Meeting of the Federal Open Market Committee
October 29–30, 2019

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, October 29, 2019, at 9:00 a.m. and continued on Wednesday, October 30, 2019, at 9:00 a.m.

PRESENT:
Jerome H. Powell, Chair
John C. Williams, Vice Chair
Michelle W. Bowman
Lael Brainard
James Bullard
Richard H. Clarida
Charles L. Evans
Esther L. George
Randal K. Quarles
Eric Rosengren

Patrick Harker, Robert S. Kaplan, Neel Kashkari, Loretta J. Mester, and Michael Strine, Alternate Members of the Federal Open Market Committee

Thomas I. Barkin, Raphael W. Bostic, and Mary C. Daly, Presidents of the Federal Reserve Banks of Richmond, Atlanta, and San Francisco, 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
Stacey Tevlin, Economist

Rochelle M. Edge, Eric M. Engen, Anna Paulson, Christopher J. Waller, William Wascher, and Beth Anne Wilson, Associate Economists

Lorie K. Logan, Manager pro tem, System Open Market Account

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

Eric Belsky,[1] Director, Division of Consumer and Community Affairs, Board of Governors; Matthew J. Eichner,[2] Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors; Andreas Lehnert, Director, Division of Financial Stability, Board of Governors

Jennifer J. Burns, Deputy Director, Division of Supervision and Regulation, Board of Governors; Daniel M. Covitz, Deputy Director, Division of Research and Statistics, Board of Governors; Michael T. Kiley, Deputy Director, Division of Financial Stability, Board of Governors; Trevor A. Reeve, Deputy Director, Division of Monetary Affairs, Board of Governors

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

Joshua Gallin, Special Adviser to the Chair, Office of Board Members, Board of Governors

Brian M. Doyle, Wendy E. Dunn, Joseph W. Gruber, Ellen E. Meade, and Ivan Vidangos, 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, Senior Associate Director, Division of International Finance, Board of Governors; David E. Lebow, Senior Associate Director, Division of Research and Statistics, Board of Governors

Antulio N. Bomfim, Senior Adviser, Division of Monetary Affairs, Board of Governors

Michael Hsu,[3] Associate Director, Division of Supervision and Regulation, Board of Governors; David López-Salido and Min Wei, Associate Directors, Division of Monetary Affairs, Board of Governors

Glenn Follette, Deputy Associate Director, Division of Research and Statistics, Board of Governors; Christopher J. Gust, Deputy Associate Director, Division of Monetary Affairs, Board of Governors; Jeffrey D. Walker,[2] Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors; Paul R. Wood,[1] Deputy Associate Director, Division of International Finance, Board of Governors

Eric C. Engstrom, Senior Adviser, Division of Research and Statistics, and Deputy Associate Director, Division of Monetary Affairs, Board of Governors

[1] Attended the discussion of the review of monetary policy strategy, tools, and communication practices.
[2] Attended through the discussion of the review of options for repo operations to support control of the federal funds rate.
[3] Attended the discussion of developments in financial markets and open market operations through the discussion of the review of options for repo operations to support control of the federal funds rate.

Stephanie E. Curcuru, Assistant Director, Division of International Finance, Board of Governors; Giovanni Favara, Laura Lipscomb,[3] Zeynep Senyuz,[3] and Rebecca Zarutskie,[1] Assistant Directors, Division of Monetary Affairs, Board of Governors; Shane M. Sherlund, Assistant Director, Division of Research and Statistics, Board of Governors

Penelope A. Beattie,[4] Section Chief, Office of the Secretary, Board of Governors; Matthew Malloy,[3] Section Chief, Division of Monetary Affairs, Board of Governors

Mark A. Carlson,[2] Senior Economic Project Manager, Division of Monetary Affairs, Board of Governors

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

Alyssa G. Anderson,[3] Anna Orlik, and Bernd Schlusche,[1] Principal Economists, Division of Monetary Affairs, Board of Governors; Cristina Fuentes-Albero[1] and Christopher J. Nekarda,[5] Principal Economists, Division of Research and Statistics, Board of Governors

Valerie Hinojosa, Senior Information Manager, Division of Monetary Affairs, Board of Governors

Kelly J. Dubbert, First Vice President, Federal Reserve Bank of Kansas City

David Altig, Kartik B. Athreya, Jeffrey Fuhrer, and Glenn D. Rudebusch, Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, Boston, and San Francisco, respectively

Angela O'Connor,[3] Marc Giannoni,[1] Paolo A. Pesenti, Samuel Schulhofer-Wohl,[3] Raymond Testa,[3] and Nathaniel Wuerffel,[3] Senior Vice Presidents, Federal Reserve Banks of New York, Dallas, New York, Chicago, New York, and New York, respectively

