and Nathaniel estimate that labor market polarization led to a decline of 1.3 percentage points in prime-age participation between 2000 and 2017, with about half of that decline occurring since 2007. Analysis such as this has led the staff to conclude that the decline in participation rates of lower-skill workers is largely structural, not cyclical.

It's possible, however, that the depth and persistence of the Great Recession resulted in a much larger cyclical decline in participation than the staff assumes, and that the trend level of the participation rate is higher than the staff estimates and in line with the alternative participation rate trend described earlier and shown by the red line in the left panel.

The behavior of the prime-age participation rate, shown in the left panel of your next exhibit, offers some support for this view. Prime-age participation showed little evidence of a cyclical recovery until 2014, five years into the expansion, but has since then increased fairly robustly, especially for women, as shown in the red line. The recovery's long delay could mean that it is still incomplete.

Further evidence in that direction comes from recent data on prime-age individuals out of the labor force because of a disability—the top-right panel. Earlier in the economic expansion, many observers pointed to the upward trend in the number of these individuals as an indication that the decline in prime-age participation was structural, not cyclical. However, since 2014, there has been a striking reversal in this trend—suggesting that this interpretation may have been incorrect.

In addition, some evidence points to the possibility that many individuals currently outside the labor force could be drawn into employment. As shown in the bottom-right panel, the number of new jobs filled by formerly unemployed individuals, the red line, has continued to decline recently, in line with the very low unemployment rate. However, the number of new jobs filled by individuals coming from out of the labor force, the black line, remains quite high—suggesting continued ample supply along this margin.

In sum, the possibility that the output gap is currently close to zero and that slack along the participation rate margin still exits, while not corresponding to our modal estimate, seems plausible. Such an estimate, when combined with a belief that growth in aggregate supply and aggregate demand over the projection period will be balanced when the funds rate is near its longer-run neutral level, would likely generate an expected path of the federal funds rate of around 3 percent over the medium term and may be one reason that the staff's path for the policy rate is above that of some other forecasters.

The remaining slides examine the possibility that the economy's self-correcting forces are stronger than the staff assumes. In the staff projection, the output gap—the black line in the left panel—is projected to be at or above 2½ percent for the next three years despite a funds rate that is quite restrictive, the right panel. However, uncertainty about future output gaps is quite high, and a 90 percent confidence interval—the light blue shaded region in the left panel—includes zero by the middle of 2020.

Your next slide examines some of the influences on the staff's output gap forecast. The staff believes that substantial momentum in aggregate demand will prevent a significant reduction in the output gap over the medium term. As shown in the top-left panel, this momentum is due to a number of factors, including substantial fiscal stimulus through 2020, shown to the right; elevated consumer confidence, not shown; household wealth that has recently reached historical highs relative to income, the bottom-left panel; and accommodative financing for businesses and households, also not shown. Finally, a relatively elevated personal saving rate, shown in the lower-right panel, suggests that ample room remains for consumers to spend out of current income.

As shown on your next slide, however, an output gap approaching 3 percent suggests that there may also be sizable forces pushing the economy back toward a more sustainable level of activity. To investigate this possibility, we condition the staff's FRB/US model on the staff's judgmental estimates of all aspects of economic activity in the current quarter, including the output gap, and then ask it to project the output gap forward. In this simulation, there are assumed to be no shocks to the FRB/US model's private aggregate demand or financial equations after this year. But the FRB/US model has a very rich dynamic structure that propagates forward the shocks received until now.

As shown by the red line in the top-left panel, this simulation projects a considerably more rapid reversion of the output gap to zero over the medium term than the staff's, despite a funds rate path that is below the staff's, the right panel. In particular, the FRB/US model projects that the positive effects of aggregate spending, monetary policy, and risk-spread shocks will fade or reverse relatively quickly over the medium term. Also of note is that equity prices decline 15 percent in this simulation, and GDP growth is close to 1 percent over the medium term.

To step back from the details of any particular model: What fundamental forces might be pushing activity back toward more sustainable levels? With resource utilization quite tight, the probability of hitting constraints along some margin of supply—in particular in the labor market—appears relatively high. For example, as shown by the black line in the lower-left panel, data obtained from the JOLTS survey suggest that the time it takes employers to fill job vacancies is now well above readings at prior cyclical peaks. And responses given in the most recent Beige Book survey, indicated in the red line, show a sharp increase in the share of employers responding that they have had difficulty hiring because they cannot find qualified workers.

Although monthly employment gains thus far suggest little imprint of such constraints, as we go forward it's possible that they will limit output growth by more than we assume. Furthermore, increasing signs that resource constraints will hamper future growth may lead financial markets, businesses, and households to downgrade their economic outlooks, resulting in weaker asset prices, credit supply, household and business sentiment, and aggregate spending. For example, in the staff projection, an acceleration in labor costs along with a deceleration in demand leads to a net decline in domestic corporate profits, the right panel, over the medium term. The realization of this outcome may have greater effects on equity prices and business hiring and investment than the staff assumes.

In sum, in the staff projection we make the implicit assumption that monetary policy will need to provide much of the correcting force necessary to bring activity back to a sustainable level. But it is certainly possible that the economy's own self-correcting forces are stronger, and will be activated sooner, than the staff assumes. If so, the funds rate path will likely be lower than the staff currently projects. Chris will now continue our presentation.

MR. ERCEG. Sharply falling oil prices, weaker-than-expected data, and tightening financial conditions have raised widespread concerns about the health of foreign economies. We've been revising down our outlook for growth abroad but are not anticipating a sharp further slowdown. Looking ahead, we expect that the foreign economies will grow at 2½ to 2¾ percent per year, close to our estimate of potential. Even so, these economies face formidable downside risks and have limited policy space.

As discussed on the next page, while incoming data from abroad have been disappointing, they still seem consistent with continued moderate expansion. A staff index of foreign economic conditions utilizes a broad set of economic indicators to gauge the health of foreign economies—including retail sales, industrial production, GDP growth, and new export orders. This index co-moves strongly with the business cycle and drops sharply at the onset of foreign recessions. Although the index has dipped from its 2017 peak, it is near the midpoint of its range—a level typically associated with solid near-trend real GDP growth and comfortably above levels usually associated with recession. That said, there are areas of concern, including the euro area. Though euro-area PMIs remain in expansionary territory—consistent with our forecast that the euro area will resume growing near potential next year—GDP nearly stalled in the third quarter. More generally, we recognize that recessions are hard to predict—and there's probably no surer way to ensure a recession does occur than to issue a clean bill of health—but at least the data aren't screaming that a foreign slowdown is imminent.

As shown on the next page, while financial conditions have tightened in both AFEs and EMEs since September, we see the drag as likely to be quite moderate. To understand why, it's helpful to take a "look under the hood" of our forecasting machinery. Staff indexes of financial stress, such as that for the AFEs shown in the panel—the red line—have moved up as corporate bond spreads and equity market volatility—key components of the indexes—have increased. However, the rise is only modest—far less than in 2016. The right panel shows the effects on output of major AFEs derived from a structural VAR that includes these country-specific financial stress indexes and where the shock to financial stress is scaled to equal the surprise in the index between the September and December Tealbooks. As seen in the right panel, the effects on GDP—while material—are still fairly moderate, and thus we have made only a small adjustment to the outlook.

As discussed on the next page, a much sharper increase in stress would be quite challenging for AFE central banks considering that, even in a relatively normal financial environment, they likely will have to keep policy rates near zero—see the lower-left panel—just to expand at their modest potential growth rates. By implication, real interest rates in the euro area, Japan, and the United Kingdom are expected to remain in significantly negative territory through 2020 before gradually edging up to a long-run level of roughly 0 to 1 percent—in line with the estimate of long-run *r** of the Holston-Laubach-Williams model in the middle panel. Because short-run *r** appears very low, monetary policy would have limited ability to offset any shocks that cause a persistent tightening of financial conditions. In addition, high government debt would likely constrain fiscal policy. This limited policy space leaves these economies highly vulnerable to a "cocktail of risks" that I'll consider in your next slides.

One key risk is Brexit. We continue to assume that the United Kingdom and the EU will cobble together a plan for an orderly transition to a sustained close economic partnership post-Brexit. However, the U.K. government faces huge challenges in gaining support for the arrangement it worked out with the EU—as exemplified by last week's cancellation of a parliamentary vote on the plan and subsequent challenge to Prime Minister May's party leadership.

The timetable for negotiations is running out, and, if the government's plan is not approved, alternative outcomes include a second referendum on Brexit or even a spectacular "no deal" Brexit that would catapult the U.K. from the EU on March 29. The latter outcome would likely roil global financial markets and plunge the U.K. into a recession.

Italy's standoff with the EU, the subject of your next chart, is another salient downside risk. The Italian government has recently indicated a willingness to aim for a smaller budget deficit, and this more conciliatory approach has led to some easing in sovereign risks spreads. However, financial conditions remain tight and are weighing on Italy's economy, with output falling in the third quarter. A prolonged growth slowdown could push government debt to frightening levels—as suggested by the scenario in the right panel—and increase tensions with the EU. Slow growth, higher credit spreads, and heightened financial stresses would also weigh on Italy's already weak banking sector. Although we expect that the Italian government and the EU will be able to keep the situation contained, there remains a significant risk of escalation into a full-blown financial crisis.

On the next page, I'm going to skip over a few remaining items on our laundry list of perennial risks, including a China hard landing and financial crises in vulnerable emerging market economies. But I note that Latin America continues to look fragile, including because of greater uncertainties in Mexico: Mexico's new populist government has canceled a major airport project and slowed privatization in the oil sector, signaling less market-friendly policies.

And we also remain concerned about trade policies, discussed on your next page. As shown on the bottom left, worries about trade policy have bounced back to near-peak levels. As shown by the table on the right, these worries appear to be mainly about a future heightening of trade tensions, as the effects of trade policies implemented thus far are quite small: The level of U.S. real GDP is depressed about 0.2 percent by the end of next year, line 7, and core consumer prices are 0.1 to 0.2 percent higher. The Administration's highly visible trade negotiations with China have won some concessions, including China's pledge to buy more U.S. agricultural and energy goods and the lifting of some of China's retaliatory tariffs imposed this summer. However, the Administration is pressing for rapid progress in opening China's markets and in the protection of intellectual property, and it is uncertain whether the negotiations will succeed in taking further sharp tariff hikes off the table.

Arrangements with Canada and Mexico represent another flashpoint for trade tensions, with the Administration suggesting it might pull the plug on NAFTA to improve the chances of the Congress approving the USMCA, NAFTA's successor. We expect the USMCA will pass following a bumpy legislative process, but its passage is not assured.

As discussed on the next page, considering that new tariffs have only been implemented on about one-eighth of merchandise imports, it is not surprising that their effects are not apparent in overall trade numbers. Even so, recent data suggest tariffs may be having some effects on trade flows. While the aggregate value of imports from China has continued to expand markedly in recent months, this may reflect some degree of front running. In particular, the value of imports on which 10 percent tariffs were applied in late September—the red dotted line—rose faster than nontariffed goods until that time—the black line—consistent with the story that buyers were advancing purchases due to concern that tariffs would be imposed, whereas imports of goods already tariffed at 25 percent, perceived as a likely maximum, have started to nosedive—the blue dotted line. The right panel shows U.S. exports to China have fallen sharply, driven by especially sharp declines in agricultural exports—an area in which China imposed high retaliatory tariffs.

The next slide indicates that there is some tentative evidence that tariffs may be boosting prices. The left panel shows that import prices on goods from China—which are measured pretariff and hence would be expected to fall if Chinese producers were lowering their markups—have been flat through October, the last observation. This suggests that the tariff hikes are passing through to U.S. buyers, but it is very unclear whether those hikes will be absorbed by U.S. importers, downstream producers, or final consumers. New research by my R&S colleague Aaron Flaaen uses the input–output tables to account for sectoral linkages in the use of imported inputs and finds—see the lower-right panel—that producer prices have risen somewhat faster in U.S. manufacturing sectors that depend more heavily on imported goods hit by the recent tariffs. But it's clearly difficult to estimate the effects with much precision.

As considered in the next slide, while the effects of tariffs imposed thus far likely have had only small effects on consumer prices, much larger tariff hikes could confront policymakers with a tradeoff between containing inflation and supporting output. The tradeoff may well depend on whether tariffs are imposed mainly on final consumption goods or on capital goods and intermediate inputs, as it's at least plausible that tariffs on imported inputs have smaller effects on consumer price inflation than tariffs on final consumer goods. Most of the recent tariffs applied by the United States to China—75 to 80 percent according to a Peterson Institute study by Bown and others, seen in the pie chart—have been on capital and intermediate goods.

To explore this, your next slide considers a simulation of the staff's SIGMA model that compares the imposition of a broad-based unilateral tariff on all imports—final consumer goods as well as capital goods in the model—with a tariff levied exclusively on capital goods. The broad-based tariff boosts consumer price inflation markedly, the black line, reflecting the feature that the higher tax on imported consumption goods is only partly offset by dollar appreciation. By contrast, the tariff levied exclusively on capital goods reduces inflation as the dollar appreciation lowers the price of consumer imports. Inflation, the red line, remains restrained thereafter because real wages decline substantially; in effect, firms force their employees to bear the tax rather than their customers. Monetary policy tightens in response to the broad-based tariff increase, but it eases a bit if tariffs are levied only on capital goods.

Tariff hikes appear to have had only muted effects on U.S. consumer price inflation so far. However, if future tariffs on China or other countries target a larger share of consumer imports, we may see more sizable effects on consumer prices, and the issue of possible tradeoffs could become more material. Thank you. Michele will now continue the presentation.

MR. CAVALLO.[4] Thank you, Chris. I will be referring to the packet labeled "Material for Briefing on Summary of Economic Projections." To summarize, many of you marked down slightly your projections for real GDP growth and inflation in the near term. In addition, the median path of the federal funds rate is now a little flatter than in your September projections. On balance, your assessments of the uncertainty and risks surrounding your projections are little changed.

Exhibit 1 summarizes your economic projections, which are conditional on your individual assessments of appropriate monetary policy. As shown in the top panel, the medians of your projections for real GDP growth this year and in 2019 have been

[4] The materials used by Mr. Cavallo are appended to this transcript (appendix 4).

trimmed slightly, with several of you mentioning tighter financial conditions or a softer global economic outlook as factors behind your downward revisions. Most of you continue to expect real GDP growth to slow throughout the projection horizon, with the median growth rate in 2021 now a touch below the median estimate of its longer-run rate. As shown in the second panel, the median of your projections for the unemployment rate falls from 3.7 percent in 2018 to 3.5 percent next year, before edging back up in 2020 and 2021. Most of you continue to project that the unemployment rate in 2021 will still be well below your individual estimates of its longer-run level. As you can see in the lower panels, the medians of your projections for both headline and core inflation this year and in 2019 are a bit lower than in September. Some of you pointed to softer incoming data or recent declines in oil prices as reasons for shaving your projections for inflation in the near term. All of you project that headline inflation will be in a range from 2 to 2.3 percent in 2020 and 2021.

Exhibit 2 reports your assessments of the appropriate path of the federal funds rate. The median of your projections, indicated by the red horizontal lines in the top panel, stands at 2.4 percent at the end of this year and 2.9 percent in 2019, consistent with a 25 basis point increase at this meeting and two more next year. Compared with your September projections, the median federal funds rate is unchanged at the end of 2018 but is 25 basis points lower after that. Some of you cited a weaker near-term trajectory for economic growth or a muted response of inflation to tight labor market conditions as factors contributing to the downward revisions in your assessments of the appropriate path of the policy rate. The vast majority of you judge that the appropriate level of the federal funds rate in 2020 and 2021 will be above your individual assessments of its longer-run level; but many of you narrowed the extent of this overshooting.

The red diamonds and green squares in exhibit 2 show the median prescriptions for the federal funds rate using non-inertial and inertial versions of the Taylor (1999) rule, respectively, that take as key inputs your individual projections for core inflation, the unemployment gap, and the longer-run federal funds rate. As in the past, the rates prescribed by the non-inertial Taylor rule are notably higher than your projections, reach a peak earlier, and then taper slowly toward the longer-run values; by construction, the prescribed paths under the inertial Taylor rule start out much closer to your projected levels, but the gap widens steadily over the projection period. The difference between the rule prescriptions and your individual assessments of the appropriate path suggests that, with inflation near your objective, you do not see a need for responding to the projected unemployment gaps as aggressively as the Taylor (1999) rules would call for.

The panels of exhibit 3 present your judgments about the uncertainty and risks surrounding your projections. As shown in the left panels, most of you continue to view the uncertainty attached to your projections as broadly similar to the average over the past 20 years. As illustrated in the right panels, most of you generally judged the risks to the outlook as balanced. Two more of you now see the risks to real GDP growth as weighted to the downside. In addition, one fewer of you now views the

> risks to inflation as weighted to the upside. In your narratives, trade tensions as well as developments abroad were mentioned as sources of uncertainty or downsi.de risk to the growth outlook. For the inflation outlook, the effects of trade restrictions were cited as upside risks and lower energy prices and the stronger dollar as downside risks. Thank you. That concludes our prepared remarks. We would be happy to respond to your questions.

CHAIRMAN POWELL. Thanks very much. Any questions for the staff? President Rosengren.

MR. ROSENGREN. Thank you very much for the presentation highlighting the difference between the December Tealbook and the September SEP. I wonder if some of the differences between the two could be related to the fact that the Tealbook projection associates very low costs with being well beyond full employment.

You don't have inflation going up very much at all, and you don't show a very high probability of going into a recession. One implication of that is that the Committee might be much more tolerant of a much longer time period to get back to full employment than you may be using. Is that a possible alternative explanation for why the SEP and the Tealbook diverge so much?

MR. FIGURA. I think so. It's true that the December Tealbook has inflation basically at 2 percent over the medium term, which is right at your target. So that's not telling you that you need to do very much in response to that.

We do have an output gap that approaches 3 percent—which is pretty high. There are possibilities that you may want to avoid having a high output gap because it might stimulate, or be reflective of, financial imbalances in the economy that could be harmful later on. So I think, conditional on the Committee not being worried about those financial imbalances that might be caused or reflected by an output gap, then I guess with just inflation not being very high—

MR. ROSENGREN. Yes. But just to follow up, when we look at the probability of a recession, the staff has not shown an elevated probability of a recession, which would presumably be reflected if we had much higher financial stability risk. So at least one implication is, if there is very low cost to being beyond full employment, then you have high willingness to tolerate that for a long period of time and are very patient in getting back.

So there is somewhat of a cost-benefit calculation. Maybe being at 3.1 percent implies an extremely long period of time before you get back to full employment. But if there is no cost to it, a very extended period of time of having the output gap being positive may not be as problematic. It's an alternative hypothesis regarding why the SEP and staff forecasts diverge.

MR. WILCOX. I'm a little slow on the uptake, but I'm not following the logic. We have a larger unemployment rate gap for longer than you do. And I'm behind a step in terms of understanding why that implies that the mythical median Committee participant would perceive a lower cost to running the economy a little "hot."

MR. ROSENGREN. We don't forecast out beyond 3 years. Say we're willing to wait 15 years to get back to full employment because we view the costs as being so low. You're not assuming in your forecast that you're willing to wait 15 years to close that gap, right? You're assuming a much shorter period—you're assuming that we want to get back to what our estimate of full employment is. So—

MR. WILCOX. That's true. It's a little hard to divine the inner logic of the SEP forecast, as it's a median. But an alternative interpretation—which I think squares with the facts at least as well as your rendition does—is that you all have a lower natural rate of unemployment. So you have a smaller unemployment rate gap. You have the unemployment rate never getting quite as low as we have it. So, again, that suggests that you have less pressure in the economy than we do. So, it's true, over the next three years we have the economy operating further beyond its potential for longer. But I don't know. I'm not convinced that your narrative squares.

CHAIRMAN POWELL. David, can I just check my recollection—I seem to recall from the September meeting, though, that in the baseline forecast, the staff forecast, we don't get back to the natural rate of unemployment for many years—8 to 10 years, I think he said.

MR. WILCOX. That's right. And because we have inflation so exceedingly well anchored—I mean, it's not literally nailed to 2 percent, but it's pretty darn sluggish in responding to the economy being in high-pressure mode. You all don't incur a lot of costs on the inflation front.

CHAIRMAN POWELL. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. Just on the same risks, explaining the difference—and, first of all, thank you for doing the analysis; I appreciate it. Let me just give you my simple take.

Risk number 1 is, there is more slack in the economy than in the baseline, and I understand that.

Risk number 2 I'm still trying to understand. Risk number 2 is, there is not more slack in the economy. Firms can't find workers, but it doesn't lead to inflation. Did I hear that right? I'm trying to understand the mechanism behind the second one, because that one is a little less clear to me.

MR. FIGURA. Yes, you're right. It doesn't lead to inflation. What it leads to is a change in expectations about future real GDP growth, because there are these constraints. And so it depends on there being expectations that are somewhat elevated right now about future growth. And then bumping up these constraints reminds people that, no, that's probably not a realistic outlook to assume when the economy is so far above what it should be in the longer run. And that change in expectations brings demand down, and the economy returns to—

MR. KASHKARI. Does that change in expectations—is that somehow related to a change in inflation expectations, or do you see those as distinct?

MR. FIGURA. I guess I see those as distinct. I guess one way to think about it is to think about the profitability chart that I showed you. In this scenario, the economy gets very tight. Corporations don't raise their prices. Instead, their profit margin gets compressed as higher wages, alongside prices that don't rise, squeeze profits. And, in response, they think, "This isn't where I want to be. It's time to start investing less and laying off workers," and the economy returns—so it's a different type of explanation.

MR. KASHKARI. Thank you.

CHAIRMAN POWELL. Thank you. President Bullard.

MR. BULLARD. Yes. Just to follow up on this conversation: Would President Rosengren's view be summarized as an asymmetric loss function in which the Committee just puts different weight on unemployment being below target instead of asymmetrically?

MR. FIGURA. I think having a different policy rule is an explanation for some of the differences between the SEP median and the staff projection.

MR. BULLARD. Well, that's considered a different policy rule.

MR. FIGURA. What's that?

MR. BULLARD. That's considered a different policy rule.

MR. FIGURA: Yes. I'm sorry. What did I say?

MR. BULLARD. Well, there is an objective function, and then from the objective function you derive a policy rule. That would be one way to do it. So if you put in an asymmetric loss function, which is in the back of the Tealbook, then you get different answers about projected funds rates.

MR. FIGURA. Yes. I think that's a partial explanation. But in that scenario, I believe the unemployment rate falls very low. I think, in addition, in order to recover a SEP path, you would also have to have aggregate demand being less than the staff is assuming, or else, if you just accept the staff's aggregate demand with an asymmetric policy rule, you get to a very low unemployment rate; and that's not in the SEP median path.

MR. WILCOX. That's absolutely right. I mean, the asymmetric policy rule alone isn't going to get you the outcome that Andrew illustrated.

MR. BULLARD. Just to be clear, it's asymmetric loss function.

MR. WILCOX. Sorry. I meant—yes, I misspoke.

MR. BULLARD. Okay. I just wanted to make sure we're referring to the right thing. So I look in the Tealbook, and I look at Blue Chip forecasts, and all of the staff forecasts for all of the variables are within the top 10 to lower 10 of the Blue Chip except for one: the short-term rate, which is outside the range of the very top of the Blue Chip, the top 10. It just seems to me like we're the only ones that are sticking to the Taylor (1999) rule. Everyone else has adopted something else.

MR. FIGURA. Yes. I mean, because what I find also interesting about—

MR. BULLARD. I'm beginning to wonder if it's written in the ancient texts somewhere that we must stick to a Taylor (1999) rule. I mean, if there were other types of theories that we dealt with that were this far off, or that were giving us recommendations that were this at odds with what the rest of the market thought and with what even policymakers thought, we would probably abandon those theories and go to some other benchmark.