Satyajit Chatterjee, Richard K. Crump,[5] George A. Kahn, Rebecca McCaughrin,[3] and Patricia Zobel,[6] Vice Presidents, Federal Reserve Banks of Philadelphia, New York, Kansas City, New York, and New York, respectively

Larry Wall,[1] Executive Director, Federal Reserve Bank of Atlanta

Edward S. Prescott, Senior Economic and Policy Advisor, Federal Reserve Bank of Cleveland

Nicolas Petrosky-Nadeau,[5] Senior Research Advisor, Federal Reserve Bank of San Francisco

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[4] Attended through the discussion of developments in financial markets and open market operations.
[5] Attended the discussion of economic developments and the outlook.
[6] Attended the discussion of developments in financial markets and open market operations through the end of the meeting.

Stefania D'Amico[1] and Thomas B. King,[1] Senior Economists and Research Advisors, Federal Reserve Bank of Chicago

Alex Richter, Senior Research Economist and Advisor, Federal Reserve Bank of Dallas

Benjamin Malin, Senior Research Economist, Federal Reserve Bank of Minneapolis

Transcript of the Federal Open Market Committee Meeting on October 29–30, 2019

October 29 Session

CHAIR POWELL. Good morning, everyone.

PARTICIPANTS. Good morning.

CHAIR POWELL. Feel free to come to order just any old time. [Laughter] This meeting, as usual, will be a joint meeting of the FOMC and the Board. I need a motion from a Board member to close the meeting.

MR. CLARIDA. So moved.

CHAIR POWELL. Without objection. Our first agenda item is the third installment of our strategic review of the monetary policy framework. Let's get started with the staff briefings from Rebecca Zarutskie and Stefania D'Amico. Rebecca, over to you.

MS. ZARUTSKIE.[1] Thank you, Mr. Chair. As you continue your deliberations about the monetary policy framework, we turn to a discussion of the monetary policy tools that the Committee might employ to provide additional economic stimulus and bolster inflation outcomes in future episodes at the ELB and even before such episodes may occur. I will begin by discussing considerations regarding the use of the policy rate tool, focusing on different forms of forward guidance and the associated communications challenges, as well as briefly touching on negative interest rate policy. Stefania will then discuss considerations regarding the use of the balance sheet tool.

Regarding slide 1, central banks have employed forward guidance at the ELB to communicate their intentions to keep policy rates low for an extended period of time or until macroeconomic conditions are sufficiently improved. Forward guidance can provide additional policy stimulus when understood by the public as a credible commitment to keep monetary policy more accommodative than would have been expected absent the guidance. More recently, a few central banks have taken their policy rates below zero, in an attempt to create more space for monetary policy accommodation. The empirical evidence so far indicates that these tools have been generally effective in easing financial conditions and stimulating economic activity. But, the effectiveness of these tools has varied across economic and institutional

[1] The materials used by Mses. Zarutskie and D'Amico are appended to this transcript (appendix 1).

settings. A key lesson learned is that policy design and communications are important factors underlying these tools' effectiveness.

On slide 2, I summarize the variants of forward guidance used at the ELB. Forward guidance can be broadly classified as qualitative (that is, providing a flexible, nonspecific indication of the duration of accommodation), date based (providing a specific date beyond which accommodation could start to be removed), and outcome based (tying the removal of accommodation to the achievement of particular quantifiable macroeconomic outcomes). Empirically, there is a reasonably strong case that date-based and outcome-based forward guidance are more effective in lowering policy rate expectations than qualitative forward guidance. However, the experience so far leads to no firm conclusion about the relative effectiveness of date-based versus outcome-based forward guidance. For example, the implementation of date-based forward guidance in the United States was associated with a large decline in policy expectations and bond yields. But, the subsequent introduction of outcome-based forward guidance in 2012 did not result in a material shift in financial market prices. However, the outcome-based guidance was specifically intended to be consistent with the earlier date-based guidance (and the accompanying FOMC statement made this explicit), so a muted market response was perhaps to be expected.

As noted on slide 3, whichever form of forward guidance is used, a key goal is to avoid conveying a more negative economic outlook than intended. Empirical studies have found a somewhat tepid financial market response to forward guidance, on average, compared with what some models would predict. One reason may be that announcements about future reductions in expected policy rates have in some cases been misinterpreted as conveying news about a deterioration of the central bank's economic outlook. Therefore, it is important to distinguish easing intended to provide additional accommodation given the outlook from easing taken in response to changes in the outlook itself. The Committee has several tools that can be used to help support and reinforce its forward guidance. The Summary of Economic Projections, or SEP, though not an official consensus forecast, can provide an indication of the Committee's thinking about the course of policy and the associated macroeconomic outlook. Coordinated balance sheet policies may help reinforce forward guidance credibility. Finally, forward guidance can feature escape clauses that guard against unwanted circumstances, such as an unanchoring of inflation expectations or overheating in the financial system. Escape clauses can detract from the simplicity of forward guidance, but they allow the Committee additional flexibility and may help clarify the conditions under which forward guidance will remain in place.

On slide 4, I summarize some key considerations for the Committee in its possible future design of forward guidance. Although date-based forward guidance seems particularly easy to communicate, it may not give the Committee sufficient scope to respond to incoming data and, if the provided dates are frequently revised, may also run the risk of losing credibility. Consequently, date-based forward guidance seems most appropriate when the Committee is reasonably certain that the guidance will not be frequently revised. Outcome-based forward guidance automatically conditions the Committee's actions on incoming data but may pose greater communications challenges, and it may also be less effective in reducing uncertainty about the course of policy. Outcome-based forward guidance is therefore likely to be appropriate and most effective when it conditions on easily measured and communicated outcomes. More generally, any forward guidance meant to provide greater accommodation requires a well-thought-out communication strategy. Avoiding overly complex and vague language and taking care that escape clauses are clearly defined and limited in number can enhance the clarity of forward guidance.

As noted on slide 5, forward guidance could also be used when policy rates are away from the ELB. In general, there is limited empirical evidence on the effectiveness of forward guidance away from the ELB, but a few studies have shown that such forward guidance could be effective in altering expectations about the future course of policy. For example, in the current situation, it may be possible to use forward guidance to reinforce the Committee's commitment to return to its inflation target. If successful, this could serve to raise inflation expectations.

Finally, in slide 6, I review the evidence on the effectiveness of negative interest rate policy. Negative interest rate policy has been implemented by the BOJ, the ECB, and several other central banks in Europe, although none has taken policy rates below negative 1 percent. Experience with negative interest rate policy is still somewhat limited, but it appears that such policies have eased financial conditions and supported economic activity, on balance. However, concurrent use of negative interest rate policy with other unconventional monetary policy tools makes it difficult to isolate the independent contribution of negative interest rate policy. Adverse effects stemming from negative rates on banks and other financial institutions appear to have been limited so far, in part because policies such as deposit tiering have helped alleviate pressures on banks' profitability. Differences between the U.S. financial system and the financial systems in countries that have used negative interest rate policy call for caution when generalizing from foreign experiences. For example, money market funds play a much larger role in the United States, and implementing an effective negative-rate policy would require a host of operational changes both within the Federal Reserve and in the larger financial system.

I now turn to Stefania to review the experience and considerations regarding the balance sheet tool.

MS. D'AMICO. Thank you, Rebecca. I will summarize the memo titled "Issues in the Use of the Balance Sheet Tool."

In the memo, and as noted on slide 7, we consider a variety of options for implementing balance sheet policy, and for each of these options we summarize the most relevant benefits and costs. First, we review balance sheet policies already implemented by the Federal Reserve—that is, quantitative easing, or QE, which includes maturity-extension programs. Second, we discuss flow-based versus fixed-size asset purchase programs. Third, we consider balance sheet policies that place ceilings on interest rates by adjusting the balance sheet size as necessary, a form of yield curve control. Finally, we review balance sheet policies involving assets other than government bonds.

As outlined on slide 8, in the case of previous QE programs, empirical findings point to benefits such as a significant pass-through to prices of higher-quality private assets, an increase in bank lending and risk tolerance, a faster recovery of the labor market, and a modestly higher inflation rate than in the absence of QE. Those benefits were accompanied by certain costs, including communication challenges arising from the novelty of the tool and the use of multiple tools, some degree of nonproductive risk-taking behavior by investors, and some political risks related to the volatility of remittances.

The question of whether QE has diminishing returns is discussed on slide 9. Overall, the evidence available so far suggests that the marginal benefits of QE programs did not diminish. Specifically, empirical work that carefully controls for investor expectations about balance sheet policy finds that financial market effects of QE announcements and associated macroeconomic effects do not seem to have declined across consecutive programs. Further, model-based evidence on the interaction of balance sheet policy with financial constraints shows that tighter financial constraints can either magnify or damp QE's macroeconomic effects. And, even in normal times, there are collateral constraints that can make QE effective. However, it may be hard to extrapolate such evidence to states in which there are very low levels of longer-term interest rates. For example, looking ahead, it is conceivable that the duration-risk channel might be weakened amid extended periods at the ELB that lower interest rate volatility, making changes to the average duration of investors' portfolio less effective. In addition, if longer-term interest rates are already very low at the onset of QE, there is less scope for QE to reduce them, similar to any other policy working through a reduction in interest rates.