MR. WILCOX. That's fine. As I've said many times to the Committee, I have been prepared, and the staff collectively is prepared, to take instruction from you all. We use the Taylor (1999) rule as an objective benchmark. And if we substituted something that was more accommodative, if we are doing our job correctly, then, with a more accommodative monetary policy, we'll have a little "hotter" economy and just ever-so-marginally slightly higher inflation rate. The underlying economics would be exactly the same. And one thing we could do in Tealbook A in the Monetary Policy Strategies section is to run our same economic analysis with different policy rules and objective functions. So that's fine with us.

The characteristic that is I think quite essential in the procedure that we use is that we are trying to put forward a projection that is "auditable" by the Committee. So we can give you an explanation—basically, down to the basis point—of why is it that the funds rate is *X* amount higher or lower this time than it was a year ago. And be able to answer that it is not because we felt like it; the answer is, we can trace the reason back to change in the output gap, change in the inflation rate gap. And it really is that simple.

CHAIRMAN POWELL. Thank you. Vice Chair.

VICE CHAIRMAN WILLIAMS. I'm going to answer the question "Why am I jumping down this rabbit hole?" Because it's there [laughter]. But I want to combine these two conversations, and I could pick up on what David just said—but also tying it to the SEP chart, exhibit 2.

Typically, President Bullard uses this as an opportunity to once again bring up "Why are you showing us our policy rate path relative to this antiquated, outdated Taylor (1999) rule?"

which is kind of the theme of this conversation. But you actually did bring up something in your briefing that I thought was actually informative [laughter], which is, perhaps one interpretation of what we're doing is that we're following something like the asymmetric weight on the unemployment rate gap in Tealbook A. That's a good way to potentially think about that.

Of course, it's really easy for you to think about. You could take a Taylor rule or a policy—a Taylor rule with an asymmetric response or something that you feel captures that, and you could actually show that on the chart. And you would show that, as the unemployment gap, say, leads to a zero response—just to take a simple version—inflation is running at 2 or maybe a little bit above for most people. You know our r^*'s. You know all of our forecasts. Would that give you something that kind of looked like what our forecasts were? I actually think that would be informative for this discussion to show in this picture the rule that we have in Tealbook A or something that's closest to what we're doing, as opposed to just pounding on this "Taylor (1999), we're not doing Taylor (1999)." I don't know. It seems to tie into this. I'd be curious to see if you ran that analysis whether it looks like we're running the asymmetric policy in making our SEP submissions.

MR. LAUBACH. Vice Chairman Williams, as luck would have it, we thought about exactly that idea and hope to have it in time for the next SEP questionnaire.

The one thing that I'm a little unclear about is, we understand that normally there isn't necessarily a one-to-one linkage between a particular form of loss function and a particular form of interest rate rule. So the one thing that I'd just be a little cautious about is, the point of putting any symbols on this page was never to exactly try to reconstruct what could be a reaction function that describes the median path.

But, obviously, we can look, because the asymmetric loss function has come up as an object of interest, in and of itself. We can try to ask, “What if we translated that into a Taylor-type rule that basically eliminates the unemployment rate gap response when the unemployment rate gap is negative?,” and see what that does.

VICE CHAIRMAN WILLIAMS. I’m glad to hear that, because I think it’s actually a more constructive connection between what we’re writing down as some kind of notion of what our objective is and—again, as David Wilcox has said, the Tealbook actually goes through that, and has been for—

MR. LAUBACH. I think it’s important. What we show, of course, in Tealbook A are these, for example, optimal control simulations with an asymmetric loss function using the staff baseline projection, and there you get very different economic outcomes. So there is, of course, the additional difference—namely, that, in some sense, with such a policy rate path, the staff projection would be quite different from the SEP median in its economic outcomes.

MR. WILCOX. Right. And to restate what Thomas just said; Essentially, you would recast the difference between economic projections between the staff and the Committee. At the moment, our economic projections are quite similar to your medians, but the policy rate path is different. If we made our policy rate path more similar to yours, we’d elevate our economic outcomes above yours.

VICE CHAIRMAN WILLIAMS. But that’s not the question I’m actually talking about. I’m not interested in the Tealbook versus the SEP. I’m actually looking for something that helps us frame our SEP submissions on the basis of the coherence of the projections themselves. So thinking about it in terms of, instead of showing us the Taylor (1999), it shows something that maybe is closer to how we’re thinking about this.

CHAIRMAN POWELL. President Barkin.

MR. BARKIN. This is just a basic question. The FRB/US model has a very different path from that in the staff projection. And you probably said this. Just one more time: What, in layman's terms, is what drives that significant of a difference?

MR. FIGURA. The FRB/US model is interpreting what is happening right now and in the period beyond this year—it's interpreting what is driving an output gap of 2¼ percent, which is what we've told it is occurring. And it thinks that's due to monetary policy shocks—the fact that the policy rate path hasn't increased as much as the policy rule would have predicted—aggregate demand shocks to the spending equations—the fact that BFI and PCE expenditures have come in a little higher than expected—and risk premium shocks—the fact that equity premium and bond spreads have been fairly low over most of this expansion.

And then it's saying, okay, given that those are the shocks that are driving the output gap, what would I expect, assuming that the historical behavior of these shocks continues? And what it expects is that those shocks are unwound pretty rapidly—both the monetary policy shock and the effect of the spending shocks—and the risk premium shock goes from being something a little bit positive to being something negative, and those are the forces bringing down the—

MR. BARKIN. So it sees it as going through a significant one-time event as opposed to anything with sustaining momentum.

MR. FIGURA. Yes, yes.

MR. BARKIN. Okay. Thank you.

MR. WILCOX. One way the process that Andrew's describing manifests itself is in equity values. And in the staff projection, what we've written down is very modest appreciation in equity prices of about ½ percent per year, because we see valuations in equity markets now as a little elevated.

And we haven't quite had the guts to write down outright declines in equity prices, but we've written down increases that are way below historical averages. The FRB/US model has no compunction about writing down significant declines in equity prices, and, in a modestly rising rate environment, the decline in equity prices is about 15 percent.

CHAIRMAN POWELL. Thank you. President Mester.

MS. MESTER. Thank you. First, David, thank you for your service to the Committee. I really appreciate it. I have a question about—the supply constraints analysis in the Monday morning briefing I found very interesting, and it got me to think about the labor market, and perhaps we're making inefficient matches between jobs and workers. I hear that from my business contacts. How does that work in the models—should I be thinking about it in terms of productivity growth and the supply side of the economy? Do we take into account any of that in any of the things that we do here? And how should I be thinking about that?

MR. FIGURA. So I do think we think, as the economy gets tighter and people are being drawn into the labor force to fill jobs, a lot of those people don't have—their skill level is below the average of the employed people right now. 73ut73 in a composition sense, that should reduce productivity a little bit in the future. We have that in the forecast. Productivity growth is a little bit below trend over the medium term. I don't know if that is—

MS. MESTER. Yes. Is there any work going on that actually tries to assign a quantity to these things? I haven't seen much work that actually tried to quantify this, but I don't know if there's literature.

MR. FIGURA. Yes. Mary Daly and Bart Hobijn have done some work on this. [Laugher] The BLS, in publishing its multi-factor productivity (MFP) and productivity statistics, comes up with an estimate of the contribution of labor quality that controls for experience and education. And so you can follow that over time. It tends to be countercyclical. That is, when, in recessions, firms tend to lay off their least-skilled individuals, and so the average productivity goes up—tends to rise—and labor quality increases, and then it tends to decline over the course of an expansion. So I think people have looked at it.

CHAIRMAN POWELL. President Daly.

MS. DALY. I'm going to ask an actual question, but I am happy to talk more about that and have it in my statement. Can I ask a question on page 7 of the exhibits? Andrew, we're using, especially, the lower-right panel on "New Employees by Prior Labor Force Status" to talk about why there might be remaining slack in the labor market. And when you did that, if I understood how you were referencing the chart, you were looking in the cross section. You were saying, well, in the cross section, "From not in the labor force" is high and "From unemployed" is low.

But I was wondering if you looked over at the time series, if you could get anything from that, and what you did take from that, because it looks to me, just optically, that when you get to late parts of the expansion, you see "From not in the labor force" level off and maybe even go down, and "From unemployed" go down. And so that's another way to think we might be running out of slack, because we are already at these low levels. And so I just want to know if you guys took anything in the staff discussions of these time seriese.

MR. FIGURA. You mean comparing, let's say, the level—

MS. DALY. Over recessions and business cycles, the business cycle frequency fluctuations essentially, the dynamics.

MR. FIGURA. I'm not sure I understand where you're coming from, but let me try first, and then you can correct me.

MS. DALY. Sounds good.

MR. FIGURA. When I look at the black line, I compare it with previous cyclical peaks, and it seems a little bit higher than before. It seems to be perhaps lasting a little bit longer than it has previously, and that raises the possibility that maybe this is a little bit more sustainable than before. Though the purpose of this chart is not to support the staff view. It's to support an alternative view that maybe there is a possibility that there's more slack out there than we are estimating right now. And this might be one thing that you could look at.

MS. DALY. Now that you've said that, let me try it again—better said, I think. One way to interpret that is that it's above the previous peak, so there's more "room to run." Another way to do it is say, it's above the previous peak, and there's less room to run—we're already past what we usually have achieved, and so we might be even further into a tight labor market than is typical. And I wondered why you took the first interpretation over the second interpretation.

MR. FIGURA. Because I was looking for evidence that might support the view that there is more slack out there than we are anticipating. [Laughter]

MS. DALY. I see. Okay. Well, as long as it's not fundamentals-driven. It's just that you were saying, "Okay, one could look at this picture this way." So is the right way to think about what you described that one could look at this picture and think this, but there's an equally plausible way to look at the picture and think that, because you don't have additional evidence to try to take one position over the other.

MR. FIGURA. Yes, I think—

MS. DALY. And that's fair. I just wanted to make sure I understood.

MR. FIGURA. That's correct.

MS. DALY. Thank you.

MR. WILCOX. If we were in a court of law, we would say that what Andrew was doing was providing representation for a client whose position is different from the staff baseline and doing the best he could to assemble some evidence in support of that client's position.

MS. DALY. Don't read my question as a complaint—I just wanted to make sure I understood how much emphasis or weight I should put on it.

MR. WILCOX. Right.

MS. MESTER. Reasonable doubt.

CHAIRMAN POWELL. Can I just be clear? Do you agree, then, that the hypothesis is a 50–50 one, that it could be either?

MS. DALY. Do I? No.

CHAIRMAN POWELL. So you think it's more likely evidence that we're running out of slack than—

MS. DALY. But let me be clear. I would start with this picture, and have started with this picture, and I say, okay, it looks like we're above the levels we usually achieve. Now let's look at other pieces of evidence that would help me understand if it's 50–50.

And when I look at the other pieces of evidence, I come down on the side that this is more likely an indication that we have exceeded a tight labor market threshold in a way we haven't in the past than it would be evidence of additional slack. But that's using other evidence too, not just looking at this picture.

CHAIRMAN POWELL. Any more questions? Thank you very much. Then let's move to the outlook go-round and begin with President Bostic.

MR. BOSTIC. Thank you, Mr. Chairman. With deepest apologies to Charles Dickens, when discussing current economic conditions with my directors and contacts, I was often reminded of his famous novella *A Christmas Carol*. I believe my contacts have been visited by the Ghost of Christmas Present. In the original story, this spirit appears to Ebenezer Scrooge as a jolly giant amid a roaring fire alongside a decadent Christmas feast and holding a cornucopia for a torch. It is a personification of abundance, celebration, and happiness, and, in short, the personification of the sentiment we have gathered from firms about current business conditions.

On balance, firms report robust activity through the end of 2018 with strong profits and, for a few of my contacts, record revenues. Sixth District retailers appear to be enjoying a step-up in holiday sales on last year's levels that is, in general, meeting or, in some cases, exceeding their expectations. These good tidings even extend to firms' ability to manage input costs and tariffs in the current pricing environment. Contacts appear to be increasingly comfortable passing on or absorbing these increases. In the business-to-business space, especially in tariff-related cost increases, many firms are passing these along with little pushback or effect to margins. Yet, as evidenced by the recent trajectory of retail prices, much of these increased costs have yet to have a visible effect on the final consumer. Here, contacts describe a variety of cost-absorbing phenomena—such as the better ability to negotiate with foreign suppliers and the relative strength of the dollar—generating offsets, and the existence of cost-saving efficiencies elsewhere in the organization.

Reports regarding labor market conditions have more or less remained consistent with previous cycles, with one exception. In response to continued hiring difficulties and a step-up in turnover, as evidenced by the high quits rate, firms appear to have pivoted toward focusing more aggressively on retention. These anecdotes appear to be borne out in the recent Atlanta Fed wage tracker data. Typically during expansions, wage growth for job switchers outpaces wage gains for job stayers. However, in recent months, we have seen a sharp uptrend in the wage growth for job stayers relative to job switchers. This appears to be consistent with the behavior of firms facing increased labor turnover.

Despite what appears to be an abundance of optimism over current conditions, when I asked my contacts to describe what the future holds for them, the shift in the mood and tone was palpable. It was as if I had unwittingly conjured the Ghost of Christmas Yet to Come, that phantom which, quoting Dickens, “slowly, gravely, and silently approached. . . . for in the very air through which the Spirit moved it seemed to scatter gloom and mystery.” And maybe it’s more mystery than gloom per se, but expressions of significant and growing concerns about softening demand were a common theme among my contacts and Sixth District directors. In some cases, these specters of uncertainty are clear and defined—tariffs, for example. However, I have heard a growing and amorphous anxiety regarding impending slowdown.

The sentiment regarding future business conditions appears to be creating an increasingly risk-off environment. To this end, I heard a few reports that companies are starting to look at their own business strategies and initiatives to get their house in order in anticipation of slowing economic conditions, through either deleveraging or holding off on expansionary projects. We have some survey evidence that suggests a soft trajectory for capital investment spending heading into 2019. In our Survey of Business Uncertainty—a national survey of firms we conduct with partners at the University of Chicago’s Booth School and Stanford University—

expectations regarding capital investment over the year are relatively low, and uncertainty regarding investment plans has risen to its highest level since mid-2015.

Worries about tariffs and trade have dominated the conversations about the outlook and are present in additional survey evidence we collect. Every December for the past handful of years, we have posed a special question to Sixth District firms in our Business Inflation Expectations survey, asking them in an open-ended framework to provide their biggest concerns for the year ahead. Employing a text-analytics approach, we then categorized their responses into a broad set of topics. Over the past three years, perhaps not surprisingly, the topic of costs has topped the list. The interesting part is that, inside this broad category, the main driver of cost concerns has changed each year. This year, tariffs emerged as the dominant source of concern regarding business costs in the year ahead, even outstripping concerns over labor costs. While firms appear to have absorbed the initial rounds of tariffs, should tariff rates increase from here or encompass a broader set of goods, my contacts have said that this would likely create significant challenges. They appear to have hit their limit on cost-absorbing measures, meaning the next round of tariffs will be a direct hit to the consumer. Concerns over what that would do to sales growth are at the top of their mind at the moment.

I have yet to change my baseline forecasts of real GDP growth or inflation materially, but the risks to my outlook are no longer tilted toward the upside. I think we ought to pay particular attention to how firms are confronting the Spirit of Christmas Yet to Come. To that end, my sense is that the happy feeling of the present will give way to more miserly behavior. And while I don’t want to come across as a Scrooge, my staff literally begged me not to say “Bah, humbug!” in the statement. [Laughter]

MR. HARKER. But you just said it. [Laughter]

MR. BOSTIC. This policy does have implications for my views of the spirit of monetary policy yet to come, but more on that tomorrow. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you very much. Governor Clarida.

MR. CLARIDA. Well, that's a tough act to follow. [Laughter] Thank you, Mr. Chair. Any outlook for the economy must contain at least three elements: You need a set of initial conditions and data, you need some sort of model for the economy, and you need a reaction function to combine with the first two into a forecast. A model can be mathematical or judgmental or some combination. But even a "gut instinct" model is needed to deliver a forecast using the data. The outlook can focus on means or on tails scenarios. So I thought I'd talk a little bit right now about my thought on initial conditions, then give you some of my thinking about models, and then talk about some of the risks to the outlook ahead.

Jumping off from the earlier comments by President Bostic, I would agree that, going into 2019, initial conditions for the economy are favorable—growth, obviously, GDP growth above 3 percent. And when the Q4 data are finally released, growth in 2018 could come in at 3 percent or above. And certainly we shouldn't forget that under our baseline and most scenarios, in July of next year, this expansion will become the longest in recorded history. We are all aware that the labor market is operating at or beyond our estimate of u*. We are starting to see wage gains in line with not only productivity growth, but inflation, with some upside to that. A very interesting presentation was given a moment ago about labor supply, something I have looked at a little bit. We have seen a welcome increase in prime-age participation. There is some doubt about how much more of that we can get, but there are at least some scenarios under which that could continue.

Price stability, of course, is the other leg of our dual mandate, and various measures of inflation have been running close to our 2 percent objective. But, that said, I would point out that over the past six months, through October, core PCE inflation has been running at an annual rate of 1.5 percent, so the year-over-year numbers are definitely not reflective of the past six months. Because inflation expectations are an important driver of actual inflation, we and other central banks are as much in the business of anchoring inflation expectations as we are in ma81ut8181ngactual inflation. And, with regard to inflation expectations, I do have some concerns on the downside that I expressed at our November meeting. Whether or not you look at surveys such as Michigan or you look at the TIPS market, I think a fair reading suggests that inflation expectations are, at best, just barely in the range consistent with our goal of 2 percent PCE inflation.

If you look at the decomposition that our economists here and that Reserve Banks do of the TIPS curve, they indicate expected CPI inflation of around 2 percent. But, remember, historically, PCE inflation lags behind CPI inflation, so, this is potentially consistent with PCE inflation below 2 percent. The Michigan survey, which has been around for 40-plus years, is just barely above the all-time lowest print ever for expected future inflation. So if those Michigan readings a decade ago were consistent with price stability, they are now well below where they were then.

In terms of the economy, nominal GDP growth—which, for many considerations, I think, is more important than real—through the third quarter of 2018 is running at a 5.5 percent pace, which would be the fastest pace over any four quarters since 2006. So, obviously, the aggregate demand side of the economy, as initial conditions, is robust. But as we and others have emphasized, we have seen ex post an increase in supply in 2018, and we did see it both in hours worked and productivity in the business sector. Investment, obviously, has been a recent concern, when considered in terms of the weak "print" in Q3, but recent data on orders and shipments of capital goods appear to be consistent with some rebound. So that's the initial condition.

When I was filling out my SEP submission, I found it useful to compare the predictions of what I call my "gut instinct" model of the economy with the forecast generated by a real model, and for that I chose two models that the Board staff uses. In fact, we just got a presentation of the FRB/US model and also the EDO model, and those forecasts are reported on page 92 of the Tealbook, in case you want to consult that. But as I think we heard a moment ago in that excellent presentation, both of those models show a sharper slowdown in 2019 GDP growth than is reflected in the SEP median, and both show a much more significant increase in the unemployment rate than does the SEP median.

The FRB/US model, I think, uses an inertial Taylor (1999) rule, someone told me, and with that, it generates along the forecast path a funds rate that rises to just above 3 percent—and, again, this is all on page 92 of the Tealbook for those of you keeping score—and, in particular, also, an unemployment rate path that, in those models, closes the unemployment gap in about two years. But, essentially, under the policy rate path that we have seen in the SEP—roughly two hikes next year along the median path, and along all of these paths, core PCE inflation is around 2 percent. So, in my own submission, I did not entirely cut and paste from the FRB/US model. My gut is actually a little bit more bullish on trend growth and u^* than they are. But I found it useful to look at that at least to give me some sense of a framework in which a policy rate path similar to the one that we're considering under a baseline returns us to our goal objective.

I'll conclude briefly with some risks to the outlook, and here I think I have a common evolution with President Bostic. I think, compared with where I was in November, my risks have shifted somewhat to the downside, and let me explain why. I would mention something we knew in November, which is the downshift of fiscal policy—so that's not new, but there's been some more recent evolution. One, we've had some downgrading to expectations of global real GDP growth—not dramatic, but certainly evident. The other thing I would point out, in particular with regard to the international side, is, we've had a big move in the dollar just this year—the broad trade-weighted dollar in real terms, up 12 percent. On my Bloomberg screen, that index is at a 16-year high. We know empirically that big moves in currencies have a lagged effect, and I don't think the full effect of that 12 percent move has been felt.

Mario Draghi last week alluded—in his very colorful, elliptical way—to a downgrade of the outlook growth for Europe. Obviously, we have had a big shift in financial conditions indexes, as I have indicated, and past interventions. A lot of these are really indexes of investor sentiment as opposed to borrowing costs. But, of course, borrowing costs are up, with a rise in credit spreads. And what this tells me is that the initial conditions are good. My baseline views have not changed very much, but relative to the balance of risks that I saw in November, they have definitely tilted somewhat to the downside. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. Over the past month, most real-sector economic data have come in as expected, resulting in surprisingly little change in most economic forecasts. In contrast, many financial indicators have been downbeat. The stock market is significantly lower, and the Treasury yield curve has flattened as the 10-year Treasury rate has fallen about 30 basis points below its level as of the previous FOMC meeting. So now it is a bit of a dilemma as to how the seemingly conflicting data should affect our outlook and policy decisions. As I mentioned, most of the economic data have come in as expected and are relatively upbeat.

Payroll employment over the past three months grew, on average, by 170,000, well above what is necessary to keep the unemployment rate steady. Unfortunately, the resulting downward pressure on the unemployment rate is occurring when unemployment is already at a level well below the range of most forecasters' estimates of what is sustainable in the long run. In addition, oil prices have also declined significantly. This should provide a boost to many U.S. consumers as well as oil-dependent countries. Falling oil prices would be of more concern if they were primarily a reflection of softening global demand. But, as the Tealbook highlights, most of the recent decline can be attributed to supply factors. In addition, retail sales have been strong, with most forecasters expecting the strength of consumer spending to continue through the holiday season.

Consistent with these favorable data, the December Blue Chip forecast of 2019 real GDP growth is 2.3 percent, unchanged from November and above my and the Blue Chip's estimate of potential, as it, too, expects the unemployment rate to continue declining to 3½ percent by the end of 2019. This unemployment rate forecast in the Blue Chip has been unaffected by the recent downturn in financial conditions and remains well below my estimate of what is sustainable in the longer run. Recently, the changing prospects for reaching an agreement with China on trade seemed to have had large effects on financial conditions. While most estimates of the effect of potential tariffs tend to predict only a modest effect on the economy, financial markets seem to place a much higher weight on this risk.

One way to reconcile the confluence of unchanged forecasts of economic activity with volatile and declining financial markets would be if the modal economic forecast expects a trade agreement, whereas financial markets are more focused on the tail risk of a trade meltdown, which they see as increasing in probability. If this characterization is correct, I would not change my expected interest rate trajectory, but I would be on the lookout for signs that the tail risk is increasing in probability and beginning to show through into real economic activity. I also do not view the incoming wage data as completely benign. Businesses have been complaining about difficulty in hiring workers for retail shops, restaurants, and hotels. This seems consistent with a large number of help-wanted signs at many of these establishments, as well as my own qualitative assessment of service quality deterioration. [Laughter]

These sectors in which we observe these shortages are not those experiencing rapid productivity improvement. From the employment cost index, wages and salaries for leisure and hospitality are up 3.8 percent, and wages and salaries for retail trade are up 3.6 percent. If instead one uses the average hourly earnings, the comparable numbers are somewhat higher, rising 4½ percent in the retail trade sector and up 4.3 percent in the leisure and hospitality sector. These higher wages are also consistent with the rise in labor force participation rates for lower-skilled workers. Those without a high-school education are entering the labor market in significant numbers, presumably being attracted by the higher wages. 85ut85 is certainly good news for those now being drawn into the labor market. But much higher wages will ultimately be reflected in lower corporate earnings or higher prices, with those industries struggling to deal with the tighter labor market.