On slide 10, which discusses flow-based programs similar to QE3, we find that the main benefits of these programs derive from their state-contingent nature, which implies an automatic stabilizing function—that is, more stimulus when the economy deteriorates, and vice versa. This feature should increase investor confidence in the FOMC's ability to make timely policy adjustments. This could result in faster adjustments to investor expectations. Further, aligning the state contingencies of the flow-based program with those of forward guidance attenuates the risk of the two tools working at cross-purposes. The state-contingent nature comes at the cost of higher investor uncertainty about the magnitude and persistence of the reduction in asset supply induced by the program, which can delay or diminish its full effect because of slower or only partial portfolio rebalancing. Flow-based programs also entail the risk of a very large balance sheet. However, aligning the state contingencies of those programs and forward guidance could increase their complementarity and credibility, likely helping contain the programs' size.

Slide 11 focuses on rate ceilings as a form of yield curve targeting. Compared with strict targets, rate ceilings do not require policy to tighten when yields decline following a worsening economy. Ceilings could be placed on either shorter- or longer-term rates. Ceilings on short rates might reinforce forward guidance's credibility, and the associated balance sheet expansion would be easier to unwind because the securities acquired would have shorter maturities. By contrast, ceilings on longer-term rates would affect rates more relevant for the economic decisions of households and businesses but may be harder to maintain because longer-term rates are more sensitive to factors other than monetary policy. Both types of ceilings should be particularly effective in reducing interest rate volatility and tail risks in addition to helping maintain a particular level of rates. However, in common with flow-based programs, rate ceilings are associated with high uncertainty about the total amount of asset purchases, which may delay market responses. In addition, it may become costly to defend the ceiling toward the end of the program as investors sell securities in force in anticipation of the lift of the ceiling.

As highlighted on slide 12, central banks have employed balance sheet policies that involve assets other than government bonds, such as the purchases of mortgage-backed securities conducted by the Federal Reserve as well as corporate bond purchases and "funding for lending" programs conducted by foreign central banks. The main benefit of these balance sheet policies is that they directly target specific economic sectors and, hence, seem more effective than government bond purchases in improving credit spreads and debt issuance in the targeted markets. However, even if legally permitted, such programs may create political risk for the Committee because they could be interpreted as engaging in credit allocation, and some of these balance sheet policies entail taking increased credit risk.

The last slide concludes with the consideration that it would be valuable for the Committee to have a variety of balance sheet policy options and employ the ones that best fit the economic situation that it faces. For instance, flow-based programs are likely to be a better response to a sequence of adverse and persistent demand shocks, as their expected size adjusts automatically to the changing state of the economy. If those shocks are not expected to persist, short-rate ceilings combined with forward guidance could better control rates over the near term without using significant balance sheet capacity. By contrast, a fixed-size program concentrated in longer-term securities might be preferable in the case of a one-time large demand shock, as it can activate a faster and larger portfolio rebalance.

Thank you. This concludes my prepared remarks, and we would be happy to address any questions you may have.

CHAIR POWELL. Thanks very much. Any questions for Rebecca and Stefania? President Rosengren.

MR. ROSENGREN. You've given us a very comprehensive list of both things that we did during the previous financial crisis and things that we could consider. I wonder, as I think about the scenarios that we should be worried about: We're in a world in which many European countries and Japan have zero across the yield curve. We have a 10-year Treasury rate in the United States that got as low as 1½ percent in an environment of 2 percent real GDP growth. So what probability would you attach to actually having the long rate at zero by the time we have negative GDP growth? And, if so, do we need more of a discussion about what we do?

A lot of these things assume there's enough room, that there's a bunch of actions we can take at the long end of the market, but, given how low we're starting at at this point across the yield curve—you talk about it in page 13—do you think we're doing enough stress testing of our own thinking in the low interest rate environment to take into account the probability that the yield curve is already at zero by the time we're thinking about actions to take with the balance sheet?

In other words, if the short end and long end hit zero roughly at the same time, which is a very different scenario than what we faced during the crisis—so you don't put as much time in the memos on that. I wonder is it because you think it's a low-probability event or it's more just a reflection of what we did the last time?

MS. D'AMICO. With regard to the probability of the 10-year yield, for example, to be at zero by the time we start, it is very hard to say because right now there are headwinds that keep it lower—for example, foreign demand of our Treasury securities and uncertainty induced by trade policy—and all these things might change pretty fast.

In that case, the 10-year yield would increase faster, but in the case that the 10-year yield is already at the zero lower bound it is not necessarily true that the entire yield curve is at the zero lower bound. In that case, you might want to concentrate the purchases, say, for example, in the 20- to 30-year sector, which would help you remove a lot of duration risk from the portfolio's of private investors.

But even in that case, when you remove duration risk in an environment in which long-term rates have been near zero, have been very low for a long time, it happens that interest rate volatility is much more compressed. This effect operates when the federal funds rate gets to the lower bound. So you might have a series of nonlinearities that make the effectiveness of QE weaker, and, in particular, the duration risk channel becomes weaker because interest rate volatility is lower, and that is one of the main drivers of the duration risk channel part of the effect of QE.

And, further, precisely as in the case of when the federal funds rate is at the lower bound, if the 10-year yield is also very low, there is a high chance that you don't have the room or space to reduce it. But it is also true that, for example, some other channel or scarcity effect might get stronger because if all the Treasury securities are already in investor portfolios and there are very few securities left in the market, then people might be more reluctant to get rid of their Treasury securities, and so the scarcity effect might get stronger.

Moreover, in this type of environment, maybe using a policy measure that reduces interest rates is not the most effective policy. You might want to use direct lending.

CHAIR POWELL. President Kaplan.

MR. KAPLAN. We had this discussion yesterday, but just building on that question, the one question I'd ask: So this is a tools-based approach, which is very appropriate, but then there's another approach that we use on financial stability often, which is a scenario-based tabletop approach. And I'm just wondering, which—it strikes me we would do both, because, through the scenario-based approach and doing a "tabletop" exercise, we may learn some things that put these tools in different contexts. Have you all talked about us maybe doing a “tabletop” in this case for monetary policy as opposed to the one we do for financial stability?

MS. D’AMICO. Sorry, I’m not sure about the reference to “tabletop.”

MR. LAUBACH. I think the short answer, President Kaplan, is no. We have not yet thought about a “tabletop” exercise in monetary policy space of the kind you thought about in financial stability space. That certainly is something interesting to think about.

CHAIR POWELL. President Kashkari.

MR. KASHKARI. Thank you. Thank you for the inclusion of forward guidance away from the ELB. You said a few policymakers have suggested this. I’d welcome the company. [Laughter] In the memo, you wrote, “If successful, the resulting increase in inflation expectations would raise the neutral nominal rate of interest. Therefore, implementing this policy without allowing inflation to exceed substantially the Committee’s 2 percent goal poses a novel challenge.”

I went over those sentences with my staff at some length trying to understand what you mean. I think what you’re getting at is, this might be too powerful. That seems like a high-class problem given the discussion that we had. Did I understand it correctly?

MS. ZARUTSKIE. I think that’s generally right. That sentence was meant to convey the presence of a different set of risks associated with such a forward guidance policy, which would be different than the forward guidance used in the past. And one possible risk is that you allow inflation to exceed its target, if the policy works—and there’s some question about whether it would actually work. So I agree that the risk that we mention in the memo is actually a kind of risk that some policymakers might welcome, which is that you might get behind the inflation curve. That is certainly not a problem we have right now, but, yes, that is what we meant by that sentence.

MR. KASHKARI. Okay. Thank you.

CHAIR POWELL. President Evans.

MR. EVANS. Thank you, Mr. Chair. I didn't prepare this question, so I can't recall exactly the precise language, but it has to do with qualitative forward guidance. And I remember back to one of my directors who, when we first introduced "extended period" back in 2008–09, said to me, "Charlie, what does 'extended period' mean?"

And, one way or another, it very quickly became, in most people's talking points, "probably six months." Of course, it was in the end much longer than six months. And he made comments about this when he retired from the Board of Directors, you know, to make me look not very good. Anyway, he's very nice and all of that.

But the precise intention sometimes is not exactly clear. We improve that when—the one I wanted to focus on, I think it's related to what President Kashkari is getting at because, if I understand, you'd want to craft some type of forward guidance that would say "We're going to keep cutting the funds rate until inflation gets up to 2 percent, maybe, or we're going to hold at this particular level of accommodation?" where I'm not sure how the level of accommodation would be defined. Because we're not at the lower bound it becomes more challenging, and would it be close to 2 percent or clearly going to 2 percent or forecast above 2 percent?

I'm sympathetic to all of those things, but it really becomes challenging, and I think we had the same type of issue with QE3, when—this is the part that I didn't prepare—my memory is, we said we're going to continue to buy $85 billion of assets every month until we see substantial improvement in the labor market outlook. And that strikes me as something pretty particular, but not precise. And so any thoughts on distinctions between—is that qualitative? Is it getting closer to outcome based? It's an open-ended question.