I cannot ignore the recent turmoil in financial markets, however. I have marked down both my forecast real GDP growth path and my appropriate policy rate path in this month's SEP submission, in part in recognition of the upheaval in financial markets. But, in that submission, I still envision some tightening that puts the policy rate above our estimate of the neutral rate, partially reversing the downward trajectory of the unemployment rate. The hope is that doing so will minimize the multiple risks that can arise in an economy that stretches well past its sustainable limits but without slowing the economy down so much that we cause the next recession.

Overall, in view of the divergent signals from real-sector data and forecasts relative to financial market data, I would want to see some evidence in the real-sector data of an emergent economic slowdown before deviating from our path of gradual increases in rates. The divergence between the real and financial data highlights the uncertainties we currently face and underscores the rationale for our being more data dependent and not being too wedded to a particular interest rate path. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. With the exception of the policy rate path, which I continue to believe is overly steep and unlikely to transpire, I am in general agreement with the staff's near-term forecast of economic activity. Regarding inflation, my point estimates are slightly stronger than the staff's, and the distribution around my forecast is now quite asymmetric, with greater potential for misses on the downside and for inflation not to exceed its target. Why? If you look over the past six years, PCE inflation has averaged a mere 1.3 percent, and if one looks at year-over-year inflation at a quarterly frequency, it has averaged just 1.4 percent, with only three quarters in which it exceeded 2 percent. Thus, there is a significant risk that inflation is unlikely to exceed or even hit its target over the forecast horizon.

The waning strength of investment presents further downside risk, and concerns regarding trade may cause firms to delay future capital investment expenditures. Additionally, I view the picture for residential investment much as represented by the Tealbook, with little evidence of any positive contribution to near-term economic activity. Activity in the Third District, in conversations with various contacts, supports my view of this aggregate economy. The Third District continues to grow at a modest pace, and the regional labor market has strengthened three-month employment growth to 2.3 percent in October, representing a very rare instance when the District has added jobs at a faster pace than that of the nation. Labor market strength has been observed in mining and logging, professional business services, and in health and education.

The unemployment rate continues its downward trend and is currently at 4.1 percent, which is below its pre-recession rate. There's been an increase in rejected job offers, and more firms than at this time last year are indicating they're having trouble finding employees with desired skills. As a result, wages are rising fairly broadly, and less-qualified workers are now being hired. I'll just give you one anecdote regarding a less-qualified worker with an A+ for transparency. In a major coffee shop, there's a very long line, and the employee working the register was clearly not understanding the job very well. This individual then poked his head up and said to the long line, "Folks, I'm sorry. I'm just not any good at this job." [Laughter] He wasn't, but he's an honest guy.

The manufacturing index fell in November and again in December and is currently at the lowest reading since August 2016. Trade-related supply issues were a noted concern among respondents. As well, firms are a bit less optimistic but are still expressing plans to increase future capital expenditures. However, they are expressing clearly greater uncertainty. My staff has compiled an average of the five regional business surveys and found it tracks the PMI remarkably well. Notably, that average has recently shown a decline.

Unlike manufacturing, though, the District's service sector has improved, and car dealers report brisk activity of late. Retail establishments remain optimistic, as do District consumers. Housing, however, is showing additional weakness, and permits have been relatively flat for the past two years. For example, a large homebuilder in the region has just seen his stock price fall by 34 percent as a result. Price pressures among our survey respondents have moderated of late, and they still expect prices to rise by a little more than 2 percent over the next 12 months.

So, to summarize, we are seeing, I would say, moderate growth. I would even call it "modest" in the Third District. Growth is fairly broad based, however, and price pressures are declining. Our regional activity, I think, is entirely consistent with my overall view of the national economy. More on that tomorrow. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. My comments very much mirror President Bostic's—so much so that I feel the need to use a Dickens label as well. [Laughter] I considered *Great Expectations* but rejected that. I also considered *Bleak House*. 88ut I think I'll end up with the first sentence of *A Tale of Two Cities* that starts: "It was the best of times, it was the worst of times."

The U.S. economy continues in our District to perform well. The data are coming in very much as we'd expected earlier in the year. We see, barring any surprises, 3 percent real GDP growth in the second half of 2018 and strong services and manufacturing performance offsetting some weakness in residential investment in agriculture. Consumer spending has been particularly buoyant, backed by healthy consumer sentiment, and the recent decline in oil prices is likely to provide an additional boost. I'll also note that auto sales continue to run above 17 million despite higher finance rates. Business fixed investment did weaken in the third quarter, but that followed two exceptional quarters. And I'm also heartened, as Governor Clarida said, that the third quarter was revised up, and that unfilled orders of capital goods have been increasing. The labor market continues to perform well, with payroll employment growth at 195,000 per month over the past six months and the unemployment rate at 3.7 percent.

Year-over-year PCE inflation remains close to target, but we do note, as others have said, that core inflation has weakened in recent months. Yet average hourly earnings are now increasing at more than 3 percent. Tariff threats remain. So, for now, I'm willing to look through the recent weakness in inflation but plan to watch it closely. I do have some sense on the basis of discussions with contacts that increased profits stemming from the tax cut are being competed away as firms are unable or unwilling to raise prices in response to higher costs. That's consistent with the reduction of corporate profit growth forecast in the Tealbook and referred to earlier in the staff presentation.

The big news for the Fifth District remains Amazon's decision to locate half of a headquarters in Northern Virginia. Of particular interest to us, the key incentive offer to the company was a workforce development plan. State universities in the region plan to expand the number of computer science graduates by 6,000 to 10,000 a year, and I just raise this as an innovative and, I think, compelling approach. In a tight labor market, workforce development is the ultimate business incentive.

In looking forward, I was struck by the fact that my contacts in the District are planning for another year of solid revenue growth. They are following through on current capital expenditure projects or even expanding them. In our employment survey, about half of employers are planning to increase employment, and only 5 percent are planning to reduce.

You may have seen the Duke CFO survey headline suggesting a coming recession, but the CFOs in that survey still project revenue and investment growth not far from the expectations prevailing a year ago. The weak spots in the District are the residential housing sector and those most affected by trade. We continue to hear talk at international companies of what we're calling "quiet attrition"—that is, scaling back investment projects in the United States without making any large announcements. As one international contact told me, "We designed our supply chain with the naïve assumption that the United States would never inhibit free trade. Regardless of how the current issues work out, we have recognized that assumption was flawed, and we're redesigning our supply chain accordingly." I hear similarly from people who source from China.

We also continue to hear talk of supply constraints that could well show up in slowing employment growth in the next several months. In our employer survey, half of the respondents said that labor supply issues would constrain their growth. On net, we see business as healthy and business prospects as healthy. That said, there's a real dissonance among our contacts between their own growth plans and their worries about the overall economy. One CEO called it "growth fatigue."

If things are so good, why do they feel so bad?

Part of it reflects uncertainties about the general environment, concerns about the duration of the expansion, about trade and tariffs, about waning stimulus, about a global slowdown, about Brexit, Italy, the debt ceiling. But many of these uncertainties are not new. Part of it may be that recent warning lights—such as the stock market, the yield curve, and the decline in residential investment—have amplified these uncertainties. And perhaps our own comments seem less optimistic as well. I do see margins getting squeezed. The PPI is up more than the CPI. The productivity-adjusted wage is up more than prices, and these declining margins affect equity values; even in a growing economy, this could be affecting business sentiment.

Finally, I should raise the topic of perception. We see 2.4 percent growth in 2019 as above trend and expansionary—but they see it as a slowdown. We see a 40 basis point real rate as accommodative; they see it as the top quartile in the past 15 years. The risk, of course, is that firms' perception about the worsened outlook changes their plans for their own market. This could shrink business investment and lead to additional cost-cutting, reducing employment. So I am paying close attention to business sentiment and business investment, and we'll talk tomorrow on the need to communicate that the SEP growth path is good, not disappointing.

CHAIRMAN POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. Eighth District business contacts generally cited good-to-excellent results looking backward over 2018. But they nevertheless also expressed considerable trepidation as they go forward into 2019. My own interpretation of this seeming contradiction, which has already been mentioned several times today, is that the U.S. economy surprised to the upside in 2017 and 2018, but that 2019 is not shaping up to be nearly as rosy.

As an illustration of the nature of the upside surprise in 2017 and 2018, consider the median unemployment projection of this Committee at the March 2017 meeting. At the time, unemployment was 4.5 percent, and the median projection was 4.5 percent unemployment at the end of 2018—that is, today. The current unemployment rate is 3.7 percent, so the economy surprised with 80 basis points of lower unemployment during this period. At the same time, this Committee raised the policy rate almost exactly as projected in March 2017. I conclude from this that the upside surprise in the U.S. economy in 2017 and 2018 enabled the planned policy rate hikes over the past two years.

I now think that the sequence of upside surprises on the economy is coming to an end. The U.S. economy is widely, even universally, expected to slow down in 2019. Some of this slowdown is cyclical, showing up in residential investment, autos, and other cyclically-sensitive areas. This by itself might be taken as a sign that monetary policy is already modestly restrictive. Some will say that U.S. labor market performance remains strong and that this bodes well for the 2019 outlook. In my opinion, this may be too backward-looking of a signal at this point. Also, the problem with citing labor market strength is that the feedback from labor market performance to inflation is exceedingly weak today, so that the consequences for inflation are barely discernible. According to some recent estimates, the feedback ratio is 10-to-1, meaning that one needs 100 basis points of gap to get just 10 basis points on inflation.

Instead of overworrying about how real resource utilization may or may not feed into inflation, we could do better by simply monitoring inflation and inflation expectations directly and reacting accordingly. And, indeed, inflation by our preferred core PCE measure is 1.8 percent year-over-year—still below our target and not meaningfully different than it was in late 2016 before the two-year upside surprise in the U.S. economy commenced. If ever there was a time for increased inflation, it should have occurred during this two-year interval.

In addition, inflation expectations, measured according to TIPS-based inflation compensation, have traded much lower over the past two months. Five-year inflation compensation has declined more than 40 basis points. If we translate the CPI-based inflation compensation to a PCE-based inflation—I agree with Governor Clarida on this—we could conclude that the market's judgment is that PCE inflation will be just 1.3 percent over the next five years, under current policy expectations. I take this as a market signal that the U.S. monetary policy is overly "hawkish," given the current constellation of data. Markets are not showing much faith in our ability to achieve our inflation objective over the forecast horizon.

I am moderately concerned about the prospects for a further global real growth slowdown, especially in light of some recent data out of China. One benchmark for assessing recent Chinese data would be to compare it with the China growth scare of early 2016, which put this Committee on hold for most of that year: Chinese industrial production growth is softer today than in early 2016, Chinese retail sales growth is softer today than in early 2016, and Chinese fixed-asset investment growth is softer today than in early 2016. Also, Chinese foreign direct investment (FDI) is down sharply in recent readings.

Of course, these readings could reflect temporary factors, as turned out to be the case in 2016. However, I do think there is a good story to tell about this, which is: Trade war worries are even more intense outside the United States than inside the United States. As much as we hear about people concerned about trade, it's a much bigger topic outside this country. So it makes some sense to me that trade uncertainties are feeding into a global slowdown that may continue to gather steam if there is no resolution soon. The Committee may wish to wait and see how this evolves in the quarters ahead.

U.S. Treasury yields are down substantially over the intermeeting period: As was reviewed earlier, the 2-year rate is down about 29 basis points, and the 10-year rate is down about 40 basis points. The spread between the 10-year and the 2-year rates is about 16 basis points as of this morning. The 10-year rate is well within a trading range of 150 to 300 basis points, in which it has traded for several years. I think it may be unrealistic to project that the U.S. 10-year yield will trade at or above 3 percent consistently, when German 10-year yields are 26 basis points and Japanese 10-year yields are 4 basis points.

We are now at significant risk of a meaningful and sustained yield-curve inversion in the near term. This will be a “bear” signal for the U.S. economy, although an actual deterioration in U.S. GDP would still be a year or two more in the future, even following such a sustained inversion.

The simplest way to avoid an inversion event would be to pursue a less aggressive monetary policy. In my opinion, previous Committees and staffs have soft-pedaled this important market signal. I would cite as an example former Chairman Bernanke, who gave a speech downplaying yield-curve inversion then, beginning in March 2006 in a speech delivered at the beginning of his tenure.

The Committee’s track record on this issue is not good. I think we are a little bit tone deaf on this issue. The base case that I would like the Committee to keep in mind is the mid-1990s: The Committee normalized rates in 1994 and ’95 but stopped short before the yield curve inverted. The yield curve had a positive slope through the late 1990s—one of the best periods of performance in postwar U.S. macroeconomic history. The yield curve finally did invert in the year 2000, and the economy went into recession a year later.

The inertial Taylor (1999) rule—still being used as a benchmark for Tealbook policy—I think this is implicitly influencing the dot plot and perceptions of the Committee’s future policy. The rule was developed using data from the 1980s and the 1990s. Suffice it to say, a lot has happened since then. The rule recommends that the policy rate approach 5 percent over the forecast horizon. I think it’s 4.66 percent in the Tealbook. I see this benchmark as unmoored from the realities of today's U.S. economy. I suggest we work on replacing it to try to achieve more realistic baseline policy recommendations. This is a big part of what we need to sell our policy to the public. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. We held our joint meeting of the Cleveland, Cincinnati, and Pittsburgh boards last week. In light of the recent volatility in financial markets, the drop in investor sentiment, and the fact that the Fourth District is more exposed to autos, manufacturing, and trade than other parts of the country, I went into the meeting in what I would call a cautiously pessimistic mood. But after hearing from the directors, I emerged cautiously optimistic. Most directors said that 2018 had been a strong year and they expect continued strength in 2019, although probably not as strong as this year. While one Beige Book contact, a major multinational manufacturer, said that concerns about trade and global growth made it hesitant to invest here and abroad, we have not heard more broad reports of decisions to defer or cancel planned capital projects.

Overall, the Fourth District economy continues to be healthy. The Cleveland Fed staff's diffusion index, which measures a percentage of business contacts reporting better versus worse conditions, posted a slight decline to 22 in December, with more than half the contacts reporting no change in activity over the past two months. Activity in interest rate sensitive sectors has moderated. A major national homebuilder in the District expects residential building to continue to slow somewhat in 2019, reflecting higher mortgage rates and home prices. Similarly, the outlook among auto dealerships has moderated since the summer, but these contacts continue to expect relatively stable sales in coming months.

District labor market conditions remain strong, although the growth in District payrolls this year will likely be revised down after the benchmark revisions. Even with the revisions, job growth will be well above the Cleveland bank staff's estimate of the District's longer-run trend. The District's unemployment rate has been 4½ percent since July, about ½ percentage point below the Cleveland staff's estimate of its longer-run normal level. The GM assembly plant in Lordstown, Ohio, near Youngstown, will be closing, resulting in a loss of 1,600 jobs at the plant. Our staff estimates that the overall effect on the District's labor market will be small, but the effect on the Youngstown metropolitan statistical area (MSA), an already struggling area, could be quite detrimental. In the recent Federal Reserve System survey, 60 percent of District respondents reported difficulty in finding qualified workers as being among the three most important factors restraining their hiring. This is an increase of 16 percentage points over this time a year ago.

Of those having trouble hiring, almost two-thirds reported raising wages or other compensation in an attempt to attract new hires. Last week, a major hospital system—the second-largest employer in the District—announced that it will raise its minimum wage from $12 to $15 per hour over 2019 and 2020. Along with increases in labor costs, many contacts continue to report increases in nonlabor input costs and their own product prices, citing tariffs and stronger demand.

As for the national economy, in my view the U.S. economy remains in a healthy position, with output and employment growing above trend, the unemployment rate below estimates of its longer-run level, and inflation near 2 percent. Nevertheless, sentiment regarding the global economic outlook has deteriorated. Uncertainties over trade policy remain unresolved, financial market volatility continues, stock prices have fallen, and corporate credit spreads have risen.

One question is whether the moves in financial markets are signaling weakening underlying fundamentals. At this point, I have not changed my view that the fundamentals are basically healthy. But I am attuned to the possibility that they may be weakening.

In response to the incoming data, I have softened my output growth forecast, revised up my unemployment path slightly, and made little change to my inflation projection from my September SEP submission. After running well above trend in 2018, output growth in my modal projection will be gradually slowing to my 2 percent trend pace over the next three years, as the effects of fiscal stimulus begin to wane and the effects of higher interest rates continue to be transmitted through the economy.

The consumer sector remains healthy, retail sales appear to be doing quite well this holiday season, and sentiment remains solid. Wages are moving higher, and, despite the drop in stock prices, household balance sheets remain healthy. With much of consumer debt at low fixed rates, the sector should be able to handle the anticipated interest rate increases, although mortgage originations are likely to continue to decline and the housing sector is not expected to contribute to growth. The business sector remains sound, but the pace of investment has slowed, perhaps due to increased uncertainty about trade policy and the health of the global economy.

Labor market conditions are strong. Over the past three months, the unemployment rate has remained at 3.7 percent, its lowest level in nearly 50 years. Over the past three months, payroll gains have averaged 170,000 per month, and for the year as a whole they have averaged over 200,000 per month—up from last year’s level and well above the range of estimates of trend monthly job growth. Over the forecast horizon, I expect employment growth will gradually slow toward its trend rate. This will keep the unemployment rate below my 4½ percent estimate of its longer-run level. Sustaining the expansion will necessitate gradually slowing the pace of job gains toward trend. Otherwise, the risks of an overheated labor market will rise. But even with some slowing, ongoing tight labor market conditions will translate into some continued firming in labor compensation, in line with anecdotal reports and survey results of increasing wage pressures across a range of skill groups. However, slow productivity growth will mean wage growth will be slower than in past expansions.

Inflation rates are near our 2 percent target, despite some recent softening. The recent decline in energy prices will temporarily weigh on headline inflation into 2019. In my view, longer-run inflation expectations—including various survey measures in the five-year, five-year forward measure obtained from the Cleveland Fed model—have been fairly well anchored. In addition, some firms have reported increased pricing power, and the economy is expected to remain in a sound position. Thus, looking through the near-term decline in headline inflation, I expect underlying inflation to remain near 2 percent through the forecast horizon.

While downside risks of GDP growth have increased since my September SEP submission, my growth path is now somewhat lower, and I see risks around this lower trajectory as roughly balanced. Downside risks to growth include slower-than-anticipated growth in China and Europe, the possibility of a hard Brexit, increased uncertainty regarding trade policy and higher tariffs, losses on leveraged lending to weaker borrowers, the possibility that the moves in financial markets are signaling weaker underlying fundamentals, further deterioration in investor sentiment, and further pullback in risk-taking. On the other hand, there are some upside risks, too, as these situations could actually turn out to be better than what is built into the forecasts. For example, the resolution of uncertainty over the trade situation could foster a pickup in investment. In addition, fiscal stimulus is expected to wane next year, but there are two-sided risks associated with that expectation. Tax refunds next year could turn out to be higher than anticipated, as households may not have completely adjusted withholding rates. If so, household spending in the first half of the next year could be higher than expected.

I continue to see the risks associated with my inflation forecast as roughly balanced. The tightness in labor markets poses an upside risk, while the possibility of a stronger appreciation of the dollar poses a downside risk. Risks to financial stability appear to be elevated, corporate debt and leveraged lending levels remain high, and underwriting standards have deteriorated. Commercial real estate valuations continue to be lofty. Financial vulnerabilities make the macroeconomy more susceptible to negative shocks and could amplify an economic slowdown. Now, under my outlook and assessment of risks, my policy rate path includes further federal funds rate increases this year and next year, with the policy rate holding at a level somewhat above my longer-run estimate of 3 percent, before starting to decline in 2021.

This policy rate path is shallower than in my September projection—reflecting somewhat softer growth and higher unemployment rate projections, as well as the fact that the labor market tightness we have seen to date has not translated into significantly higher inflation. My path is also a bit shallower than the median path implied by the policy rules published on the Cleveland Fed's website.

Now, while my modal policy rate path incorporates further increases in the funds rate, I think there is considerable uncertainty associated with my path, both in terms of the pace of increases and the stopping point for this tightening cycle. When the funds rate was far from neutral, the economy was growing well above trend, labor market conditions were continuing to tighten, and inflation was moving to target. Policy decisions were fairly straightforward, although we may not have perceived them that way at the time.

Now we have entered a new phase. The federal funds rate is nearing the range of estimates of its longer-run neutral rate, and there is uncertainty around these estimates. In addition, there are several risks to the forecast that can manifest themselves. To me, this means having to be particularly attentive to how the incoming data affect the medium-run outlook and the risks to that outlook, so we can calibrate policy to achieve and maintain our dual mandate goals.

Fortunately, with growth expected to slow toward trend, labor markets strong but inflation still near 2 percent, and the funds rate nearing neutral, we are in a pretty good spot for making this evaluation. We don't appear to be either far behind or far ahead of the curve. If growth and job gains slow as expected, the unemployment rate levels out, and inflation remains near 2 percent, we can take some time to assess. But if GDP growth remains at 3 percent, job gains pick back up to a pace of 180,000 to 200,000 per month, or inflation shows signs of rising, I believe we will need to move more deliberately. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. Fundamentals still seem strong. And President Bostic's *A Christmas Carol* story reminded me of a board of directors meeting many, many years ago in December in Chicago, at which there was an Iowa director who talked about the strong beef market and how beef prices were about as strong as he could ever remember, and we had nothing to fear for the beef market going into the next year. In January, I think there were reports of mad cow disease, and he had a totally different story the next year. I don't know why that story—Christmas? [Laughter]

MR. CLARIDA. Two-sided risk? [Laughter]

MR. EVANS. The reports received from my directors and other contacts mirrored the tensions we are hearing today about the outlook. Most of the commentary about current economic activity was upbeat, with continued reports of strong sales, tight labor markets, and increasing wage and price pressures. The recent financial market movements, moderating global growth, trade developments, and political tensions in the United States and abroad are generating wariness about the future. On the plus side of the ledger, consumer spending is strong. One of my directors reported that large retailers were bullish about 2019 and preordering accordingly. She also indicated that many retailers are investing in technology and logistics, a few select large retailers are planning on new brick-and-mortar stores, and some big internet sellers are adding distribution centers. I heard other positive commentary about business spending. A director reported that strong demand was leading to increased capital expenditures in the industrial chemical sector, and a major automaker indicated that the recent upside surprise in sales reflected increased buying by businesses—both by rental car companies and commercial customers.

But some unease is clearly developing. The index of business conditions that we construct from our Beige Book survey moved down this round, with increased forward-looking concerns about higher interest rates and trade. Another cautionary report came from a major integrated steel producer. He noted that higher steel prices were weighing on demand. Looking ahead, he said buyers in both the spot and contract markets were pushing back on high asking prices for 2019. He also said orders for an expected positive seasonal in the first quarter were running late, so there are some indications of weaker demand in the period ahead. Beyond this comment about steel prices, however, the news on pricing and labor costs suggested firming inflationary pressures. For example, one of my directors, who is CEO of a major manufacturing conglomerate, said that their corporate planning was factoring in a substantial increase in materials cost for 2019, and that they were expecting to pass all of these increases on to customers. Wage reports were largely similar to those in the past rounds, though I did hear a bit more about this year's annual increases coming in the form of base wages as opposed to bonuses or other one-off payments.

Now for financial markets. My contacts gave the familiar laundry list of factors contributing to the declines in equity markets. There also is a range of explanations for the increase in bond spreads—from investors starting to push back on corporate leverage to lower demand from foreign buyers. One interesting commentary came from a large automaker. Poor market conditions have led them to hold off issuing some unsecured paper. Their story was that investors have already had a bad year, and they didn't want to risk taking more losses before closing their books on 2018. Their bankers suggested that markets would be more receptive in January. If they are not, the firm might forgo some issuance and think about paring back their balance sheet of consumer loans—basically, doing less. We'll see what happens.