MS. ZARUTSKIE. Tom, my coauthor, is sitting here as a backup. Maybe we'll both take a shot at your question.

We have these three broad distinctions, or classifications, of forward guidance. But, in reality, most forward guidance is a blend of these types. And I would classify that particular instance as perhaps either "vague outcome based" or "more precise qualitative." It's somewhere in the middle. I don't know if you have anything to add to that, Tom.

MR. KING. Yes, I would say the same thing—that that's clearly outcome based, but the outcome is rather vague, and there are other instances of that at other central banks as well.

MR. EVANS. It highlights the difficulty of bucketing these precisely. Thanks.

CHAIR POWELL. Great. Thank you. Further questions? [No response] Seeing none, why don't we begin the go-round with Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. And a special thank you to the staff and the steering committee for the memos on balance sheet and forward guidance tools that we might consider adding to the toolkit.

I will have some specific observations on the toolkit in a moment, but please allow me right now to offer some general observations on the framework review and what is planned for upcoming meetings. As we've understood from the start, the framework review is ambitious in scope, a scope that covers a range of changes to strategies, the toolkit, and communication.

In September we had staff briefings on framework alternatives to inflation targeting, and we have briefings scheduled in December on "takeaways" from the very successful 14 *Fed Listens* events as well as the transmission mechanism. Importantly, for the December meeting we will have a memo from the steering committee and a first go-round in this room on potential revisions to the consensus statement, which will be the most important deliverable from this framework review process.

The subcommittee has now "reached out" to all 17 members of the FOMC to get an initial read of where we are going into our December meeting, and it is fair to say that there is a range of views and priorities among us, but a couple of common themes do emerge. First, there is no one of us who appears to be advocating right now that we adopt a formal price level or numerical average inflation target. This is important, because it means that what we will be discussing starting in December is how this Committee defines the way that we implement and communicate our flexible inflation-targeting regime.

Now, that being said, there's also broad agreement on the need for at least some revision and refinement and clarification of the ways that we conceive of and explain our framework. In our July and September discussions, as well as the outreach conversations that the subcommittee has had with you, they've highlighted at least six elements of the consensus statement that deserve our attention and consideration for possible refinement, revision, or clarification. And we've discussed these before, but just to summarize, the way that the statement conceives of and defines price stability, right now it's in the long run. I won't necessarily embrace John Maynard Keynes's comment that in the long run we're all dead, but we might find ways to expand upon the way we think about price stability.

We've discussed the concept of symmetry. We don't even in this room agree what symmetry means, and I think from the point of view of the perception of our strategy, it would be useful to refine and define what symmetry means.

The important role of inflation expectations—right now, the statement essentially asserts that by announcing a 2 percent target, we anchor inflation expectations. I think we would agree that that's not sufficient. They've announced a target in Japan, the euro zone, and it's not working. So, I think, a little bit more substance on inflation expectations.

Many of us have views about the way we think of and define maximum employment and, relatedly, the balanced approach, and I think we got a lot of good feedback in the initial surveys of ways that we might improve that.

There's no acknowledgement now on the consensus statement on the effective lower bound, and I think a number of us believe that putting that in the statement, as well as potentially relating that to additions to the toolkit, could be useful.

And then, finally, number six, the current statement does make reference to financial stability, but many of you have suggested that it would be important to think about that in the context of some of these other ideas.

Now, we will likely need more than one FOMC go-round on revisions to the consensus statement to achieve convergence, and so I do expect these discussions to continue at least through our January 2020 meeting—again, with memos from the steering committee and a full go-round at that meeting. If this is the case, the minutes of the December meeting can convey the message that the framework review is ongoing, and that the Committee expects to finalize the review and report sometime in the first half of 2020. This is exactly consistent with what we've said since day one about the framework review—so it shouldn't come as any news to folks who have been following this.

Now, in terms of the ultimate deliverables, the most important, of course, would be any revision to or refinement of or clarifications in the consensus statement. Several of you have also suggested that we will want to prepare an addendum to the consensus statement that will lay out in more detail than the one-page statement itself how we expect to implement our strategy. And this addendum would be a natural vehicle for any discussion and analysis of new tools that we would decide to add to our toolkit.

In terms of communication, the subcommittee is well advanced on developing a set of recommendations for this Committee for improving the SEP, the presentation of the minutes, and the format of the policy statement. The subcommittee plans to reserve time at a future FOMC meeting to present these recommendations for your consideration and, of course, to have a full go-round on that. And we would expect that a statement laying out these changes to the SEP, if adopted, would be released to the public at the same time that we issue any revised consensus statement.

Chair Powell, in my remaining time, allow me a couple of takeaways on the balance sheet and forward-guidance discussion that we just had. I knew when I walked in here today that President Rosengren is a man of many talents, but one of them is reading my mind. So I'm going to say something very correlated with what he just said.

One thing that I did not see in the memo is a sufficient recognition of not only the limits of the effective lower bound on the policy rate, but potentially also an effective lower bound on the feasible magnitude of a negative term premium that would put a limit on the amount of easing in financial conditions that we could expect to result from flattening the yield curve. Indeed, I think, potentially, that is a real risk of thinking that we could literally double down on QE in the next downturn and achieve anything like the same outcomes.

Although I would not represent myself as having a precise answer to this question, I will confess, like President Rosengren, I think it's highly unlikely in the next downturn, whenever it is, that 10-year Treasury yields will fall by the 375 basis points that we observed between June ’07 and June 2016 or even the 300 basis point decline we observed between January 2000 and 2003. So regardless of past experience and past event studies, we have to be cognizant of, I think, these relevant constraints.

Second, one of the reasons that bond yields fell during QE2 and QE3 is that breakeven inflation fell. That’s not a success. Although we can imagine scenarios in which we might get a big decline in bond yields, if that occurs because of deflation expectations, that’s not a win for us. So we need to be careful in thinking about this whole concept. Again, I think we’re going to probably need to have the full toolkit, and I wouldn’t be opposed, but we need to go into these discussions with a realistic assessment of what we can and can’t expect in the next downturn.

For these and other reasons, I’m receptive to thinking about adding a tool to our toolkit in an ELB episode that will combine calendar-based guidance with a version of yield curve control, perhaps keeping the two-year Treasury yield below a certain ceiling. Those two could work well together, and, obviously, two-year Treasury security holdings roll off after two years, so you’re not stuck with them for 30 years like we are with mortgages.

As the ELB does not appear to be imminent, we have time for additional staff work in the future to assess the pros and cons of such an approach, but I would urge that we do so even if we can’t converge to a conclusion by the end of this framework review.

Finally, let me put in a good word for inflation threshold-based forward guidance as a viable tool and one that we should be willing to consider away from the effective lower bound. In a period when we may want to add accommodation away from the ELB, a substitute for cutting the funds rate would potentially be to commit to not raising the funds rate until core PCE inflation exceeded some threshold.

Now, I remind you that the Greenspan Fed used a version of forward guidance in ’04 to ’06. That was not an ELB period. So forward guidance in the toolkit away from the ELB is something that this Committee is familiar with, and we might at least, as we go forward, think about alternative tools in that context. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. And, again, thanks to the staff for the work and very insightful memos. Regarding the use of forward guidance, I think it has proven to be a useful element of monetary policy, especially during our recent ELB event. The experience with past forward guidance should aid in making any future forward guidance more credible.

But a fairly stark delineation between date-based and outcome-based forward guidance was presented in the memo—one that need not necessarily exist. For instance, we may jointly communicate both the desired state of the economy and the expected date when that state will be achieved. Doing so would give the public a better sense of timing while reducing the probability of communicating undue pessimism.

But, in light of the Bank of England’s experience, the outcome-based conditions would need to be the controlling part of that guidance. For example, we might state that we will keep the funds rate at the ELB at least until the unemployment rate falls below some level, which we anticipate happening in the middle of, say, next year, but that the unemployment threshold will be the deciding feature governing funds rate policy.

In formulating something like that, it is state based, and it requires being fairly certain that the state is attainable, and attainable in some reasonable amount of time. So, for example, one of the concerns I have is falling into a Japan-like trap of saying that we want, say, inflation to hit a certain target, and we just simply never get there.

As always, there is no guarantee that statement language will be interpreted as intended. We know that. But communicating as much information as we are fairly confident in is desirable. A particular challenge discussed in the first memo is the possible confusion that the public could have between triggers that call for a review of accommodation with ones that trigger a return to a more normal reaction function. That, honestly, will probably always be a challenge for us, no matter where we are.

With respect to our other main tool, asset purchases, I would align its use with that of forward guidance. Indeed, I believe it will often be advisable to use forward guidance and LSAPs in tandem, although I have somewhat less confidence in their potency than do the authors of the second memo. The point they make regarding consistency across our various tools is very well taken. If balance sheet policy works primarily through the quantity of assets purchased, then communicating how many assets we think we will purchase in order to hit the state-based goal would be useful.

Now, we will never be certain if any pure quantity-based program will not need to be augmented with additional purchases, so I don't regard being able to only communicate an expected amount of purchases as especially problematic. The amount of assets that will be eventually purchased will always depend on circumstances and, at best, be a forecast amount.