I should add that we did hear some upside reports about financial conditions this time—namely, our contacts in the small business and household credit markets continue to report solid loan growth and strong credit quality. In sum, these reports suggest that, while concerns have heightened recently, a substantial risk-off attitude has not taken over the markets—as of Monday morning when I wrote these comments [laughter]. I've had no access to my digital devices recently. Furthermore, on balance, recent financial events have not restrained real-side activity. It remains only speculative whether this will change in coming weeks or months.

All of these crosscurrents made for a difficult forecasting exercise this round. We marked down our GDP growth forecasts for 2018 and '19 by only one-tenth from our last SEP submission. I think I'm SEP respondent Number 16. We are now at 3.1 percent this year and 2.3 percent in 2019. We then see growth moving modestly below its potential rate in 2020 and 2021. We have the unemployment rate bottoming at 3½ percent next year and moving up to 3.8 percent by the end of the forecast period, and our natural rate assumption is 4.3 percent. We recognize there are downside risks to this outlook. Indeed, a number of businesses currently are considering contingencies if demand weakens. This possible move to a defensive posture is something to monitor carefully.

With regard to inflation, the incoming core inflation data were a bit disappointing, and the decline in TIPS breakevens does get one's attention. So, too, does the fact that, as Governor Clarida mentioned, household survey measures of longer-run inflation expectations seem stuck in place. One might have hoped that, by now, these would have shown some signs of firming. But I would prefer not to overreact at this point. Our term structure models do not find much change in the expected-inflation component of Treasury yields. Furthermore, the anecdotesgiven by our business contacts about higher wages, intensifying materials costs, and pass-through to customer prices point to building inflationary pressures. In the end, we edged down our projection one-tenth over a portion of the forecast period but still see core PCE inflation rising to 2.2 percent by 2022. So there is not much change in our inflation outlook. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. Like many of you, I see a disconnect between the data—which attest to strong fundamentals—on the one hand, and financial market volatility, on the other. This disconnect makes communications quite tricky.

Data on the domestic economy has come in largely as I expected since our previous meeting, but financial conditions have tightened, reflecting concern about trade conflict and growth abroad. While my modal outlook has changed only modestly, in order to reflect the tighter financial conditions and some softening in the foreign economic outlook, the uncertainty surrounding that modal outlook has increased notably, and I'm monitoring incoming data closely.

Domestic economic momentum has been strong, as evidenced by recent data on the labor market and consumers. Average monthly payroll gains of 170,000 over the past three months are still well above the pace necessary to absorb new entrants. While this pace slowed from its values earlier in the year, it remains in the range of payroll gains we saw in the preceding two years, a time when the unemployment rate was falling by about ½ percentage point a year. Similarly, while there were some indications of an upward movement in claims earlier in the intermeeting period, they moved back down in the latest reading and remain at very low levels.

Other labor market indicators, such as job openings and quits, suggest the underlying trend hasn't slowed. In addition, the share of the prime-age population that's working is approaching its pre-crisis peak.

These labor market gains are particularly heartening in the case of demographic groups that traditionally face greater challenges, such as African Americans. And wages have accelerated and are now growing around 3 percent, the highest level since the crisis. These are all welcome developments.

While the most recent reading on core PCE inflation ticked down, indicators of underlying trend inflation remain encouraging overall—providing no signal of an outbreak of inflation to the upside, on the one hand, and some reassurance that underlying inflation may be inching closer to our target, on the other.

The economy has grown 3 percent over the past year, and there are good reasons to expect growth to remain above trend next year. The latest data on consumer spending for the fourth quarter are robust, and high levels of consumer sentiment suggest continued robust spending.

In addition, recent data on orders and shipments suggest business investment should be solid, even with recent declines in oil prices. Sizable fiscal stimulus has provided an important boost to demand this year, and it's projected to contribute somewhat further next year, due to the substantial outlays still in the pipeline. Although residential housing has been weakening for some time, it has not accounted for a sufficiently large engine in this expansion to derail it on its own.

Thus, the most likely path is continued above-trend growth from a position of full employment and inflation near target. However, the tailwinds that provided a boost this year are fading, and there are some crosscurrents. Trade conflict is the common thread that ties those two developments together.

With regard to tailwinds, recent data suggest the strong global growth going into the past year is moderating toward trend. The escalating trade conflict with China coming on the heels of earlier tariffs appears to be weighing on global growth. Although China has shifted to an accommodative stance, this may take some time to gain traction, and China's most recent data on industrial production and retail sales disappointed to the downside. Recent data also suggest that the earlier strong growth in Europe and Japan is moderating.

After being exceptionally accommodative earlier in the year, financial conditions have tightened considerably in recent months. Various indexes suggest that financial conditions are now a neutral factor for real GDP growth in coming periods, compared with a strong tailwind midyear. Corporate bond spreads tell a similar story. They had been in the lower part of their historical distribution earlier in the year, but they're now close to the middle of the distribution.

This brings me to the crosscurrents. It's hard to know with any certainty what signals we should take from recent financial market volatility. My conversations with market contacts noted some year-end derisking as well as some technical factors, but to the extent that we're seeing a repricing of risk after a long period of very elevated risk appetite, it may actually contribute to the sustainability of the expansion. Indicators such as bond spreads have not risen to levels that have historically signaled recession. They're now near the middle of their distribution. However, I'm carefully monitoring both financial market developments and data for any indications of a downshift in fundamentals. The recent weakness in oil prices, which in part reflects supply factors, has also contributed to volatility, particularly in speculative-grade credit.

In conversations with market participants, the most commonly cited fundamental factor driving financial volatility is the protracted uncertainty surrounding the possible imposition of additional sizable tariffs on U.S.–China trade and possibly in the automotive sector. This has been true of financial markets abroad, as well as here at home.

That also corresponds to conversations with business contacts who, as many of you have noted, say that the uncertainty associated with trade policy and the implications for their supply chains is a factor weighing on their capital spending plans. I've been trying to assess whether I should adjust my baseline outlook to reflect the potential disruption due to the escalation of trade disputes. But, for now, this is captured as a downside risk.

There are also risks associated with policy uncertainty. In Britain, the near-term risks associated with a "no deal" Brexit are elevated, and we're monitoring affected financial intermediaries very closely. I'm also monitoring the risk associated with Italy's fiscal policy deliberations, especially as the ECB nears the end of its asset purchase program.

Finally, although the staff's assumption that federal spending is likely to be extended around current levels in real terms after the Bipartisan Budget Act expires seems reasonable to me, we can't rule out the possibility that fiscal policy becomes a headwind in 2020.

As President Mester enumerated, there are also risks to the upside. Business contacts report difficulties finding qualified workers and increased costs associated with inputs, tariffs, and transportation, along with their somewhat greater ability to pass through those increases to consumer prices.

I'm also mindful that, at 3.7 percent, the unemployment rate is at its lowest level in nearly 50 years, and payrolls are growing well above the pace consistent with stabilization of the labor market. The past several times resource utilization was as tight as it is today, signs of overheating showed up in financial market imbalances rather than in inflation.

Indeed, investor appetite for risk rose notably over 2017 and much of 2018, and corporate borrowing reached new heights, along with deteriorating underwriting standards. The run-up in corporate debt has brought the ratio of debt to assets for speculative-grade and unrated firms close to its highest level in two decades. Over the past year, it's the firms with high leverage, high interest-expense ratios, and low earnings and cash holdings that have been increasing their debt loads the most. These elevated exposures present a risk of amplifying any adverse shock.

For corporate bonds, as Simon noted earlier, credit quality has deteriorated within the investment-grade segment, in which the share of bonds rated at the lowest investment-grade level has reached near-record levels.

Further down the credit spectrum, leverage lending grew by about 12 percent over the past year, accompanied by a notable deterioration in underwriting standards. The mutual funds that have built up large exposures to this risky debt have liquidity mismatches that could contribute to market dislocations and stress conditions. This constellation of vulnerabilities bears watching in the current risk-off environment.

Overall, the data have continued to suggest there's strong underlying momentum in domestic demand. However, financial market volatility and uncertainty have increased materially, and I will be keenly parsing incoming data for signs that risks are materializing that might merit further adjustments to the modal outlook and the appropriate path of monetary policy. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Daly.

MS. DALY. Let me begin by just saying that California had the latest in a large number of natural disasters that the United States has experienced this year. We had two large wildfires that swept through parts of Northern and Southern California, and that damaged thousands of structures—hundreds of thousands of acres—and it claimed a considerable number of lives.

The hardest one was also the largest and was called the Camp Fire. It was in Sacramento or just outside Sacramento, and it's on record as the deadliest in recorded state history. Although the overall economic outlook won't be very much affected by these fires, the losses for those communities will be hard to overcome. Importantly, because we've had such severe fires in large numbers of areas, we're starting to see legislative and regulatory pressure on the question of whether you even rebuild. So I think that's part of a conversation as we go forward, not only in California, but also in the other states in the District that have fire danger.

Backing up from that, though, and turning to the broader economy, there has been a clear downshift in the spirit of my contacts similar to what others have talked about and that President Bostic and President Barkin really highlighted. I have no Dickens references. But, as one of my contacts put it, "The data are good, but the mood is bad." The stock market gyrations, uncertainty over tariffs and a global slowdown, concerns that the yield curve might invert—and just the sense, as I mentioned at our previous meeting, that the expansion might have outlived its plausible lifespan, that it's going to run out of gas and you want to be prepared. All of these things are contributing to a decline in mood.

Now, importantly—and this is something that I hadn't really realized previously—many businesses still carry a very vivid memory of the Great Recession, and they've become hypersensitive almost to any signs that the economy could be slowing. Several such businesses in my District have started to pull back, sidelining marginal investment projects that just a few months ago were being given a green light. And it's important for me, anyway, to take in the fact that these were not small companies. These were large companies—"household name" companies—who are just tabling projects that were right on the margin of whether they were going to be profitable or risky. That's going to have an effect in terms of their investment and, importantly, their employment.

So I take some signal from this shift in mood. But I have to balance it against the data, which have undeniably been good and, in many cases, great—that is, GDP growth, the labor market, and consumer spending.

Although payroll and job growth in November came in a bit softer than expected, my staff keeps a model of weather—and the effects that that has on employment—and said that it explains a lot of the surprise. Using county-level data on weather and employment, they estimate that, absent these weather effects, the economy would have added roughly 180,000 jobs in November, and that is clearly strong job growth.

Looking ahead, I expect the strength in the labor market and the momentum that we've seen in 2018 to persist. A strong labor market translates into further gains in wages and household incomes, supporting ongoing solid growth in consumer spending.

So the question that all of us have been asking is: "How do I put the gloomier mood and the incoming data together?" And here's how we're doing it right now. I've lowered my estimate of real GDP a tad to 2.2 percent next year. That's a very modest change, but it's still a recognition. And then, with the gradual removal of monetary policy accommodation and waning effects of the fiscal boost, I expect growth to moderate further in 2020 and 2021 and then, in that forecast period, be a bit above long-run potential. Importantly, I would say that, emphasizing something that Governor Clarida talked about the previous time, it's increasingly putting the self-bridling or self-restraining mechanisms in the economy in place in a way that I hadn't really taken into the previous SEP forecasts.

Now, on the unemployment front, despite its running well below its natural rate, in my estimation, for a persistent amount of time, I expect only a slight inflation overshoot, and that's consistent with a fairly flat Phillips curve.

In thinking about inflation, there are numerous potential risks to the outlook that bear watching, though, as I'm going to describe, none in my estimation move inflation very far either way from the 2 percent target. First, for the upside, additional tariffs on Chinese imports could modestly boost inflation, as noted in the Tealbook and as presented earlier today. I'm certainly hearing a lot of this among my contacts, especially on the matter of the supply chain—intermediate goods. It's, of course, difficult to estimate in any model or any empirical analysis what the total effect is going to be, because so many of the tariffs—the proposed ones and the ones that have come through—are very deep into the supply chain. They are on these intermediate goods.

So to quantify this better and the potential effect it has on inflation, the San Francisco bank staff, much like the Board staff, looked at thhe detailed input–output tables to find the industry linkages and to really try to figure out what happens in terms of the cumulative effects on prices and goods and services. If they account for all of these linkages, they find that the direct effect of increasing the current tariffs from 10 percent to 25 percent adds about 0.3 percentage point to investment good prices—so that's just things that businesses are going to buy—but it has a much more modest effect, around 0.1 percentage point, on consumer prices. This estimated effect, in my judgment, is roughly in line with what we saw in the Tealbook and with other analyses, and I would characterize this as modest.

On the downside, further declines in prices for health care or other goods and services that have historically been less responsive to cyclical pressures could pull core inflation down. If you look at the inflation data this year, the uptick in core inflation was really boosted by these acyclical factors—these factors that are not connected to cyclical sensitivity. This reversed in October when those prices fell somewhat and core inflation went down. So I think this situation bears additional watching. However, for now, I put the risks as balanced, and, importantly, I would say that, either way, whether you take the upside or downside risks, both effects look modest, pushing us between 1.8 and 2.2 percent and nothing outside that range, at least in my estimation.

Let me conclude with a discussion of labor force participation, which we talked about just an hour ago. Over the past three years, labor force participation among prime-age workers has risen. We've all acknowledged that and, in fact, interpreted that as potentially good news that the "hot" economy is pulling former workers back into the labor force. Imagine they're out on the sidelines, and we're pulling them in. But as President Rosengren has mentioned in previous meetings, this interpretation is open to question, or at least evaluation. Labor force participation can increase because workers are joining the labor force, coming in from outside, or because workers who have jobs or are searching for jobs just stick with it longer. They just stay, and that reduces labor force exits.

Recent work by the San Francisco Fed staff looked into this issue. They examined detailed data on flows into and out of the labor force—with which you can watch people move from any state of the labor market—and they found that the recent pickup in prime-age participation is largely due to a decline in labor force exits, rather than to an increase in labor force entry.

Now, this is not very unusual. In fact, they looked all the way back into the early '90s, and what you find is, in every expansion, as the labor market improves and gets pretty close to the full expansion, unemployed workers find jobs more quickly. So they don't leave the labor force. Employed workers are less likely to lose their jobs or to leave their jobs and be out of work for any point in time. They might move from job to job, but they don't exit the labor force. And this pattern is very, very similar to what we saw in the very "hot" economy of the late 1990s. It's also consistent with the fact that there's probably little slack sitting on the sidelines that monetary policy can effectively move. Overall, it reinforces my view that further significant increases in participation are highly unlikely. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. Let me start with energy. A number of you have commented on it, so I would just make a few comments. As you know, for most of 2018, it has been our view at the Dallas Fed that global supply and demand were in a fragile equilibrium—that is, rough balance after more than two years of oversupply.

A few things have changed. Number one, U.S. shale production growth has been much higher—not a little higher, much higher than expected. We initially expected one million barrels a day of growth. It turned out to be closer to 1.6 million barrels a day. So that's number one.

Number two, Saudi Arabia and Russia increased their production in response to encouragement from the United States and in anticipation of a loss of up to 500,000 to 1 million barrels a day of supply from Iran because of sanctions. The United States ultimately gave sufficient waivers so that the supply loss from Iran for the time being appears to not be dramatically different than expected.

And number three, which maybe is a little different than in the Tealbook, we do believe—and my contacts in this industry certainly believe—that part of the price decline is fears, rightly or wrongly, of slowing demand growth because of decelerating real GDP growth outside the United States. And one of the confirming aspects of this is that, if you look at the entire commodity complex, you will see weakness in that entire complex. Not in the same time frame as oil. But, a little bit before and a little bit after, commodities across the board are generally weaker. This suggests, rightly or wrongly, that the commodity complex is expecting weaker demand in the world. We'll come back to that.

So what now? For 2019, U.S. production growth, we believe, is likely to remain robust—certainly, 1 million barrels a day, even at current oil prices. Our survey suggests that most shale drilling in the Permian Basin is profitable, even at current oil prices. And the other thing that our contacts note is that there are a lot of so-called ducts—drilled but uncompleted wells, which don't take a lot of money to finish—and a lot of those will be finished and are being finished. So you'll still see substantial supply growth this next year.

Also, OPEC and Russia appear to be scaling back their recent production increases, and, obviously, the jury is out on whether the United States will be providing continued waivers on Iranian production. So we still believe we are going to be dealing with a short-term oversupply, but it's in the context, we still believe, of a global oil market that's in a fragile equilibrium. But there is going to be a whole lot of price volatility, reflecting these various uncertainties.

We would also note, as some of you have commented on, when oil prices decline, on the one hand, it helps consumers, but it certainly will negatively affect oil industry cap-ex. In particular, we see are already starting to see distress among a number of the service-providing companies in this industry. Because of this offset, the net effect on U.S. GDP growth is likely to be more muted than in the past. The other thing we would note—and that some of you have also commented on—is that downdrafts in oil prices tend to negatively affect the high-yield market, because debt issued by energy firms is a material percentage of the high-yield leveraged debt markets, and we think that does explain part of the recent high-yield widening.

Regarding the 11th District, job growth remains strong, but we do expect, and already are seeing, a noticeable deceleration as we end 2018 and head into 2019. Most notably, our survey respondents continue to cite rising input costs and the inability to hire needed workers, but also an inability also to pass on increased costs to the customer, particularly if they are in the business to customer space versus business to business.

Almost 60 percent attribute rising costs to tariffs, and two-thirds cite increased business uncertainty due to tariffs and the threat of tariffs, which are having a chilling effect on capital spending and expansion decisions. I almost would describe it as "tariff tension exhaustion," which is starting to wear people out. It is one thing if there is a stall or a truce, but I think what I'm learning about everywhere I go in our District is that the retaliation to steel and aluminum tariffs is showing up in surprising places: The cheese business is down dramatically. Why cheese? It's a 25 percent retaliation. And soybeans we have talked about. But the retaliatory effects are really affecting certain industries.

Lastly, regarding the U.S. economy, I have downgraded my base case for 2019 growth from what I estimated in September. But I will say that my views regarding the balance of risk and the level of uncertainty have materially changed, and I think there is a high level of uncertainty, at least for me, in regard to the outlook. And I'm one of the people that in my SEP forecast not only downgraded the balance of risk but also increased the level of uncertainty.

What are the reasons? Most of them have been stated already, but I'll tick them off. Fiscal stimulus is likely to fade in 2019 and '20. Corporate profit growth appears likely to materially slow in 2019. Higher input costs, margin pressures, and inability to pass on cost increases to customers may have a chilling effect on business investment and, ultimately, job growth.

I do carefully watch corporate earnings reports, and my experience is that it's unusual to see companies announce good results but warn about the outlook. And I see that that phenomenon is pretty widespread right now, in that a number of companies are warning down their 2019 estimates, in light of their concern regarding economic growth.

As has already been said, credit spreads on corporate debt are widening, and I worry. We’ve noticed over the past 3 or 4 weeks—and I used to run this business earlier in my career—that you haven’t seen any high-yield debt issuance. That tells me—and I know, talking to certain companies—the reason you’re not seeing more high-yield issuance is not that people don’t need capital. They’re worried that they don’t have access, even at widening spreads. This tells me we may be at the beginning of a credit crunch. We’ll see if it materializes, but it appears that way to me.

Global growth rates appear to be decelerating, and you can list the reasons. As President Bullard said, trade tensions are concerning to us, but outside the United States, they are far more significant in terms of growth prospects. The United Kingdom, I don’t need to talk about; Italy. And even in Mexico. We were hopeful about the new president. With the airport project being canceled, as you all mentioned, I think there is much more concern now, and we are seeing that already in the currency in Mexico. ECB challenges. Certainly, slowing Chinese underlying GDP growth. And all of these may ultimately spill over onto U.S. real GDP growth. Again, all of these, I think, are consistent with weaker commodity prices pretty much across the board.

It’s our sense that the trade tensions are deceptive, in a way, in that while they are not affecting headline real GDP growth, in surveys with our contacts, they are widely affecting margins of businesses. But, more important, maybe the biggest effect is psychological—creating business uncertainty. For instance, we have a number of car dealers in our District who are saying if these 232 tariffs are put in place, they expect the car sales to go from 16.8 million this year to being down 1½ million cars. They hope it won't happen, but they are starting to get in the mode of "We better prepare for it." And a 10 percent decline is a big decline.

Certainly, there is uncertainty regarding the effect of eight rate increases by the Federal Reserve, affecting the economy with a lag. Increasingly, I'm hearing about uncertainty regarding the gradual reduction of the Federal Reserve's balance sheet and the effect that might be having on liquidity in times of stress.

We have already talked about—and this is old news—sluggish workforce growth because of aging demographics increasingly, though, posing a constraint on growth. And the question is, as President Daly mentioned, how much capacity really is there for underrepresented groups to more fully participate in the workforce?

On the bright side, I am cheered by the fact that we have a very tight labor force. And consumer spending has been in good shape, as are household balance sheets. Having said that, I must tell you, at least one or two mall operators whom I talked to in the United States reported a good October and a good November, and they are telling me something surprising is happening so far in December. They had gone into December thinking they were going to have a great Christmas. They are now saying, "We're hopeful we will still have a great Christmas, but it looks to us it may be a good Christmas. And we can't really explain what we're seeing in December, but it's weaker so far in December." We'll see what that means. They don't know yet what it means.

Against this backdrop, recent inflation readings—the Dallas trimmed mean, for example—are more muted. Cyclical inflation pressures certainly are building because of tight labor markets and rising input costs, but I continue to believe—and we continue to believe—that these are being muted by technology and technology-enabled disruption as well as globalization.

So I don't expect inflation to run away from us. I think the structure of the economy is changing in ways that maybe we haven't experienced in our lifetime, particularly on account of the advent of distributed computing and computing power—which is having an effect on pricing power.

The punchline is, I actually don't see risks to the outlook as balanced. I see them as weighted to the downside. Of course, with time, these risks and uncertainties may well be resolved in a favorable manner. And I'm hopeful they will be—in which case I would upgrade my outlook, and I would be supportive, if that were to happen, of proceeding with further rate increases. But I'm not prepared to jump to that conclusion today. And more than that, in view of what is going on with inflation, I don't think I need to jump to that conclusion today.

I do believe that we are nearing an inflection point, if we are not already there—that we're at risk of overdoing the pace of withdrawal of accommodation. I'm not sure that our destination is the wrong destination. But I think we are at risk of overdoing the pace. We'll know, of course, in hindsight. I'm certainly not smart enough to know, but it strikes me that the risks are greater that we are moving impatiently at this point. And I think muted inflation readings give us flexibility to be patient. I think it would be a mistake not to use this flexibility, and I think President Bullard mentioned the episode of 2016 when, early in the year, we saw turmoil in China, we were patient, we allowed it to be resolved, and then we were able to continue with rate increases.

I hope that this experience will encourage us to be patient from here. I'm not so sure we won't be continuing to raise rates into the future, but I think it's more likely we'll have that opportunity if we are increasingly patient during this period. I'll speak more about this in the policy go-round tomorrow. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President George.

MS. GEORGE. All right. I'm going to drop any literary references. [Laughter]

The outlook for the 10th District economy generally remains positive, albeit tempered by ongoing trade uncertainty, weaker oil prices, and a depressed agricultural sector. Our most recent surveys of manufacturing and services activity, which will be released later this week, point to continued expansion with a favorable outlook but at a slower pace of expansion, as ratings have softened in the past two months to levels last seen in November 2016.

Our most recent energy survey shows lower oil prices are weighing on firm fundamentals, with oil prices falling below the average survey respondent's profitable price, although District contacts do note that some of this risk is mitigated with hedged positions through the end of 2019.

Finally, the District's agricultural economy remains depressed. A new farm bill passed both houses of Congress last week. While its provisions are not expected to change the current dynamics for this sector, it does resolve uncertainty about the future of farm policy, and it maintains crop insurance as a key support to the sector. Additionally, the recent announcement that China will buy soybeans from the United States is relatively positive news, although the order represented only a fraction of 2017 soybean exports to China and future orders are uncertain. In the meantime, the President and the USDA announced yesterday a second round of trade mitigation payments for producers deemed to have been affected by retaliatory tariffs.

For the national economy, my current projections for growth, employment, and inflation are little changed since the September SEP submission, although I did make a slight downward adjustment of my estimate for the natural rate of unemployment, and downside risks have grown more prominent in my assessment.

I expect real GDP growth to slow next year to around 2.5 percent, with the unemployment rate declining a bit further as growth continues to remain above its trend rate. While my outlook remains relatively unchanged, three factors have influenced my thinking about the appropriate path for the funds rate over the next few years. First, the outlook for inflation continues to be benign. While we saw some firming of inflation this year—as year-over-year measures of headline and core PCE inflation reached 2 percent—data over the past several months suggest some modest softening of these inflationary pressures beyond the direct effect of lower oil prices. This incoming information suggests that inflationary pressures remain modest, and, thus, I expect only modest increases in inflation over the medium term.

Second, despite strong labor markets, with unemployment running below most estimates of its natural rate, there are few signs of wage pressures showing up in the data. According to my District contacts, one explanation is that firms are actively using a wide range of nonwage incentives to attract and retain workers in part to limit wage growth as they seek to remain competitive in the marketplace.

Third, downside risk has been growing during the intermeeting period. While I agree with the Tealbook box that supply factors are part of the story behind the recent oil price decline, I read today's signals and commodity and financial markets as reminiscent of 2014. At that time, the oil price declines initially appeared to be mostly supply-driven, similar to some of the commentary regarding the current decline. But with the benefit of hindsight, it is clear now that slowing global growth, particularly in China, precipitated that decline. Of course, determining in real time whether this decline is due primarily to supply or demand factors is difficult. When I look back at the 2014 episode, we observed two important developments. First, cross-asset correlations with oil prices strengthened, with the dollar and risk spreads rising as oil prices declined. Second, equity prices and inflation compensation fell in tandem with the price of oil.

The recent decline in oil prices has similarly coincided with the rise in the dollar and risk spreads and declines in equity prices and inflation compensation. Moreover, these movements in commodity and financial markets have taken place against a backdrop of deteriorating global Purchasing Manager's Indexes (PMIs). As a result, I'm inclined to take some signal from the recent drop in oil prices that global demand may be faltering, with further disinflationary effects, as evidenced by the recent decline in five-year inflation compensation.

Taken together, these factors have caused me to flatten my funds rate path. And I wait for evidence in the coming months that risks to the outlook are not meaningfully tilting to the downside, and that the economy remains on track to continue its long expansion.

CHAIRMAN POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Mr. Chairman. As many have already observed, current national data indicate that, overall, the economy is performing well and conditions are quite good, while the underlying fundamentals appear to be strong.

The labor market continues to show healthy signs, with the unemployment rate continuing to be below normal with expectations, and there is a sustained pace of job creation. This growth has also resulted in some improvement in wage growth.

The most recent consumer spending reports released last week are very strong and have exceeded staff expectations, so we can add more to the list of good news. This data would appear to demonstrate a positive outlook and confidence in the economic conditions. In addition, inflation appears to be stable and running very close to our target.

A few areas of note and continued monitoring. Some areas dependent on financing have been affected by increases in borrowing costs. For example, there's continued evidence of the residential housing market slowing during 2018, with some notation made of affordability concerns expressed by potential borrowers.

In one area in particular, as President George noted, in the agricultural sector, there are signals that conditions are not improving but, instead, are continuing to deteriorate. And, nationally, banks are continuing to report agricultural loan delinquencies, which have slightly increased in recent months, indicating potential repayment concerns. The effects of increases in borrowing costs for struggling agricultural producers can be intense. Most production loans feature variable rates, large balances, and a single annual payment, which may be renewed annually or extended over a limited number of years. While this may seem like a small segment of our economy, agricultural production also affects other related areas, including agriservices, machinery, equipment, and other agribusiness categories that are heavily dependent upon this sector. The effect is magnified by a limited market because of decreased exports, as many have mentioned; trade-agreement uncertainty, which is a common theme; and continued low commodity prices, as President Kaplan has just noted. But most of the producers have also historically large inventories of their commodities. And the stresses in this sector are continuing now into the fifth year.

This is further compounded by data supporting anecdotal evidence reflecting an increase in the number of producers undergoing voluntary liquidations and bankruptcies resulting from ongoing multiyear challenges in conditions, changes in production levels, and input costs exceeding commodity sale prices. The effects are being felt industry-wide, with bankruptcies of dairy producers and crop producers alike.

For the past several years, as a state bank commissioner, my agency worked with many community banks to identify and mitigate risks related to carryover debt and loan restructuring. At some point, this either begins to improve or becomes an even greater area of concern. December is generally the busiest time for agricultural loan renewals, and many bankers are currently in discussions with borrowers making assessments of their operations to determine loan terms for the coming year.

Again, as President George noted, a few recent developments provide a potentially brighter outlook. Over the past week, China has placed a large order for soybeans, which is one of the targeted commodities in those trade discussions. We hope that the farm bill will be finalized in the near future, and support programs are now available for soybean sales. This certainly provides a rosier outlook, but the industry still merits close monitoring.

Another area I'm interested in following is the labor market—specifically, whether we have engaged or are approaching capacity for those able to participate in the labor force nationwide and, in particular, in rural and nonmetro areas, as many have discussed earlier today.

It's reassuring to see that the nationwide data are reflecting general progress in this area, even if more so for women than for men. Nonetheless, I'm pleased to see that the trends are improving and heading in what I view as a positive direction.

I'd also like to thank Andrew and the staff for their analysis of the labor data and for your help last week. Thank you.

This has been an area of interest for me since returning to Kansas in 2010, both from the perspective of a rural community banker and as a state bank commissioner. That focus area is an assessment of whether the country is at full, or has expectations of full, participation in the labor market and what may be the actual barriers to entry or reentry into that market.

There may be many factors with respect to this. Some could be the effect of opioids and other drugs on the ability of individuals to engage fully, participate, or be productive in the labor market if they're participating or possibly, as Andrew noted, due to disability and other factors that might encourage or discourage their participation in the market. And I look forward to learning more about that in the coming months.

Finally, as many have noted, there appears to be an undercurrent in the business community of unease about future conditions. And although the data do not currently reflect this concern, business sentiment seems to be less positive than the data indicate. And this certainly bears watching. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chairman. Notwithstanding the recent volatility in equity markets and the deterioration in market sentiment, the hard data remain solid, and my basic outlook is unchanged. I do see growth slowing somewhat next year but remaining strong, and I remain optimistic about the longer-term outlook.

Significantly, the labor market remains strong, with spillovers to economic activity as evidenced by the robust increase in November retail sales, and the decline in oil and gasoline prices should provide enough to boost consumer spending even as it weighs on investment and production in the oil sector. Lower oil prices will show up in lower headline inflation, but core inflation looks to stay close to target.

The fall in equity prices has been disconcerting, but I don't think any of us should find it completely unexpected, in light of what our assessment of market valuations were. Of course, we have to look for signs that volatility in equity markets is spilling over into the real economy by depressing sentiment or confidence, consumption or investment, and it does seem that the market has become more focused on risks, whether that's related to trade or the international outlook—Brexit.

All in all, those are risks that we've been talking about for some time. It doesn't seem to me that they've gotten much worse in the past few weeks, and it may be that what we're seeing in the market developments is a bunch of smart people who are looking forward to the future being visited by the Ghost of Christmas Yet to Come. But—someone mentioned it. I do think that we should perhaps discount it a little bit, because market participants are sort of living in a different year than most of those in the real economy have been living in. This hasn't been as good a year for hedge funds and other market participants. So, rather than looking to the Ghost of Christmas Future, they may simply be in a different movie. [Laughter] They may have been visited by the Ghost of Christmas Present from the movie *Scrooged* with Bill Murray, who was a gratingly-voiced comedienne who kept hitting him in the face with a toaster. [Laughter]

In the longer run, I am still optimistic on the economy's potential investment. It took a breather in the third quarter, yes, but recent indicators support a pickup in capital spending in the fourth quarter. We all know that productivity growth on a quarterly basis is volatile, but it did grow 2.25 percent, on average, over the past two quarters, and that was the fastest pace in some time.

What about the outlook for productivity? The staff view is that tight labor markets bring down productivity growth, as less capable workers join the workforce. But it's also likely that tight markets could lead to firms economizing on labor and cutting the excess in waste. Overall, my outlook is premised on the view that strong potential growth will allow the economy to expand reasonably fast while limiting additional pressure on inflation, and so the path of policy rate hikes can be gradual.

But I'm also aware that, by many measures, the labor market and the economy are very tight. President Mester mentioned the Monday morning briefing of December 10, which I thought was revealing in the number of nonprice indicators of constraint—firms reporting insufficient supply of labor, insufficient supply of materials that are at a multidecade high. And I mean not just high relative to the past few years, but over decades.

So while it's true that inflation pressures still remain muted, as I said previously, my confidence band around the quality of the signal coming from inflation is widening. And while market-based measures of inflation expectations have fallen, perhaps on account of the steep falloff in oil prices, survey-based measures remain well anchored. That's good, and we should work to keep them that way.

And, Mr. Chairman, in furtherance of my slavish commitment to transparency at whatever the personal cost, I am SEP participant number 11.

CHAIRMAN POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. I was trying to guess whether you would adjourn the meeting before we got all the way through the go-round [laughter], and then I could—

CHAIRMAN POWELL. Stay tuned.

MR. KASHKARI. Yes. And then I could rely on Google to try to find a Dickens reference. [Laughter] I've got nothing.

Starting with the local economy, moderate growth continues in the Ninth District. Most sectors continue to do well, with the notable exception of agriculture, as others have noted. Retailers reported a strong Thanksgiving and are, so far, upbeat on holiday shopping.

A couple of less positive indicators—residential investment continues to slow. Our contacts, obviously in the oil sector, also report lower expected capital expenditures in the Bakken region.

Many firms continue to complain about tight labor availability. I'll give you a quick anecdote. Over the summer, the guy who does my lawn did a yard cleanup—an annual yard cleanup. I was really surprised by the price. I emailed him and I said, "How come it cost so much?" He explained it. I wrote the check. And then a month later he dropped me as a client. Well, I interpret that as the labor market was tight, and he was exercising his leverage, which I applaud him for doing, even though I was annoyed in the moment.

Businesses are complaining of higher turnover. Yet wage growth still remains surprisingly moderate. And, notwithstanding my own lawn-care charges, price pressures also remain moderate. In looking forward, recent business surveys indicate a slightly softer outlook for 2019 compared with 2018, especially for capital expenditures.

For the national economy, solid economic growth continues, led by consumer spending. Labor market indicators generally remain strong. Over the past three months, the U.S. economy has added somewhere between ½ million and 1 million jobs, depending on if you look at the establishment versus the household survey. The upward trend in prime-age labor force participation rate (LFPR) seems to be continuing.

President Daly, one thing that I look at a little differently than you: If people are choosing to stop exiting, I think that's fine. I think that's a positive indicator, and it doesn't represent unsustainability as I interpret it.

Nominal wage growth continues around 3 percent. It seems to be rising, but slowly, so it may not imply high inflation to come in light of productivity growth. And earlier in the year, inflation and inflation expectations looked pretty stable at 2 percent. Recent signs are that inflation expectations have softened a bit. 12-month core inflation is now at 1.8 percent. Since June, all of the monthly numbers have come in below 2 percent, and market-based measures of inflation expectations have declined since our previous meeting, with the five-year, five-year down around 17 basis points.

One important factor behind declining inflation expectations is probably the sharp decline in oil prices—down about one-third since their peak in October, and down 18 percent since our previous meeting. This decline is likely to depress headline inflation over the next year or two, with some bleed-through to core inflation.

The Federal Reserve Bank of Minneapolis has these risk-neutral probabilities for the inflation outlook. The chance of inflation—according to these probabilities—falling below 1 percent over the next five years is now 20 percent, while there is only a 4 percent chance of it exceeding 3 percent. So that is consistent with inflation expectations being maybe a little bit low. I don't take too much signal from the recent softness of inflation, but it does confirm for me—I don't see any evidence that inflation is about to surprise us to the upside. I'm not calling it a miss on the downside, but there's not much risk of an upside surprise.

In other notable developments in financial markets, the yield curve continues to flatten, with the spread between 10-year and 2-year Treasury yields now around 15 or 16 basis points. Spreads on corporate bonds are rising, and the stock market has been volatile. All of these imply some increased downside risk. And then if you look around the world, as we discussed earlier with the staff, the Tealbook is now forecasting only 1.6 percent growth for advanced foreign economies in 2019 and a substantial markdown in the emerging market economies, from 3.7

percent to 3.3 percent. And then, of course, there are risks associated with trade with China and a hard Brexit.

So, in summary, the U.S. economy continues to grow solidly. I see strong continuing job growth absent much wage growth—which suggests to me that slack remains in the labor market. There is no sign of inflation moving above target; instead, there are some signs that inflation is softening. So, for me, the balance of risks now seems somewhat more tilted to the downside. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. Vice Chair.

VICE CHAIRMAN WILLIAMS. Thank you, Mr. Chairman. I'm still struggling with what President Kashkari said. Do you really write checks? [Laughter]

MR. KASHKARI. I'm trying to keep that practice.

VICE CHAIRMAN WILLIAMS. We might need this real-time gross settlement system after all. [Laughter]

The dissonance between what is and what may be is striking. On the one hand, nearly all of the recent hard economic data are signaling strong momentum in economic activity and labor markets. To use a California driving analogy, it is like we are speeding down I-5 on the lookout for the California Highway Police (CHIPs). On the other hand, global and financial market developments are flashing warning signs of impending doom, and this reminds me of navigating hairpin turns on the Pacific Coast Highway, where any mistake can send you off a cliff.

Now, my assessment is, elements of truth are in both of these road-trip narratives. The incoming data on economic activity have been very reassuring, and they have been consistent with my forecast of a strong U.S. economy—entering the New Year with considerable momentum. Consumer spending, in particular, stands out in this regard. In terms of anecdotes, recent data do suggest there has been a big surge in heavy winter outer garment purchases in my neighborhood in New York City.

GDP growth this year looks to be a touch above 3 percent, and the labor market continues to get stronger. Wage growth has increased near levels consistent with productivity trends and 2 percent inflation.

At the same time, the downshift in growth next year that we had been expecting now looks likely to be more pronounced than previously thought. Assuming it persists, the sharp tightening in financial conditions—in terms of asset prices, widening risk spreads, and the general shift towards a more risk-off sentiment—will undoubtedly crimp business and household spending next year, and the global growth slowdown likewise will take a bite out of exports.

In addition, something—or some things—is taking the air out of the housing market. My staff has been looking closely at the evidence on where and why housing markets are cooling. So I will comment on that in a little bit more detail.

You need to look no further than this room to locate one culprit. Housing is, after all, the most—among the most, if not the most—interest-sensitive sector in the economy. And the increase in mortgage rates this past year has, predictably, cut into housing construction and sales.

In addition, the Tax Cuts and Jobs Act greatly reduced the tax subsidy to homeownership in two ways. First, the increase in the standard deduction means that far fewer households take advantage of tax deductibility associated with homeownership. And, second, the new stringent limits on the deductibility of state and local taxes as well as mortgage interest mean that the tax advantage for those who do itemize is much smaller than before, especially for those living in states with high state taxes and having higher-priced homes.

Because these tax changes occurred at roughly the same time that mortgage rates were rising, it is hard to tell the two effects apart just by looking at the aggregate time-series data. So my trusty staff delved into the details and examined how home sales and home prices have behaved differently, depending on state tax rates and how expensive homes are in regions. And what we have learned is that the tax changes are having large negative effects in certain regions and are likely contributing to the slowdown of the national housing market that is likely to persist for some time.

Regarding home sales, recent declines are most pronounced in the two categories—that is, the higher-tax northeast and west regions and for higher-priced homes. For home prices, my staff looked at the house-price-to-rent ratios using the multiple listing service (MLS) microdata. And the analysis finds that the price-to-rent ratios in high-tax states for which we have data have declined sharply relative to those in low-tax states. Furthermore, the relative decline is greater for higher-priced units than for units near the median price.

Taken together, this evidence suggests that the tax cuts, combined with higher mortgage rates, are behind the shift in home sales and in prices in large parts of the country. And because neither factor is likely to reverse any time soon, I expect the housing sector to continue to cool next year and also these factors to exert a downward drag on home price appreciation in coming years.

In response to the tightening of financial conditions, slowing growth, and a more pessimistic outlook for the housing sector, I have lowered my real GDP growth projection for next year to 2¼ percent—slower, yes, but still above my estimate of potential growth of 1.8 percent.

Regarding trend productivity growth, I heard my colleague once again espouse some confidence or optimism about that. I did ask my staff to rerun our models. We have a few models we look at for trend productivity growth. One is this Kahn-Rich regime-switching model. I won't go through the details, but it has actually proven to be a really useful way to think about productivity growth trends. That model puts an over 90 percent probability that we are still in a low-growth phase of about 1.3 percent productivity growth.

And a model that Thomas Laubach, Rochelle Edge, and I developed about a decade ago, which is a Kalman filter model, also suggests productivity growth of around that figure. So, at least on the data that we have and the models that we have, there doesn't seem to be a significant shift in productivity trends yet.

With another year of above-trend growth, I expect the unemployment rate to bottom out around 3½ percent next year.

On the inflation outlook, like President Kashkari, I agree that the absence of signs of elevated inflationary pressures despite a really strong economy—and that could be whether you look at inflation data, you look at inflation expectations, you look at labor costs, you look at energy prices, all of these factors—I think they are all telling the same story, and that has caused me to lower my forecast core inflation path by 0.1 percentage point. So I now see core inflation picking up—edging up to 2 percent next year, and peaking at 2.1 percent in 2020.

Consistent with these modest changes in the outlook, I now foresee a somewhat shallower funds rate path. Indeed, if it weren't for this adjustment in the monetary policy path, the downward adjustments to my projections for growth and inflation would have been larger. And I now see the center of the target range reaching a cyclical peak of 3.1 percent eventually. In real terms, this is ½ percentage point above my estimate of long-run r^* of ½ percent. With this change in the policy rate path, I view the risks to the outlook as roughly balanced. That said, further tightening of financial conditions or a downgrades to global growth represent prominent risks to the economic outlook that I will be paying particularly close attention to in the coming year.

I am SEP participant number 3. Thank you.

CHAIRMAN POWELL. Thank you. I am going to invoke the "mercy rule" and call it a day for now. I'll start tomorrow with my remarks, which have about as much to do with monetary policy, anyway, as they do with this. I may also use some of the time to come up with a really good Dickens quote. [Laughter] We now adjourn to the elegant West Court Café and I'll see everybody down there. Thanks very much.

[Meeting recessed]

December 19 Session

CHAIRMAN POWELL. Good morning, everyone. I hope everyone had a good evening. In our last episode, I left my comments on the outlook and monetary policy for this morning, so let me jump right in. And I'll begin with a quote from the great Charles Dickens—no. [Laughter] Actually, he didn't say anything about monetary policy, at least anything that I could find overnight.

The picture that many of you have described is one of strong nonfinancial data amid turbulent and tightening financial conditions as well as moderation in global growth, increasing uncertainty, downbeat sentiment, and perhaps growing downside risks. As some of you summed it up—well, I think: "Data good, mood bad."

The run of nonfinancial data for the U.S. economy has generally been strong, in keeping with our expectations. The labor market has remained strong, with solid job creation, gradually rising compensation, and many indicators at levels consistent with full employment. Participation has continued to surprise to the upside.

Despite lots of reports of bottlenecks and supply constraints, inflation has remained near our 2 percent objective. In fact, it has lately come in just a bit more muted than expected.

Real GDP growth has been strong, supported by strong consumer spending, solid business fixed investment over the year—despite what looks like a third-quarter pothole—and expansionary fiscal policy. Growth is on track to come in at its strongest level since 2006, and this will likely be the first 3 percent growth year of this long expansion.

Against the background of this strong economic performance, many of you noted an increase in financial market volatility and the meaningful—not to say, perhaps, ongoing—tightening in financial conditions. Many of you also noted the moderation of global growth through 2018—which disappointed expectations of another year of strong, synchronized global growth. And these factors have led many of us in our SEP submissions to lower our expectations of real GDP growth in 2019 by a modest amount and to write down a flatter, more growth-supportive rate path. The median forecast for next year is of a meaningful decline in growth from today's rate to 2.3 percent, followed by growth at the high end of our range of estimates of trend in 2020. The median participant wrote down only two rate increases over the course of 2019.

I'm finding it useful to look back over the past year and ask what we can learn. In late 2017, 12 months ago, growth was running well above its trend rate, and the labor market was very strong. We expected that to continue, with inflation moving up to 2 percent in relatively short order. There was good reason to expect that the synchronized global real GDP growth of 2017 would continue. We expected some U.S. fiscal policy stimulus, but what we got was both larger and more front-end loaded than expected.

A key question during the first half of this year was how the U.S. economy, already operating at or near or even beyond full employment, would react to this unprecedented procyclical fiscal boost. Would inflation break out meaningfully above 2 percent? Would unemployment decline to ever more historically-low levels not seen since the Korean War? Would the labor force participation rate rise to absorb some of the stimulus? Would we see evidence of supply-side room to grow? Would the dollar rise by more than expected, sending some of that demand abroad?

This year's experience provides some tentative answers to these questions, and those answers shed light for me on the risks to the outlook. In particular, instead of breaking out, inflation has remained muted. Upside risks to inflation failed to materialize this year despite growth well above potential, the unemployment rate very low and declining, tariffs being implemented, and numerous reports of bottlenecks and supply constraints.

In looking ahead, our SEP submissions show growth next year modestly above trend and a small further decline in the unemployment rate. By 2020, the economy is growing close to our estimates of the potential rate.

I would not be at all surprised to see upward movement in inflation over the next year or so. But while I'm not sounding the "all clear," the risk of a troubling upside breakout of inflation seems to have diminished, at least for now.

Expectations appear well anchored, and the dreaded nonlinearities have not shown through at current levels of resource utilization. Our steady, gradual rate increases probably deserve some of the credit for allowing us to safely explore the effects of very low unemployment.

On the supply side, the participation rate did surprise to the upside, as did productivity growth this year. Only time will tell whether these welcome developments will be sustained. The staff has marked up its estimate of potential output over the year. I'm sympathetic to that assessment, and I see, at this point, a bit more upside risk to trend growth now than I did around this time last year. I do not see as at all likely a material upward movement in labor force participation. That would require an active, sustained, and focused effort on the part of the legislature and not just accommodative monetary policy, in my view.

In the draft statement, we've added a clause to the "balance of risks" sentence, noting that we will "continue to monitor global economic and financial developments and assess their implications for the economic outlook." As evidenced in your comments, in our surveys, and in public discussion, both business leaders and financial market participants are seeing not only a somewhat weaker outlook, but also growing downside risks. I would not want to take too much signal from this, in the context of the strong incoming data as well as still-high confidence readings.

Neither would I want to be too dismissive about it. And I will mention three risks in particular that seem to have been a focus of markets and businesspeople. First is the risk of further tightening in financial conditions and the related risk that the tightening to date will have greater negative effects than have shown through in our baseline estimates. Financial conditions have deteriorated quite sharply, and that process may not have run its course. And as we believe that monetary policy operates with long and variable lags, some of the effects of our gradual rate increases have likely not gone through yet.

Second—and this is kind of both an upside and downside risk—when enacted, many saw the fiscal impetus as highly procyclical. If the economy does weaken, it will turn out to be less procyclical than feared—even, perhaps, well-timed. And the meaningful support for demand that our baseline shows for 2019 and '20 may turn out to be welcome in that event. However, on the other side, we also face a downside risk that the fiscal impetus may wear off faster than we estimate, and a number of outside forecasters are projecting that.

On the third risk, global growth has declined and is running roughly at potential. I think we're absolutely right to characterize growth as moderating, as opposed to falling or weakening. Nonetheless, there's clearly a risk that the global picture may darken further, perhaps because of trade conflicts or an unexpectedly turbulent Brexit.

In summarizing these downside risks that seem to have captivated markets of late, I do not mean to—and I will not—overemphasize the negative. Financial market turbulence regularly passes as quickly as it arrives. My baseline view is that, one way or another, Brexit will come off in a way that is not overly disruptive. It is certainly possible that market skies will clear and that our concerns will again shift to stretched valuations and frothy markets.

So, what are the monetary policy implications of all of this? With solid incoming nonfinancial data and a still-favorable baseline forecast, I see it as appropriate to raise the target range for the federal funds rate another 25 basis points. Such a rise would leave the funds rate at the bottom of our range of estimates of its longer-run neutral level. Our often-discussed point estimates of the neutral rate have, in a sense, reached a point of declining utility in our setting and communication of policy. Now that we are entering the range of neutral estimates, I see it as time to put those point estimates aside and watch incoming data closely to inform our assessment of the evolving outlook and risks and the appropriate stance of policy.

If the downside risks do not become realities and the data come in roughly as expected, I judge that some further gradual increases in the target range will be appropriate. If we do raise the federal funds rate today, that will be our ninth rate increase over three years. In addition, the balance sheet has declined materially, and that process will accelerate next year with another $500 billion in runoff.

Taken together, all of this has materially shifted the stance of monetary policy. With growth expected to decline to closer to trend next year, we can afford to be patient about further policy firming, especially in an environment in which inflation is still muted.

It is, obviously, a highly sensitive time in markets. I think our message should begin with the fact that 2018 has been a very good year for our economy, and that we forecast a continued solid performance. However, the public also needs to see that we have taken on board the rather significant tightening in financial conditions, the moderation of global growth, and the risk that these factors could worsen, further restraining growth.

Lastly, we should stress that neither the pace nor the endpoint of any further rate increases is known. There is no preset course. We will be focusing on incoming data to inform our assessment of the outlook, of the risks to that outlook, and of the appropriate path of monetary policy to keep the expansion on track, with a strong labor market and inflation near 2 percent.

Finally, in thinking about next year, our forecasts for 2019 are for continued, meaningfully above-potential, real GDP growth, further strengthening in the labor market, and inflation remaining close to 2 percent. As we consider further policy firming, I will be looking for evidence that the economy remains on a path roughly in line with that forecast.

Thank you very much. And with that, that concludes our outlook go-round, and I'll turn it over to Thomas.

MR. LAUBACH.[5] Thank you, Mr. Chairman. I'll be referring to the handout labeled "Material for the Briefing on Monetary Policy Alternatives."

Since your September meeting, market participants have come to expect a lower policy rate path beyond 2018. As shown by the black and orange lines in the upper-left panel, the OIS path moved down appreciably over this period. The most likely path of the federal funds rate projected by the median respondent to the Desk's surveys, shown by the blue dashed line and the green dotted line, also shifted down, albeit by slightly less. Understanding the primary reason behind the lower policy rate expectations now than in September may be important for your choice of communications at this meeting. Three natural possibilities, noted in the upper-right panel, are that markets perceive a shift in your reaction function, with little change in the outlook; a downward shift in the baseline outlook; or a significant increase in downside risks, with little change in the modal outlook.

Movements at the long end of the nominal yield curve and in far-forward inflation breakeven rates may be informative in understanding recent moves in policy rate expectations. Beyond a certain horizon, expectations of a more accommodative reaction function of the FOMC ought to be reflected in higher nominal yields and higher expected inflation. However, as shown by the blue line in the middle-left panel, far-forward Treasury yields have moved down sharply over recent weeks and are now 20 basis points lower than at the time of the September meeting. Similarly, five-year-ahead, five-year breakeven inflation, not shown, has declined about 30 basis

[5] The materials used by Mr. Laubach are appended to this transcript (appendix 5).

points since September. Thus, market participants do not appear to view the lower near-term path of the federal funds rate as a sign of a more accommodative monetary policy reaction function that would result in higher inflation than was expected three months ago.

If, instead, the declines in far-forward Treasury yields are a sign of greater pessimism or caution among investors, do they reflect a significantly lower modal path of the federal funds rate over coming years due to a weaker economic outlook or lower inflation, or a perception of increased downside risks? While we do not have a precise answer to this question, term structure models can provide a perspective—one that is, admittedly, model dependent. As shown by the pink region in the middle-left panel, the range of estimates of the federal funds rate expected 5 to 10 years ahead derived from three term structure models has barely declined in recent months. Similarly, the long-horizon federal funds rate expectationsin the Blue Chip and Desk surveys have held steady. These observations suggest that the sizable decline in the Treasury yield curve reflects, to some degree, increased perceptions of downside risks that the models interpret as lower term premiums, in addition to a slightly lower expected path of the federal funds rate in the outyears.

This interpretation of recent moves in the OIS path is consistent with what you would communicate to the public if you were to adopt alternative B at this meeting, as well as with your SEP. Your statement would signal only modest changes in the economic outlook. However, to achieve those outcomes, the median of your funds rate projections suggests that a slightly lower path of the federal funds rate is now called for, with only “some” further gradual increases. Replacing the verb “expects” with “judges” in that sentence hints at somewhat less certainty about the appropriate path than previously. With this slightly lower projected path of the federal funds rate, you would continue to see the risks to your economic outlook as roughly balanced, but you would signal that the implications of recent global economic and financial developments for the outlook are somewhat unclear and that these developments bear watching.

Of course, as shown by the orange dots and the orange line in the middle-right panel, there is a sizable gap between the median SEP path and the current OIS path. But, as shown by the blue crosses and the blue line, broadly similar gaps existed a year ago, and such gaps didn’t seem to present major communications challenges. Over time, these gaps were resolved—sometimes with the forward path moving closer to the median SEP path, and sometimes with the SEP path doing the adjustment—but usually without much drama in financial markets.

Let me now assume that you adopt the language in alternative B, and that the economy will continue to evolve broadly in line with your outlook. You will then confront the question of how and when to change the statement language to remove the guidance of “some further gradual increases” and to communicate the dependence of your future decisions on incoming data. As noted in the lower-left panel, the changes you made in June and September have already cut back on explicit, directional forward guidance regarding the future path of the funds rate. With the median SEP funds rate path suggesting only three further hikes after this meeting, presumably the reference to "further gradual increases" would need to be removed the next time you raise interest rates; removing it before then would likely be read as a further downshift in your anticipated federal funds rate path.

You may also want to make changes to the statement to communicate a properly-understood notion of "data dependence." In particular, at coming meetings, you may want to emphasize that incoming data will inform your assessment of the cyclical position of the economy and your estimates of the longer-run unemployment rate and federal funds rate. That such assessments are inherently hard to make is illustrated in the lower-right panel, which shows the 70 percent confidence intervals around estimates of the real longer-run neutral rate usingseven macroeconomic models that we periodically present in the Monetary Policy Strategies section of Tealbook A. Emphasizing data dependence is particularly pertinent at the current time, when the data may not clearly signal on which side of neutral the federal funds rate lies.

One possible way of conveying the message that your outlook for the economy and monetary policy is responsive to incoming data might be to pick up a thought that was removed at the time of the June meeting. At that meeting, the assessment that "the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run" was excised from the statement. This sentence was followed by the caveat—reproduced as the last bullet in the lower-left panel—that "the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data." That caveat arguably applies not only to the assessment that was removed from paragraph 4, but also to your current economic outlook. It clarifies that the incoming data matter for your policy decisions insofar as they change your economic outlook. Reintroducing some language to this effect might help communicate that, with the funds rate near neutral and so long as the economy remains near your objectives, the Committee can provide less guidance about the pace and destination of the future funds rate path.

Thank you, Mr. Chairman. That completes my prepared remarks; the November statement and the draft alternatives are shown on pages 2 to 9 of the handout. I will be happy to take questions.

CHAIRMAN POWELL. Thank you very much, Thomas. Questions for Thomas?

MR. EVANS. Can I ask a question?

CHAIRMAN POWELL. President Evans.

MR. EVANS. In paragraph 2, the word "gradual"—"gradual increases"—is "gradual" playing a role that seems important? I mean, in the past, it kind of touched on magnitude and pace, in my opinion. Is it superfluous now, or is it playing an important role?

MR. LAUBACH. In my recollection, I don't think that "gradual" was much tied to the magnitude. I think that was more in paragraph 4, "the timing and size of . . . adjustments"—that language that's still there. The "gradual," in my perception, was always about, how many 25 basis point steps a year? It was not about, could there be a 50 basis point in there? So that was my understanding. I don't know whether that's universally shared.

MR. EVANS. Okay. Thank you.

MR. KAPLAN. I might just follow that up.

CHAIRMAN POWELL. President Kaplan.

MR. KAPLAN. At 2 to 2¼—or now 2¼ to 2½—percent, in view of the fact that "gradual" is about pacing, which I think is what you just said, is it still useful at this stage, in your view?

MR. LAUBACH. I think the question is: How would removing "gradual" now be understood? Again, insofar as it indicated, in the past, "unlikely to have increases at two consecutive meetings," say, I'm not quite sure how a removal now would be taken, because that is certainly not what the Committee would now be considering at this juncture, right? I mean, at this juncture, I guess the question is, how far would any future increases be spaced out? I don't know, Simon, whether you have thoughts on how that might be interpreted.

MR. POTTER. People expect some change in the language. This is definitely a change in the language. It does keep "gradual." "Gradual" seems to have worked really well over the past few years. It was really designed to prevent markets from thinking you might do more than 100 basis points over a year. So I don't think there's much risk with this statement that they'll have a different viewpoint on "gradual."

I think I understand what people are saying. What is it actually getting you right now? I think it's just getting you not having to ask another question: By removing "gradual," are you trying to signal something? And I don't think you'd be trying to signal something. So the usual thing is trying not to do any harm or make it more complicated.

CHAIRMAN POWELL. Let me say that I think it's a very fair point. It's pretty touchy out there, and why take even a bit of tail risk on it? That's all. I think that your points, though, are extremely well taken, and it's something that has a short shelf life remaining, I believe.

MR. KAPLAN. That's very helpful.

CHAIRMAN POWELL. President Mester.

MS. MESTER. Yes. Thomas, the last thing in your bullet point on the bottom left, this "actual path of the . . . funds rate will depend on"—is there a reason not to put that in now and to wait?

MR. LAUBACH. If I were to think of one, I would say: In this instance, perhaps, go more gradualist. You already have two meaningful changes in the statement—well, three, including the hike. So I'd worry a little bit about making too large a pivot at once, as, arguably, the plain reading of it should simply be, you're alert. You already have one indication that clearly says you are alert. So I don't know whether that would be too much to add another.

MS. MESTER. But if you're thinking about the next statement, if the idea is to take out "further gradual" and put this in, that seems like a less gradual way of changing the statement, and maybe we'd be better off to put the bottom—

MR. LAUBACH. Yes. Okay, I apologize. I'll offer here my own views, obviously. I would think that the "actual path" language could be introduced regardless of whether the Committee makes a move at a particular meeting. The removing of "further gradual increases" really depends on, well, are you going along the baseline outlook? You're raising once more. If you expected only two more moves, then probably "further gradual," with the expectation of two more, is no longer appropriate, because "further gradual" may hint at more than that. This language here is about the data dependence—I think you could do that at any meeting, regardless of whether you raise rates.

MR. POTTER. Also, you have press conferences at every meeting now, which makes it easier to make a change in the language at any of the eight meetings coming up. And it might be good to have a change at a non-SEP meeting.

CHAIRMAN POWELL. Vice Chairman Williams.

VICE CHAIRMAN WILLIAMS. A two-hander on that. I mean, I agree in principle that this language makes sense. You know, we're already in the two-handed economist's world with the statement. We're raising rates and, at the same time, indicating concerns about global economic and financial developments. We're already indicating through the SEP that we've slowed our pace of increases. That's a pretty significant shift in the SEP.

I think adding the third phrase would potentially just confuse the message, more than I think at least the views I heard yesterday would suggest. I just think it's like Simon said—what are you trying to do when you change this language? Are you really pulling back from the "further gradual increases" in a way?

I do think there's a nice evolution—which I'm going to talk about in my comments—but there's a natural evolution as we get away from "further gradual increases" to, in a way, replace that with this stronger data dependence.

I would also highlight that my favorite paragraph of the statement is paragraph 4, which does say very clearly that, in determining all of our future actions, "the Committee will assess realized and expected economic conditions" relative to our goals. So I think that's always an anchor for our approach.

CHAIRMAN POWELL. President Daly.

MS. DALY. Can I follow up on that point about paragraph 4? I've always wanted to ask this question, so now that I'm here at the table, I can. [Laughter] If you have paragraph 4—this is not a complaint; it's just a question—what's the logic of putting this third bullet point in your left-hand panel in paragraph 2? Because you already have paragraph 4, so what are we trying to say additionally? If we went to the language in alternative A, for instance, when we get to a place where we don't think we're going to raise a lot faster or more, what's the advantage? I guess another way to put it is: Is this language an intermediary between what's currently alternative B and what'll eventually be alternative A, or how do you think about it?

MR. LAUBACH. I wouldn't interpret this language as necessarily tied to a migration toward something like alternative A. In the past, I think, when the Committee adopted this language, it was intended at that point—immediately before that was the sentence that I quoted about the expectation that the funds rate would remain, and so on—to remind the public that this is really an expectation. This expectation could change with incoming information—so that it is not a firm commitment or promise, but it is really contingent on the incoming data.

To me, what's currently in paragraph 4 is more a general principle that hints at reaction function–type behavior. This sentence that I have in the third bullet, to me, more plays the role of reminding the audience that we are providing you with an outlook—but this outlook can change over time, and if it changes, then the appropriate policy rate path will change as well.

MS. DALY. Thank you.

CHAIRMAN POWELL. President Bullard.

MR. BULLARD. Yes. I do have one question for Thomas. In the first paragraph, the last sentence says "Indicators of longer-term inflation expectations are little changed, on balance." Is that really a fair assessment in view of the fact that TIPS-based inflation compensation has fallen rather precipitously here? And in the past, if we wanted to make a distinction, we often said survey-based measures haven't changed, but TIPS-based measures have fallen.

MR. LAUBACH. I guess the "on balance" this time around is carrying quite a bit of the load. Arguably, the survey-based measures are in a very similar place to where they were before. I mean, Michigan is toward the lower end of its range, but it hasn't broken through that lower end. The TIPS have moved a lot. That's right. It reminds me of 2014–15, when we also saw large effects of oil price declines on TIPS breakevens that, at the time—they always present a bit of a puzzle why 5-to-10-year breakevens should be so sensitive to that. We see that behavior, I believe, again now.

MR. BULLARD. Yes, but we've acknowledged it before; now, we're not going to.

MR. POTTER. But we were careful to talk about not expectations, but the compensation for inflation. Compensation for inflation in markets has come down. Whether that means that inflation expectations at the 5-to-10-year horizon have come down 30 basis points seems unlikely to me, and the models are not supporting that kind of move in the expectation. What seems to have happened is—

MR. BULLARD. Market-based indicators have been good forecasters of actual inflation over the past decade.

MR. POTTER. They've been okay. They've been a little bit under, because the inflation risk premium really shifted.

MR. BULLARD. Survey-based measures are biased to the upside.

MR. POTTER. Yes, possibly.

MR. BULLARD. But I just want to press Thomas on the—you know, we have talked about this in the past; now, we're going to exclude it. It seems to me that what the interpretation will be is that Chairman Powell's FOMC doesn't care about the TIPS-based measures anymore, whereas the previous incarnations of this Committee did care about this.

MR. LAUBACH. What I can say is that you had basically gone back to language that wasn't used before mid-2014. And then in the fall and winter of 2014–15, that was when the Committee split up the inflation expectation sentence into the two separate pieces about breakevens and survey-based measures. You've chosen to reunify these two pieces into one concise statement. I'd be surprised if that was understood as dismissive of the inflation breakevens.

In addition, I think when you did the split, arguably at that time, core inflation was still running quite a bit lower than it is now. So at that time, I think, low-inflation concerns were somewhat more pronounced than they are at the current juncture. Maybe from that perspective, there's slightly less need for that now.

CHAIRMAN POWELL. Vice Chair.

VICE CHAIRMAN WILLIAMS. I agree with Thomas completely. I have a couple of comments. One is, oil prices obviously have plummeted. That's had an effect on breakevens, for reasons that maybe we don't fully understand in our models. The second, obviously, is that there is a movement from "risk on" toward "risk off"—which I think is affecting the relative prices of the Treasury securities.

But, finally, I think about the lesson from that episode that you're referring to—and you're absolutely right. There was a time, as Thomas also said, when we got into the game of, meeting by meeting, tweaking our views on inflation expectations in response to the various data we looked at. I think, in the end, that didn't serve us well—constantly having to decide, is 12 basis points enough or not? And I think here, this is, I would say, a judgment or an assessment of the Committee that, overall, we feel that inflation expectations, or indicators of inflation expectations, haven't changed enough to highlight that.

I do think the fact that we mention it is clearly a sign that we are monitoring it and we're paying attention to it. It's just that, for the reasons relating to the gap between breakeven inflation versus inflation expectations and assessing the other measures that we look at, this doesn't rise to the occasion of putting some red ink there indicating that this is particularly concerning. And, actually, Thomas's point is spot on. Inflation is running essentially at our target. It's a different context, I think, than a few years ago.

MR. BULLARD. But—just to follow up on this—you could say survey-based measures have not moved, and then you don't have to say anything about TIPS one way or the other. It seems to me what you're saying is that I fed it through my affine term structure model and I decided it was all in the term premium. That's not going to cut it, I think, because markets are very sensitive to these things.

CHAIRMAN POWELL. Can I say that I, too—I don't remember. I remember well that we had both survey measures and breakevens in the statement for a long time, and it did devolve into a discussion over, 8 basis points or 12 basis points? And do you look at the Bloomberg measure or the Board measure? It was really not a useful exercise for me in the end, so we took that out. I don't want to get back into that business. I really do think, with TIPS measures, they're quite volatile. They are affected by—five-year, five-year-forward—spot oil price changes, for reasons we don't really understand. It doesn't make that much sense on the face of it. At the same time, sustained changes are something that we take note of. But volatility—I wouldn't want to be in the statement business again of doing that.

So I think I can handle the question in the press conference very well, but I wouldn't want to put it back in the statement and get back in that business. Once it's in, it's not going to go out again for a long time, and we'll be, meeting by meeting, having to say what breakevens did. I don't think that is where we want to be, if I may say. I note President Evans is nodding his head.

MR. EVANS. I'm fine.

CHAIRMAN POWELL. All right. Further questions for Thomas? [No response] Seeing none, let's begin our policy go-round, starting with Governor Clarida.

MR. CLARIDA. Thank you, Mr. Chair. I support our decision today to raise the target range for the federal funds rate 25 basis points and add the language that we will "monitor global economic and financial developments" as they affect our assessment of the economic outlook.

With this decision, the federal funds rate will be just below the range of longer-run estimates of r^* presented in the December SEP and will be much closer to the vicinity of r^* than it was when the FOMC started to remove accommodation three years ago. How close is a matter of judgment, and there is a range of views on the Committee. Two key inputs to my—and, I suspect, your—reaction function, which is some version of a forward-looking Taylor-type rule, r^* and u^*, are uncertain. And I believe the FOMC should continue to update our estimates of them as new data arrive, just as the Committee has done for the past number of years.

Yesterday I made reference to the fact that, to do a forecast, one needs data, a model, and a reaction function. In going forward, I think we need to be cognizant of the balance that we should strike between using models, being forward-looking, being preemptive, and being right. In particular, I believe preemptive hikes to snuff out a model-predicted surge in inflation would need to be balanced against the cost of being wrong if the model is wrong. To me, this suggests placing particular weight on actual inflation and various measures of expected inflation and relatively less weight on model predictions.

Speaking for myself and under a favorable set of initial conditions—inflation very close to target and unemployment close to, if not through, full employment—and conditional on the outlook and the risks to the outlook I discussed yesterday, I believe that we can afford to be patient in 2019 as we assess both the pace and destination for any future rate moves that we might consider. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. I support alternative B as written. With real GDP likely to continue to grow at a faster-than-potential rate over the next year and the unemployment rate likely to fall further below what is likely to be sustainable in the long run, it is appropriate to raise rates 25 basis points at this meeting. If, as I expect, labor markets continue to tighten and wages and prices continue to rise gradually, it will be appropriate to continue to raise interest rates gradually over next year.

I would not be in favor of stopping our steady ascent to the equilibrium federal funds rate in response to recent financial market volatility. While I do not dismiss the possibility that financial markets are anticipating a global slowdown—for example, as signaled by the substantial decline in stock prices around the world—financial markets are volatile and can reverse themselves quickly. In fact, we have had a number of false signals from financial markets in recent years. I don't know if this will be another; but I would prefer to wait to see corroborating evidence in real-sector economic data before significantly reducing both my forecast and my interest rate path. While I've made some downward adjustments to both for this SEP round, I still expect growth somewhat faster than potential next year, conditioned on three funds rate increases during the year.

Monetary and fiscal policy continue to be accommodative, making removal of accommodation appropriate unless the economy slows more than we are currently forecasting. However, as I suggested yesterday, I would, of course, be prepared to alter my policy rate path if weakness in financial data is accompanied by real-sector data that suggest the economy is likely to grow slower than potential. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I do think we are at some risk at today's meeting of coming off as too "hawkish" and as tone deaf, and I'm going to talk about that here.

First of all, I think it's unnecessary to come off as "hawkish" at this meeting. We can just delay until the next meeting and make the move then, so it'd be easy to just wait one meeting. That's been the behavior of the Committee in the past in these types of situations. And all we have to do is cite core PCE inflation, which is at 1.8 percent year over year—barely any movement despite two years of considerable upside surprise in U.S. macroeconomic performance. The easy thing to say is that inflation has come in lower than what we thought—so, in going forward, we have a little more room to be more patient.

Market-based measures of inflation expectations are falling precipitously. I think this sentence at the end of paragraph 1 that just ignores that is going to sound tone deaf. I think you should at least acknowledge it. Or if you don't want to acknowledge it, if you want to say that my prior is that inflation expectations never move, then say "Survey-based indicators of long-term expectations are little changed, on balance." I think that'd be fine. It probably does reflect the view of the Committee as a whole, even though I would take more signal from TIPS-based compensation.

So it's a good time to be patient and to wait and see how the effects of two years of tightening filter through to macroeconomic outcomes, and that's my advice to the Committee at this juncture. Furthermore, there's a very reasonable narrative about a global growth slowdown—Europe, Japan, and especially China and some of the related emerging markets. You've got the oil price falling, which could be taken as a sign of decreasing demand globally. You've got a trade war that's causing far more uncertainty and angst outside the United States than it is inside the United States. That fits with the global-slowdown story.

This could develop into a more serious downturn, although that's not the base case at this point. But since inflation is coming in low and inflation expectations are low in the United States, we can just wait and see if that's what happens and move at the next meeting if some of this uncertainty gets resolved. So, again, I think this is consistent with the way the Committee has successfully handled this type of situation in the past, and I'd encourage the Committee to think in these terms both at this meeting and as it goes forward.

Pushing ahead with a rate hike and suggesting more to come despite low inflation readings and flagging inflation expectations could be viewed as overly aggressive and may feed into a sharper growth slowdown in 2019 than we would like. The yield curve could invert, fueling and feeding into negative sentiment. I think it is going to invert in 2019 if we keep on this path.

Taking these types of risks at a meeting like this might be worth it if inflation was running above target and we really felt that we had to be aggressive to keep inflation and inflation expectations contained. But it's not running above target; and it's not been running above target consistently since 2012. You know, if we were price-level targeters, we could actually run 2½ percent inflation for a decade, and we still wouldn't be back on the price-level path that was established between 1995 and 2012.

So you've got a lot of room here to be patient and to recenter inflation and inflation expectations at our 2 percent target, and you've got a lot of risk here that you're going to push inflation low. It's going to take several years again to try to inch it back up to target.

The risks of financial excess, which are sometimes cited around the table here as a reason to be more aggressive on rates, have also been mitigated somewhat by the recent selloff and related financial market turmoil. So I think, because of that, there's less urgency to raise rates on the basis of that argument, too.

I'll give you some examples of overreach of this Committee at the end of a tightening cycle. One example that comes to mind is February 1995—a 50 basis point move at the end of a tightening cycle that had been very aggressive during 1994. There was a lot of concern in the first part of 1995 that there would be a recession. We skirted that recession and set up the economy for great performance in the second half of the 1990s—but only by the skin of our teeth, I think. So that one worked out, we avoided the yield-curve inversion, and we stopped in time at that juncture.

Spring 2006 also comes to mind. There, again, you're at the end of a tightening cycle. The Committee pressed on through the spring and didn't stop until the funds rate was above 5 percent in an environment in which housing was tumbling and the yield curve was inverting. I already cited the Bernanke speech, at the beginning of his term, in which he downplayed the yield curve inversion and the signal that it was sending. You know, obviously, the crisis was forming at that time.

Some might say that there's no rationale for stopping, because we're not at neutral. I think a lot of that is based on this Taylor (1999) rule logic, which I think has had overgrown influence on the Committee and the views of where neutral policy is. If you modernize the Taylor rule by making some changes both with, I think, more accurate estimates of r^* and with less feedback from the real economy to inflation to take into account the realities of the past 20 years and also to have an inflation expectations gap instead of an actual inflation gap—if you make those modernizations to the rule, you will get something with a flat rate outlook over the forecast horizon. So it's not that hard, just on the basis of the kinds of considerations that have long been discussed around this table, to get to a realistic-looking Taylor-type rule that would tell you that we're about where we need to be on rates, and that we do not need to press ahead—especially in a situation in which it could backfire on us.

So the first-best for today, I think, is alternative A. And just say that we could possibly move in January, but we'd like to get some more data and see how the situation evolves. Especially, we can simply cite the fact that inflation's lower than what we expected it to be at this point, and inflation expectations possibly are tailing off a little bit, so we'll wait and see and go to the next meeting.

The second-best would be to fix the language in alt-B. Unfortunately, it may be beyond repair, in my view. But let me suggest several things. I think, in the first paragraph, on the statement about inflation, which is the second-to-last sentence here, I would take the language from alternative A, in which it says "both overall inflation and inflation for items other than food and energy have softened but remain near 2 percent." That would acknowledge that inflation readings have come in a little bit softer. That would be a little bit more dovish here. And, I think, appropriate to acknowledge—I think the first paragraph is supposed to be acknowledging facts as they come in, and I think that addition would be good.

On the final sentence of paragraph 1—"Indicators of longer-term inflation expectations are little changed"—again, in light of the previous discussion, this is going to come off as tone deaf at this meeting for us to say that. So I think, at a minimum, to be consistent with what I think the Committee thinks here, we should say "Survey-based indicators of longer-term inflation expectations are little changed, on balance."

Finally, in paragraph 2, the second sentence—"The Committee judges"—it says "the target range for the federal funds rate will be consistent." I think we should change that to "may be consistent." So, change "will" to "may." That would indicate that we are going to be data dependent as we go forward, and we're not just blindly going to push ahead to a model-based conception of a neutral rate. So I think that would help us a lot. I think that, probably of all the changes I've suggested, that would do the most for us—a change to "may" from "will."

The third-best: If you don't want to make those changes to the statement, then I wouldn't support the statement; I'd support alternative A. And the third-best would be to say, "Leave the statement alone and let the Chair explain at the press conference." I think Jay is a great communicator. I think he does a great job, and he's totally prepared for all of the questions that are going to come in. But I also think that the Committee has had bad experience putting too much on the Chair's shoulders to explain things that aren't actually in the statement, and the example I'm thinking of is that of June 2013. That was the taper-tantrum meeting, at which the Committee didn't make much change to the statement, but they expected Chair Bernanke to go out and explain what we were going to do. I think he's a great explainer as well, and he did the best he could. But all of the explaining in the world won't go very well if the statement comes off as too "hawkish" by itself.

So I think our view should be that no amount of talking will take the place of what's actually done with the statement. So I think there's some risk—only some risk, I think—that alternative B will come off as too "hawkish" here. If it goes badly, no amount of talking will do. Markets may rightly interpret the FOMC as too "hawkish" for the current constellation of macroeconomic data. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. For much of this year, I've been on the fence as to whether three or four rate hikes would be appropriate. For the year, economic activity has been a little stronger than I anticipated, but not overly so, and real GDP growth is tapering off, in line with most forecasts. However, the recent deterioration in the outlook for foreign economies, the recent decline in inflation compensation, the decline in world equity markets, and increased volatility in U.S. equity markets lead me to favor no rate change for this meeting, and I support alternative A as written.

I realize that the perception by many is that the funds rate remains below its neutral rate and that policy remains accommodative. I am becoming increasingly skeptical of that view. Most macroeconomic theories I subscribe to imply that when policy is accommodative, especially over a significant period of time, this results in rising inflation rates. Yet, over the past six years, year-over-year inflation at a quarterly frequency has averaged a mere 1.4 percent, with only three quarters in which it exceeded 2 percent. I also have little worry that inflation will move much above its target.

In light of that evidence, I am increasingly persuaded that policy is not very accommodative and that measures of the neutral funds rate may be biased upward. Accordingly, I have lowered my assessment regarding the value of the neutral funds rate to be 2.25 percent in the short term and 2.75 percent over the medium term.

Now, although my point forecasts for economic activity and inflation are consistent with the fulfillment of our dual mandate, there's currently more economic uncertainty than was present earlier in the year. Uncertainty regarding trade policy and asset prices represents significant economic headwinds. Additionally, the overall strength of the global economy has waned, and stock markets have declined noticeably, particularly among most of our trading partners.

Forecasts of current-quarter output have been consistently revised down, and the yield curve is dangerously close to inverting—perhaps indicating that future growth will be weaker than was anticipated earlier this year. As well, the effects of fiscal policy appear to be waning, residential real estate looks very weak, and I am more inclined to believe that some of the first-half economic strength was due to the moving of purchases forward in the expectation of higher tariffs. The temporary tariff floor has the potential to significantly decrease investment as firms delay capital expenditures, preferring to ramp up when tariffs are reduced.

All of these current and potential risks lead me to be more cautious in my view of appropriate policy, and I would prefer a more conservative approach to policy than is proposed in alternative B.

I could possibly support a rate hike and the alternative B language if it included language that indicated a likely pause in interest rate normalization, perhaps, for example, amending paragraph 4, the first sentence, along the following lines: "In determining whether further increases to the target range for the federal funds rate are merited," et cetera. Language along these lines would send a clear signal that the Committee is willing to be a bit more patient as it goes forward.

Finally, I want to relate the view of my board of directors. When I recommended no increase in the discount rate before their vote, there was an audible sigh of relief in the room, and, actually, a couple of people cheered. I have never experienced this type of reaction in my more than six years as a director or as president of a Federal Reserve Bank. And I think it just simply reflects the heightened sense of risks to the downside they are seeing, their nervousness, and their strong desire for a pause in our process of increasing rates. I believe they are representative of many across the economy, and it's a signal that I believe we should listen to and pay attention to.

So in the spirit of the season and my colleague, President Bostic, I summarize my directors' view by saying, "They really don't want the Grinch to drain the punchbowl too quickly." Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. In Homer's *The Odyssey* [laughter], Odysseus survives and finds himself having to navigate his ship through the Strait of Messina, which lies between the Italian mainland and Sicily. This was a notoriously treacherous passage, with the six-headed sea monster Scylla—the personification of a rock shoal—on one side and the monster Charybdis—the personification of a whirlpool—on the other side.

Odysseus faced a difficult choice and chose to steer away from Charybdis so as not to lose his ship. He ended up sailing a little too close to Scylla's lair and lost six crewmen in the process. But the ship was able to pass through and was saved, at least temporarily. The ship was lost afterward when the crew offended the gods. So it appears that soft landings have been hard to achieve for a very long time [laughter], and they entail making some very difficult decisions.

With the funds rate nearing the range of estimates of its neutral value and with the risks surrounding the outlook, it's likely to become harder to navigate policy in order to achieve a soft landing—avoiding the monster of tightening too aggressively, thereby curtailing the expansion, and the monster of being overly accommodative and allowing the economy to overheat, fostering macroeconomic and financial instabilities and potentially damaging the structural aspects of the economy, like productivity growth. But for today, while a case can be made for pausing to assess economic and financial conditions and the risks to the forecast, I think there's also a case for moving the funds rate up today and explaining that we will be assessing conditions as we go forward. And this looks like the consensus view in the market.

Now, this is a judgment call that involves one's view on current economic and financial conditions, the outlook and risks, and the signals we might be sending via action or inaction today. To me, the case for moving today is the more compelling one, and I support increasing the target range of the federal funds rate 25 basis points.

I'm comfortable with the language in alternative B. I believe the revision to paragraph 2 that now mentions that we're monitoring global economic and financial developments is a good one. In view of the volatility in markets and the turn in investor sentiment, I think it would be remiss not to mention these factors.

With regard to our communications, with the uncertainty surrounding the outlook and the associated appropriate policy rate path, I think it's particularly unfortunate that we find ourselves in a situation in which we have to try to signal something by changing a word or two in the statement rather than being more explicit about what we're trying to convey. As I mentioned at previous meetings, I believe we should try to include more information in the statement about the Committee's consensus outlook and how changes in the incoming data, which we discuss in the first paragraph, relate to that outlook. If we were better at explaining our outlook and policy rationale, we could rely less on subtle word changes—such as replacing "expects" with "judges," as in alternative B—which can be interpreted differently than anticipated.

Explaining how the incoming data have affected the economic outlook would clarify what we mean when we say we're going to be data dependent and help avoid conveying the notion that we're going to be highly sensitive to month-to-month variations in economic or financial data or very discretionary in setting monetary policy.

Now, the Chair's more-frequent press conferences are a very useful addition to Federal Reserve communications. But the statement is the communication of the Committee, and I think we should do all we can to ensure that it's as effective as possible. Perhaps the subcommittee on communications can take up the project of statement rehabilitation in the coming year. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chairman. I support a 25 basis point increase in the target range of the federal funds rate. Economic conditions today are strong, warranting a continued removal of accommodation. However, I'm less supportive of the statement as articulated in alternative B. And regarding the statement, there are at least three objectives: describe our sense of current economic conditions; explain and/or justify the announced policy action; and provide some picture of the future. While I'm comfortable this statement succeeds in the first two goals, I have concerns about how well it accomplishes the third.

My concern centers on the tone of the statement and a fear that we will be seen as being out of touch if we don't hit the right note. The SEP now indicates a median of two, rather than three, 25 basis point increases in 2019. Furthermore, virtually every person here has dialed back their outlook and policy rate path, and many have admitted that the uncertainty associated with both is elevated.

In light of this, I think there are two questions to be faced. The first is whether the statement should acknowledge this shift. And, second, if the answer to that question is "yes," what is the best way to accomplish this? For me, the answer to the first question is "yes." My directors and business contacts almost universally expressed the view that growing uncertainty has made prospects for 2019 unclear. This is the first on-the-quarter meeting since I have been in this role at which directors on the Atlanta board and across our five Branches were conflicted about the direction of policy. Now, helped in part by our effective forward guidance in the past, tallies for recommended policy actions are typically unanimous or close to it. However, this time, the vote in the field was 15 "raise" and 14 "hold." They were really conflicted.

My directors in Atlanta were comfortable with increasing the rate today only with an assurance given by me that the Committee appreciated this changing landscape and would incorporate this perspective into future policy considerations. They would not have supported this action otherwise.

Regarding the second question, on the "how," I'm uncertain whether the proposed language in paragraph 2 of alternative B adequately conveys this sentiment. I worry that simply replacing "expects" with "judges" is too subtle and may be misinterpreted, and that "some" was always implied, as "increases" is plural.

In addition, I am not sure that the last sentence—though it adds some hint of uncertainty—is sufficiently direct in making the key point, which is that policy decisions as we move forward will no longer be slam-dunk obvious. Conversations with my directors and business contacts over recent weeks have left me with a concern that a statement like this may not be well received.

I know there's been a lot of discussion of changes in specific language, and I've been involved in a bit of those myself. And I realize that wordsmithing in a committee context is difficult and uncomfortable. All of that said, I am on the fence about whether I believe that what we have here is adequate. I will say I have some sympathy for President Mester's perspective that we consider including the actual path language today, and I also have sympathy for President Bullard's suggestion that we change "will" to "may." Suggestions like these were discussed among my team and my directors, and there was some support for both of them.

However the Committee decides to go, one truth is that the press conference will take on heightened significance. The message coming from the press conference will have to match the message of these SEP submissions and the statement, mixed in with some notion for the Committee's tone and temperament. The press conference is a key opportunity to clarify and sharpen the Committee's assessment of the likely future path of the economy and of policy—and also to reveal important nuances that are present in the statement. I thought the Chairman's remarks regarding risks and uncertainty during the economy go-round this morning were on-point and would be a good way to start that program this afternoon.

I have a final comment on the role of the SEP more generally. At our board meeting, there was increased confusion about what the dot plot is intended to convey now that we are close to a neutral policy stance. Taking into account where policy is today, point estimates carry more significance than they did 12 months ago, though the dot plot is more of a mechanical mechanism than a unified collective decision. And, consequently, I think there would be great value in reviewing our communication tools regarding this. More generally, I wonder if it would be appropriate to revisit our whole set of communication tools, including the SEP, in the near future. And this may be something for our communications subcommittee to look at. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I support today's policy decision, alternative B. I'm very comfortable with the changes in the language in the statement. I think the "monitoring" language added in paragraph 2 is quite good.

I will just mention that, with regard to the inflation situation and the discussion of inflation expectations, to be clear, I'm not sure I ever go out and give a speech or public comments in which I don't emphasize the importance of our symmetric inflation objective. So maintaining our credibility on hitting inflation is very important. Having said that, I agree with the commentary of Thomas Laubach and Vice Chair Williams. I think the situation today is very different than in the past, when we relied on pointing out changes in inflation expectations. We were very far below our inflation objective at that time. I thought it was actually useful to use that language. But today we're much closer. And even though I want to make sure we stay at 2 percent, I think that the risks are pretty good there.

I would like to spend a little time spelling out my monetary policy strategy for the coming year. In retrospect, our gradual pace of funds rate increases has been appropriate, particularly in light of the downside risks to our inflation mandate. But with those low-inflation risks largely abated and in the absence of a major downside shock to demand, policy eventually will have to take on a modestly restrictive stance to return output and the unemployment rate to their long-run normal rates in a measured fashion. My appropriate policy rate path reflects my assumption that a funds rate in the 3 to 3¼ percent range, when compared with our 2¾ percent assumption for the long-run neutral rate, will be restrictive enough to bring about this soft landing.

Now, I'm just going to pause and say I'm going to refer to the "star" variables, r^* and u^*, and I continue to think that they're useful. I can change my story and say exactly the same thing in terms of data dependence and judging the incoming data and whether the economy and inflation are going to be in line with my funds-rate setting. This is just economical jargon—I mean "economical" in the sense of efficient language in order to get the point across. It's a little bit more objective than just a hunch, but it is a hunch, in view of all of the uncertainties that we have. So it's convenient.

The recent changes in financial conditions have not altered my view that short-run r^* is slightly above its longer-run level, but I expect it to move down as fiscal stimulus wanes. So I continue to think it will be appropriate to move the policy rate into the 3 to 3¼ percent range by the end of 2019. Accordingly, after a federal funds rate increase today, I have three rate hikes in 2019 and, thereafter, hold the funds rate steady through 2021. This is the same rate path as in my September SEP submission. I agree that the downside risks have increased since September, but I think we need to keep our perspective. The real-side data are still strong. And, as the Tealbook discusses today, indexes of aggregate financial market conditions and foreign growth prospects have deteriorated only modestly—for example, much less than in 2015 and 2016.

It's also unclear how much of the recent financial market developments is a fundamental reassessment of the 2019–21 prospects. How much of this is noise, and how much is market participants taking on board a slowing in activity along the lines of that in our baseline projection? After all, until now, we had been somewhat surprised how little financial market conditions had tightened as we've removed accommodation. Perhaps they caught up.

In sum, while downside risks have increased somewhat, I don't think they dictate a material change in the baseline outlook. And I'm personally reluctant to infer yet that these developments support signaling a lower path of the funds rate than I already had in September. Of course, this could be wrong, and we could be facing more fundamental changes in financial conditions and sentiment that could put a bigger dent in aggregate demand.

I think my terminal funds rate range of 3 to 3¼ percent allows for a flexible response. This is the median rate path of the SEP in 2020 and '21. If conditions remain uncertain, I could see supporting a pause in rate hikes after today. If it then turns out that we are simply in the midst of our expected slowdown toward potential output growth in 2020, it could be appropriate to raise rates still three times next year. If we instead find ourselves in the midst of a more precipitous slowdown, we would forgo those later increases or, if necessary, cut rates to provide more accommodation.

I'm a strong supporter of data dependence and risk management, but I don't think that recent developments are yet severe enough to tilt us from the median rate path for '20-'21. And, again, I think the "monitoring" language of paragraph 2 is useful. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. I'm comfortable with alternative B. The economy is still strong. With the data evolving almost exactly as we expected and real rates still low, I see no good reason to deviate from our articulated policy rate path. To my mind, the risk of overheating is still elevated relative to the risk of excessive restraint.

You asked us to comment on how statement language could evolve over time. It seems natural for the next step to involve substituting for "will" a word such as " might" or "could"—language that, I'm told, harkens back to the FOMC of yore. [Laughter] I wasn't here. Then we could evolve to dropping the clause, while using the balance of risks as a forward indicator.

More important to me than the particular wording of the statement will be to communicate to the public, as I said yesterday, that we still see a healthy economy now and as we go forward, and that 2.3 percent SEP growth is still above trend. I think that is a point on which people get confused.

On the path of monetary policy as we go forward, I found the Chair's analogy of walking through a dark room useful. In particular, it made me want to think through how to find a flashlight. Put differently, because monetary policy works with a lag—and presuming for a second that we all have confirmation bias—we should discuss how to make data dependence operational. Two thoughts: First, I like what Governor Clarida said on using data to inform our assessment of what constitutes neutral policy—as opposed to using data to inform recession probability, which we know we're not very good at. As I said last time, I could imagine a higher neutral rate than many others' estimates, but for me, that's critically dependent on continued growth and productivity, which, I believe, in turn requires continued business investment. So I'm watching closely business investment and its translation to productivity.

Second, as we think about operationalizing "data dependence," we should make sure that the public's understanding of that term includes "environmental dependence"—in view of the uncertainties that we face. The relevant aspects of the environment vary over time, but at the moment, I'm focused on fiscal policy, lending conditions, and the trade situation. The first two have been putting upward pressure on the appropriate level of short-term rates, while trade is mainly a risk at this point but with the potential to exert downward pressure on the neutral rate.

Over the next year, it is easy to imagine scenarios in which this balance could shift in either direction, and I imagine our decisions could very well shift accordingly. Thank you.

CHAIRMAN POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. As we discussed yesterday, despite recent financial turbulence, the economy continues to expand strongly, and the data have come in consistent with my expected outlook.

With the economy at or beyond full employment and inflation near our objective, our goal now is to maintain the expansion on a sustainable path. The gradual path of increases in the federal funds rate has served us well by giving us time to assess the effects of policy as we've proceeded. That approach remains appropriate for the modal outlook. But we're not on a preset course, and the policy rate path will depend on how the actual outlook evolves.

I want to make three brief points: first, about what we're doing today; second, about how our communications should evolve; and, third, on the balance sheet. First, with ongoing momentum in the domestic economy and further fiscal outlays still in the pipeline, the modal outlook is for above-trend growth—albeit at a somewhat slower pace—to continue into next year, which would warrant continuing our gradual path of rate increases next year. If, however, financial conditions tighten materially further and downside risks materialize—such as those associated with an escalation of the trade conflict with China, for instance—then we should be prepared to alter the path. At this point, I consider this to be a risk, rather than my baseline expectation.

The Dickensian disconnect between the strong data on the real economy and the risk-off sentiment in financial markets makes communications particularly challenging at this meeting. On the one hand, we want to express appropriate confidence in the economic outlook, which is grounded in solid fundamentals and validated by recent data. On the other hand, we want to demonstrate that we are attentive to the risk-off sentiment in financial markets and the downside risks of trade conflict and moderation in foreign growth. I believe alternative B, as currently written, achieves that balance.

Similarly—and this is the second point—we're trying to signal that a shift is under way toward data dependence and away from forward guidance. As we go forward, it will be important to combine the second and third paragraphs in a formulation that allows us to move away from forward guidance entirely. And that is most likely to work at a meeting in which we actually increase rates. An interim step at a meeting in which the federal funds rate is not increased would be to add the kind of sentence that Thomas mentioned, which we used previously to talk about data dependence. It could subsequently be dropped when we take that final step on dropping forward guidance, because, as President Daly pointed out, paragraph 4 does that work on a kind of ongoing, "evergreen" basis.

At this meeting, the Chair's press conference, bolstered by changes in the statement and the SEP, provides the opportunity to carefully message that mixture of confidence coupled with vigilance. As we go forward, I see a value to buttressing the "every meeting" frequency of press conferences with updates to the SEP to help reinforce the greater data dependence on the part of the Committee and help flesh out how Committee participants are incorporating new data into their policy rate paths more frequently. That might be particularly valuable as the cadence, and perhaps even direction, of policy adjustments become more variable. In my recent discussions with market participants, they did cite the staleness of the SEP numbers as a factor that undermines the clarity of our communications.

Third and finally, it's worth noting in passing that the updating of balance sheet estimates has a modest effect on my assessment of the appropriate path of the policy rate in the medium term. On the basis of the market survey of the demand for reserves and staff projections of a prudent buffer, I'm expecting the level of reserves to normalize at a higher level than I had previously assumed. Using previous staff models suggests that an upward revision to the size of the balance sheet of the expected magnitude equates to a somewhat lower increase in the term premium—probably worth around 10 to 20 basis points on the term premium.

With that said, I support alternative B as written. Thank you, Mr. Chair.

CHAIRMAN POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chair. As I discussed yesterday, I'm increasingly concerned about downside risks as we head into 2019, and I've been agonized or ambivalent about whether we should take action today. However, I could support, and I am supportive of, raising the federal funds rate today, as long as the increase is accompanied by appropriate language in the statement and in the press conference.

I hope—and I'll come to the statement last—in the press conference as well as in the statement, we will emphasize that we are vigilant and very aware of, and monitoring, these potential downside risks. As the Chairman mentioned, the three in particular I would comment on would be (a) weakness in interest-sensitive industries, (b) strains in credit markets and a tightening of financial conditions, and (c) challenges to global growth.

I would emphasize that we will avoid being rigid or predetermined regarding the future path of rates, and, third, that we're going to be patient and we have the luxury and some flexibility to be patient in light of recent inflation trends. Such patience would allow sufficient time for some of these weaknesses and uncertainties to be resolved.

With that, I would be supportive of a couple of the statements on the language that were suggested by Presidents Bostic and Bullard. In fact, we submitted similar comments. Number one, I would be sympathetic to changing the word "will" to "may." And I would also be supportive of changing "increases" to "increase." I don't think "increases" constrains us, but I would still make that edit also.

I also am sympathetic to the comments that Governor Brainard just made about changing the frequency of the SEP to go along with the frequency of the press conference. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. Now, let me start by saying I've changed my holiday plans this year after this meeting, and they involve now rereading the classics of fiction [laughter] so that I can be part of the team on this.

But back to today. I support alternative B as written, and I appreciate the language added on my Saturday—probably everybody else's Saturday, too—on monitoring global economic and financial developments and their effect on the economy. I think that actually helps solve some of the tone-deaf problems that I was worried about, as President Bostic mentioned, and also just signals to the public that we're paying attention to this.

In thinking about the 25 basis point rate increase incorporated into alternative B, like President Bostic's, my boards of directors—I went on a whirlwind tour of the Branches and the head office—were extraordinarily skeptical of this move. They thought this was—well, "crazy" was one of the words that was used. But it was largely because there's a confusion about how far away from a neutral stance we are and how fast real GDP growth has been relative to potential growth. And, despite the numerous times we talked to them about this, I think that confusion persists. So when I explained it to them that way, I got unanimous support for this, and that was helpful, and it's basically the way I think about it.

With regard to alternative B as written, it's because of this: The economy continues to grow above trend. Labor markets are pushing further beyond full employment, with continued firming in wages and the diminishment of slack in any capacity. I expect core inflation to be very near our 2 percent goal throughout most of 2019, and, by my estimate, we're still—well, not well below, but we're still below a neutral stance of policy. So removing that accommodation is important to getting us to a sustained pace of growth.

But, of course, we're also in the midst of a risk-off phase in financial markets, which everyone's mentioned, and we have increased spreads on riskier debt and a selloff in equity markets. And this greater-than-expected tightening in financial conditions right now, as well as the gloomier mood or the gloomier sentiment, has, in my opinion, amplified our actions to rein in the economy. So we're getting assistance from these places in ways that I didn't expect.

Now, part of this, as President Evans has mentioned, is that I was surprised at how slow to respond financial conditions were when we undertook previous rate increases. They look to have caught up and even over–caught up, and what's uncertain to me right now is whether they will persist in this accelerated or exaggerated point or whether this is just a catch-up, and now we'll go back to something that's more historically normal.

So as I think about those things, this muddies the water about the future path of appropriate policy. And I think that is currently well conveyed in alternative B, because it could be that these things disappear, they're temporary, we go back to where we were before the financial selloff, and we need to go back to something like three. Or it could be that they continue, our efforts are amplified, and we need something like two or one. So I think that right now, alternative B as written is conveying that potential likelihood or that chance.

If the data come in as expected, my forecast calls for two rate increases in 2019 and another in 2020. This gets us to a path with a neutral stance next year, at least by my estimate. I have the neutral rate at 0.75. But in view of the uncertain nature of *r** and *u**, as Governor Clarida noted, and the uncertainty about whether the financial market tightening will persist or continue to get even tighter or relax a bit, I think patience is warranted. If the self-bridling factors persist, as they have up to now, then our patience will be warranted, and we can push the rate increases off until the latter part of next year. But if this recedes, then we can remove our patience and move as needed.

Mostly, I want to finish by saying that this really does emphasize data dependence. I think I—with my board, and in general—shifted my thoughts from “We need to march back to neutral at a gradual pace, ensuring that we’re keeping our eye on the economy” to “Data dependence is extremely important, because we don’t actually know how much our actions are amplified.” We’re also facing shocks that have some uncertainty. And both of those factors make me more highly data dependent than I might have been a year ago.

Finally, since I think President Barkin and I are the only two who did this, I would like to comment on the future language. As the policy rate approaches neutral, language along the lines of alternative A seems quite plausible to me and quite suitable, in that it’s consistent with a pause in normalization and it could accommodate movements in the rate either way, down or up. Thank you.

CHAIRMAN POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Mr. Chairman. I also support alternative B as written. The information that's been presented on the economy indicates that inflation and inflation expectations appear to be very close to target and stable. We continue to see growth in job creation, steady employment, and strong consumer spending, with a continued slowing in residential investment likely resulting from the increase in borrowing costs.

Although it's challenging to determine in this post-crisis environment what the new normal is and what the new neutral rate is, I believe current data could indicate that we are very close to what could be considered a neutral rate. Consequently, in my view, it may be an opportune time, as well as prudent, to consider observing the effect of the Committee's cycle of tightening on the overall economy. With the inflation rate close to our target and employment holding steady below the assumed natural rate, taking time to monitor the effect of the Committee's actions would provide some perspective from which we could conduct an analysis of economic conditions without the expectation of further immediate or pending actions. This could provide us with the opportunity to consider and determine the appropriate pace of future actions as warranted by available data indicating changes to conditions.

While the national economic information provides evidence of a continued strong and growing economy, there are areas that weigh on my assessment, as I noted in my comments yesterday regarding residential real estate investment, agriculture, and the labor market. Further, there appears to be an undercurrent in the business community of unease or concern about future conditions, as has been indicated by many others over the past two days. While data do not currently reflect this concern, business sentiment seems to be less positive than the data indicate and could result in slower business investment and, in turn, become data for our future decisionmaking.

As many have also noted, there is much uncertainty in the global economy. It will be important to watch and monitor global events to determine effects and influences on our economic conditions. This will help us consider appropriate further action in light of circumstances as they continue to evolve.

The effects of fiscal and trade policy may also influence the timing and consideration of future actions over the coming months. And, while I believe it is appropriate to observe the effects following an action if we raise rates today, it's important to note that data will continue to drive my assessment and thoughts on future actions. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. Today I support alternative B as written, although I must confess that, perhaps for the first time since I joined this Committee in 2011, I found myself drawn to alternative A.

CHAIRMAN POWELL. Wow. [Laughter]

MS. GEORGE. That said, raising the funds rate at this meeting is expected by markets and can be supported by an outlook that points to above-trend growth and a very strong, if not tight, labor market pushing, perhaps, the limits of its long-run sustainable level.

But today's choice feels a bit like some of my commutes to work when you approach an intersection just as the traffic light goes from green to yellow. If I'm running late, I'll accelerate to get through the light before it turns red. And then there are other times when I'm more patient, slow down, and wait for the next green light. I see several factors that collectively suggest that exercising patience may be appropriate at this juncture. We've been raising rates gradually, but materially, over the past few years while also juggling an unprecedented balance sheet reduction. The effects of this tightening are working their way through the economy.

As I highlighted in yesterday's go-round, this tightening is taking place as inflation has softened over the past three months; commodity and financial markets, along with global purchasing managers indexes (PMIs), point toward a slowing in global demand; and the potential for further disinflationary pressures seems likely. Although labor markets continue to tighten, data have yet to provide fullcorroboration of anecdotes that suggest significant wage pressures.

Against this backdrop for the outlook, I've lowered my estimate of the appropriate policy rate path. While I continue to see some further increases in the funds rate as appropriate, economic conditions give us the latitude, I think, to wait and see the full effect of past tightening as well as how incoming data and risk unfold. In order to communicate the need for that kind of flexibility, I would like to see future statements back away further from forward guidance. Today's language provides an important qualifier about global economic and financial developments, and I would support further changes in meetings ahead. Thank you.

CHAIRMAN POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chairman. I support today's proposed increase. I'm comfortable with the language in alternative B, including the new language on risks.

Now, my September SEP submission did not include a rate increase at this meeting. I thought that a slower pace—even though, I believe, to a somewhat more distant destination than many other members of the Committee—would have been a good indicator of our gradualism. In light of current conditions in financial markets and the discussion around this table yesterday and today, a lesser man might have said—but I am bigger than that [laughter], and I can easily support this hike, because moving now relative to January or March doesn't seem that material. Data on the real economy are strong, and financial markets are volatile and can change direction quickly. And many of the important macroeconomic relationships operate with long and variable lags.

I had three hikes in 2019. I've shifted one into this year, and that leaves two for next year. After that, I see continued gradual hikes through 2020—a path consistent with my view that potential growth is picking up somewhat, despite the diligent efforts of the Vice Chairman to persuade me otherwise, and that there remains some space between the current stance of policy and the point at which monetary policy will no longer be accommodative.

I also support the change in the forward-guidance language in the statement. As policy moves toward neutral, at least from the perspective of many on the Committee, we'll have to rely more on our assessment of the state of the economy to communicate our policy stance—which is to say that we'll have to be more data dependent.

Now, communicating data dependence could be challenging, especially if we don't want to appear to be too discretionary in our policymaking. So it would be clearest if we defined what data we are dependent on and how we depended on them—which is to say, if we adopted a monetary policy rule. But in my still-brief time on the Committee, I am coming to see that the real heuristic benefits of a strict rule are as much about ignoring some data as they are about paying attention to specific data, and the complexity and evolving nature of the economy argue for the consideration of a wide range of indicators in assessing the state of the economy.

The many "pros" around this table will see this as a sign of growing maturity. [Laughter] It feels very much like a loss of innocence. [Laughter] And at Christmas. But this complicates the communication of data dependence. So I would prefer a framework for our communications in which we make it clear that we're focused on broad trends and on sustained changes. Five of you have begged me not to say it, so I won't—but just simply be clear that we are not reacting to every piece of volatile data. We shouldn't give the impression that data dependence means that every miss on the labor report will be met with a shift in the path of the policy rate.

So, picking up on President Barkin's suggestion of thinking about how, practically, you do this, practically maybe this would entail a communications focus on the behavior of longer-run averages rather than individual spot data points. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. If I might, I wanted to start by adding my thanks to David Wilcox. I met David when I was at Treasury, in the early days of the financial crisis. He was deputy director here, at the Division of Research and Statistics, and there were many times—morning, late at night, or weekends—when I'd call him and say, "We need help." And David was just a great partner, marshaling the resources of the Federal Reserve. So I appreciate working with you all of these years, David. And thank you for supporting the Opportunity and Inclusive Growth Institute at the Minneapolis Fed. You were a big help in getting that launched. I look forward to what you do next.

Mr. Chairman, turning to the topic at hand, I argued at the previous meeting that we should pause rate increases. The intermeeting data, for me, leave me increasingly convinced that that's the right approach today. Therefore, I favor alternative A. The reasons are, number one, I think slack likely remains in the labor market, as evidenced by just a little slowdown in job growth and modest nominal wage growth. As long as inflation remains subdued and wage growth seems reasonable, I think we should continue to provide some accommodation to support ongoing job and wage growth. Pausing on rate hikes will allow the effects of past increases to work their way through the economy. I think we've got a lot in the pipeline and that we have to see what the effect will be.

We would expect rate increases to strengthen the dollar, to reduce momentum in the housing market, and to damp investment. I think we're seeing some evidence of all of those things. I think that we're also learning as we're going the effect of the balance sheet runoff on credit spreads and other parts of the economy. So I think there's a lot to learn by pausing.

The main counterargument is that there's a risk of getting behind the curve on inflation. However, as others have noted, inflation has recently softened, and option-based risk-neutral probabilities indicate that inflation risks are currently tilted to the downside, not the upside. So I think pausing will give us time to make a better assessment of all of these things and, most important for me, how much slack remains in the labor market.

You know, in the discussion yesterday, I found it really helpful that the staff analyzed possible explanations for why the SEP is so different from the baseline forecast. Obviously, the first argument is slack, and I've been arguing that for a long time. That resonates with me; I think there's still slack in the labor market. But it dawned on me, as I was thinking last night about the meeting discussion, that there's a problem with the slack argument, and the problem is, it leads me to repeat the same mistake. So let's say, three months ago, if I said we're at maximum employment and then the job market exceeds my expectations, what do I think today? I think, well, we must be closer. So that argument leads us to repeatedly say, "Well, we must be closer to maximum employment," and, in a sense, to double down on that view.

What was interesting to me about yesterday's presentation was the second explanation, which was that even if we use up so-called slack, it may not be inflationary. And I think that's something that we need to take very seriously. I'm not saying that we're Japan, but Japan has a very tight labor market by almost any measurement, and yet they're not seeing high wage growth, and they're not seeing high inflation. I think we need to be open to that possibility that this notion—that, well, we're running out of capacity and it's about to trigger inflation—may not be true. And there might be more potential in the economy, or at least inflation expectations may be keeping the inflation genie in a bottle. So I'm open to learning that, and I appreciate the staff's presentation yesterday.

With regard, lastly, to the forward-guidance discussion, I think forward guidance is most powerful when it's used sparingly and when we have a high degree of confidence regarding what the path is going to be. And for me, I think we're at a point at which I don't have a high degree of confidence. I, frankly, don't have a high degree of confidence that the next move necessarily should be up versus down. I think we're pretty close to neutral today, so I would be in favor of removing forward guidance and then putting it back in our pocket for when we really need it. Thank you, Mr. Chairman.

CHAIRMAN POWELL. Thank you. Vice Chair Williams.

VICE CHAIRMAN WILLIAMS. Thank you, Mr. Chairman. I support alternative B as written. My comments about the economy are very close to President Evans's. I did not look at his notes. He's too far away from me. [Laughter] But I have very much the same view.

Economic activity continues to grow well above potential, the labor market is very strong, inflation is close to our longer-run target, and the funds rate is below my estimate of its neutral value. So, against such a backdrop, a 25 basis point hike in the target range for the federal funds rate at this meeting is justified. In tandem with this action, a 20 basis point increase in the IOER rate should keep the federal funds rate trading comfortably within the target range—that is, if the Board is so inclined, of course.

As I noted, in response to tightening financial conditions, slowing global growth, and a more pessimistic outlook for the housing sector, I have lowered my projection of U.S. real GDP growth. I have also taken down my projection of core inflation a touch. And, consistent with these changes in the outlook, I now foresee a somewhat shallower funds rate path, with the target range peaking at 3 to 3¼ percent.

With today's actions, a change in forward-guidance language in alternative B represents an appropriate step in moving away from the strong explicit guidance toward a more data-dependent posture. In addition, the language indicating that we'll be monitoring global economic and financial developments recognizes the meaningful swing in market sentiment, and that we are highly attuned to potential shifts in the economic outlook.

Now, many have made very good comments about the challenge that we and, obviously, the Chair face in communicating these two, in a way, difficult stories. One is very strong data, and the other is concerns about the outlook and risks to the outlook.

I think, again, I view the statement as doing a very good job of trying to get the right balance, and I'm sure the Chair's comments will build on that. I think we have to be very cautious here not to signal an overly pessimistic view of the economic outlook. There is a risk that if we push too hard on this, people will view that we have inside information or somehow a much more negative view of the economic outlook than is represented even in the SEP.

The conversation here yesterday and today was, I think, very consistent with the economic projections, which imply a relatively modest tweaking of our outlook along with a lower funds rate path. The SEP assessment of risks did not show a major shift there around either the tilt of uncertainty or the amount of uncertainty. And I think we want to make sure that we calibrate this message as best we can, that the outlook has changed modestly, and that the path for policy has also changed in a very data-dependent, reaction-function way, but that we have not fundamentally changed our view of where the economy is or where it's going.

I don't think we're going to ever get this perfect. I think this is just hard to do in one page. I think it's even hard to do in a single press conference. But I think all of us, over the next weeks and months, can play an important role in getting out there this much more nuanced picture of the economy.

Next year, we will, at some point, need to restructure paragraphs 2 and 3 so that it reflects a purely data-dependent approach. Again, I'm not reading President Mester's comments, but I agree with all of them—about how she described this. Also, Governor Brainard made similar comments.

I think it's important—and on this, I will push back a little bit against Thomas's presentation about, maybe we could tweak this language one way or another down the road. And I actually agree with President Kashkari here, too. At some point, we're just losing confidence in a very strong, explicit forward guidance. When we do that, I don't think we really want to put on more and more adjectives, adverbs, and caveats and hang on lots of bells and whistles. I think the best thing to do there is to remove that forward guidance but, importantly, do exactly what President Mester, Governor Brainard, and others have said, which is, replace that with a very strong statement of our views about the economy and our policy.

I think that there are three key features that paragraphs 2 and 3 should have. One is, it should have a summary of the important features of our economic outlook. Right now, we're not really doing that, even in alt-A. I was reading the alt-A as like a future statement. I don't think it captures, what are the big features of our outlook? What are the risks to the outlook? How does it relate to our dual-mandate goals? Second, we want to position our policy decision squarely in the context of that outlook. And, finally, we want to emphasize the data dependence of our future decisions in our statements.

A little footnote on this—I actually would leave paragraph 4 alone. My view is, paragraph 4 is—I don't like to use this word—"quasi-constitutional." But it is the link to our longer-run goals and policy strategy statement. So as long as that statement stays in place, I think paragraph 4 is the link between the decisions we're making and the views we have to our longer-run strategy. So if we're going to modify our views about future monetary policy actions, it should be in this idea of this new paragraph, "2-slash-3." And this is not something that I think we need to do soon, but I do think it would be very helpful if, in future discussions, we think about how to create a new and better statement.

Finally, on the idea of having an SEP prepared every round, I think it would be very helpful to the Chair in terms of the press conferences. I actually think it's also helpful for our discussions. I am worried about the "unfunded mandate" argument, both for the staff and for us. So my own proposal would be that we try an experiment in which we have a very simplified SEP that we prepare just internally, at least initially, which has the basic forecast table and maybe one question, "Has your outlook fundamentally changed since your previous SEP submission?" This would be the in-between ones—the January, for example. That would reduce the amount of time people had to put into it and would really just focus on the question: Has anything really changed in the past six weeks, and, if so, what?

I think it serves two purposes. One is, most of the time, nothing really happens in six weeks—you may add a tenth or subtract a tenth—so it's just good to say, "Okay, things are basically the same." But 10 percent of the time or so, things do change. We just experienced one of those instances. And I think having the SEP available at this meeting was really important for communicating our views on the economy and monetary policy. So I think having that in the maybe rare times when the outlook changes in six weeks—having that internally and having that for the Chair as backdrop—would be really useful. Thank you.

CHAIRMAN POWELL. Thank you. And thanks to everybody. Particularly, thanks to those of you who did provide your thoughts on forward guidance as we go forward. I appreciate that, and I think there's just a lot of useful thinking in that. You know, you can envision future, less fraught press conferences when we can ultimately get to a point at which we don't know whether the next move is up or down, and so the only guidance should be the objective function and our discussion of the state of the economy. So I look forward to walking that path.

But with regard to today's meeting, the message is a complicated and somewhat difficult one. It's a fairly narrow place in which to stand. So let's say we are raising rates, and we're doing so because the data are strong and the outlook is strong, and we have some confidence in that. At the same time, we acknowledge financial market turbulence, tightening in financial conditions, low global growth, and that kind of thing.

Now, in the statement as written, you've got three changes that will provide lots and lots of opportunities to talk about uncertainty, data dependence, and there being no preset path. "Judges" invites discussion of that. "Some" invites discussion of having done most of the work of normalization and there being relatively less further to go. The "monitoring" clause now really gives you that opportunity. So I feel like a lot of what I'm going to be doing in the press conference is going to be exactly what people are worried about or talking about, and filling up all three of those things is going to wind up sounding a lot of qualifications and, I think, frankly, more in a dovish direction.

I don't want to make last-minute changes that add to that. I think that gives me all I need. I think that's a lot. That's where the questions are going to be. So all of the things you're suggesting are sensible for one time or another, but I really am loath to make further changes, which ultimately do call into question why you're raising in the first place. If you have to add half a dozen qualifiers, why did you move in the first place?

So I think it's a pretty narrow place in which to stand. I like the statement as written. And if anybody strongly feels differently, then please say so. [No response] If not, I'd like to go ahead with it as written. Speaking of which, let me ask Jim Clouse to remind us of what we're going to vote on and take the roll.

MR. CLOUSE. Thank you, Mr. Chairman. The vote will be on the monetary policy statement as it appears on page 4 of Thomas's briefing materials, and the vote will also encompass the directive to the Desk as it appears in the implementation note on pages 8 and 9 of Thomas's briefing materials.

Chairman Powell	Yes
Vice Chairman Williams	Yes
President Barkin	Yes
President Bostic	Yes
Governor Bowman	Yes
Governor Brainard	Yes
Governor Clarida	Yes
President Daly	Yes
President Mester	Yes
Governor Quarles	Yes

CHAIRMAN POWELL. Now we've got two sets of related matters under the Board's jurisdiction: corresponding interest rates on reserves and discount rates. As we've discussed, the proposal is to set the rates paid on required and excess reserves at a level 10 basis points below the upper end of the target range for the federal funds rate. This should encourage trading in the federal funds market at rates well within the target range. So may I have a motion from a Board member to take the proposed action with respect to the interest rates on reserves as set forth in the first paragraph associated with policy alternative B on the last page of Thomas's briefing materials?

MR. CLARIDA. So moved.

CHAIRMAN POWELL. May I have a second?

MS. BRAINARD. Second.

CHAIRMAN POWELL. Without objection. Thank you. Now may I have a motion from a Board member to take the proposed actions with respect to the primary credit rate and the rates for secondary and seasonal credit as set forth in the second paragraph associated with policy alternative B on the last page of Thomas's briefing materials?

MR. CLARIDA. So moved.

CHAIRMAN POWELL. May I have a second?

MS. BRAINARD. Second.

CHAIRMAN POWELL. Without objection.

Before we move to end our meeting and confirm the date of our next meeting, I want to take a moment to recognize David Wilcox's last FOMC meeting. As all of you know, David will be retiring early next year after a distinguished 30-year career at the Board.

David actually started at the Board 38 years ago as a research assistant in what was then called the Econometrics and Computer Applications Section, which I'm told was the section that housed the predecessor of the Board's FRB/US model. After studying with our former Vice Chair Stan Fischer at MIT, David returned to the Board in 1986 as an economist in the Research and Statistics Division, where he was the Board's expert on forecasting and analyzing consumer spending.

He also spent some time in the Division of Monetary Affairs, in which he estimated money demand equations. That experience apparently drove him to take steps to leave [laughter] to take positions in the Clinton administration, first at the Council of Economic Advisers and later as assistant secretary for economic policy at the Treasury Department.

Thankfully for us, David Stockton lured David back to the Board in 2001 as deputy director of R&S. And on David Stockton's retirement in 2011, David was promoted to director. This is the 145th FOMC meeting that David has attended, including 60 as division director and FOMC economist.

Here around the table, we know David best for his valuable insights on the U.S. economy and for his mostly accurate economic forecasts. [Laughter] He's also made a point in his presentations of keeping the FOMC well informed about the disparities in economic outcomes across different segments of the U.S. population. However, I also want to highlight two other important aspects of David's leadership at the Board. First, he has encouraged the staff to look for new ways to measure the economy using new and innovative methods and data sources that can provide more timely readings on economic activity than traditional metrics. Second, David has been a leader—I'm tempted to say the leader—of our efforts to improve diversity at the Federal Reserve Board and in the economics profession more broadly.

David, thank you for your dedication to your country and to your institution. I know I speak for everyone on the Board and the FOMC in saying that we have the deepest respect and gratitude for your service. We wish you the very best in the future, know that great things lie ahead for you, and look forward to seeing you wherever that next chapter takes you. Thank you very much. [Applause] Let the transcript reflect extended applause. [Laughter]

MR. WILCOX. Mr. Chair, thank you for your very generous comments. I had a "Dickens" of a time figuring out what I was going to say. [Laughter]

I will say it's been the privilege of a lifetime—and the fulfillment of a dream that was born when I was a sophomore in college—to work at this institution. The dream was born when a macroeconomics teacher at Williams College walked in and told us how excited he was that we were going to be using a brand-new textbook authored by two writers whom I had never heard of, Stanley Fischer and Rudiger Dornbusch.

I'm glad to step away from the job when it's absolutely clear that all of the analytical issues confronting the staff have been pretty much wrapped up [laughter], and the pathway for all of you as policymakers is clearly illuminated, straight, and pretty much free of any risks. So best of luck. [Laughter] Thank you for the privilege of serving all of you.

CHAIRMAN POWELL. Thanks very much. Our final agenda item is to confirm that the next meeting will be on January 29 and 30, 2019. And a buffet luncheon will be served today at 11:00 a.m. Thanks, everybody, and I look forward to seeing you all again soon.

END OF MEETING