Importantly, barring some severe market disruptions to a particular segment of financial markets, I would prefer we limit QEs to Treasury securities. Allocating credit to particular sectors will always be fraught with political risks and present a danger that our independence could be compromised.

Lastly, QEs should be unwound as soon as economically feasible, and I do not share the view that the effective QEs and QTs are symmetric. Given that the tolerance for risk is state dependent, I would expect the effects on interest rates of unwinding the balance sheet to be much smaller than those associated with its expansion.

In my view, we should attempt to limit our extraordinary tools to forward guidance and the balance sheet and only resort to negative interest in dire circumstances, such as actual deflation. Absent an actual deflation, I would prefer not employing negative rates. Even in that event, I would prefer coordinating a "helicopter drop" of money with the Treasury. I find negative interest rates generally unattractive. They risk damaging money markets and money funds and eroding the health of bank balance sheets.

There is also a significant chance that negative rates would encourage a reach for yield, with financial firms taking on more balance sheet risks. They would be doing so in an economic environment in which they are more vulnerable and the potential harm could well outweigh any benefits coming through their intertemporal substitution channel by which negative rates work. I also believe that attempting yield curve control may be—and I emphasize "may be"—a step too far. It may be beyond our ability to do with any precision or without coordination with Treasury or both. There is only so much you can do with risk premiums.

Additionally, capping long-term interest rates would involve different policies, depending on the economic environment. Sometimes it would require raising short-term rates as in the late 1970s or lowering short-term rates as it did in the crisis. That aspect of the policy would make communications especially challenging, and there is too great a probability that we would fail to achieve our goals. As always, I would never say "never" to the use of any policy option, because of the fact that our toolkit must adapt to the circumstances we encounter. But yield curve control would clearly not be the first tool I would reach for in the case of a significant shock to the economy. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. And I, too, want to thank the System's staff for the work they are doing on the Committee's framework review and the memos that you wrote and presented for this meeting. With longer-term equilibrium interest rates likely to be lower than in past decades, there is a higher chance that the federal funds rate will be constrained by the effective lower bound and that nontraditional monetary policy tools are going to be used more often.

During the Great Recession and its aftermath, we relied on forward guidance about the future path of interest rates and balance sheet policies to add policy accommodation. The staff reviewed several studies that evaluate the effectiveness of the tools, and their conclusion is fairly upbeat about the effectiveness of asset purchases.

I also think that asset purchases had a positive effect. But I have a more measured view. Some of the studies the staff memo omits are less sanguine about the effect of balance sheet policies. And during the next recession, longer bond yields will likely start out at lower levels, as President Rosengren and Vice Chair Clarida, or I guess [Laughter] Governor Clarida for the purposes of this meeting, mentioned those started at lower levels, so there will be less policy space for asset purchases to work with.

Now, the staff memo does point out that some of the concerns expressed at the time about asset purchases did not materialize—for example, there wasn't an outbreak of inflation—but others did. There were concerns that growing the level of reserves would effectively undercut the federal funds market, which would preclude returning to a scarce reserve system, and, essentially, that's what happened. There's little trading in the funds rate market today, and it's not likely to return. And this has created some complications for us—for example, the liquidity issues and interest rate spikes experienced in mid-September. It also opens up the question of what interest rate we should be using to communicate monetary policy.

But regardless of these consequences, forward guidance and asset purchases are the tools we have, and I expect we will be using these tools again in the future. I think our past experience puts us in a better spot when we face the situation again. First, during the Great Recession episode, these were relatively new tools, and there was considerable "learning by doing" by the Committee over time as to how to formulate these tools and handle the communication challenges posed by each. And, second, although this isn't really discussed in the memos, at the time not everyone on the Committee agreed that these tools should be used at all. There were concerns about the costs. And, at the start, there wasn't clear understanding of the depth of the recession. So although there will always be the difficulty of determining when to invoke the tools and how much is needed, I do think that there will be less reluctance to use the tools when the situation arises again.

First, some general comments. Both tools work through their effect on expectations, so they are dependent on the public understanding why the Committee is using the tools. This means clear communications is key, both in normal times away from the effective lower bound and when we are at the lower bound.

If we want people to understand our forward guidance about the interest rate path, we need for them to understand that when we use it, we've entered a different mode, and we're using guidance as a policy tool and not merely as a way of communicating. But this means they need to understand our policy-setting in normal times—in particular, the goals we are trying to achieve, how we use changes in the funds rate to influence inflation, economic activity in the labor market, and the key elements in our reaction function. And I think, Governor Clarida, that laying out our path to improving communications is going to be very helpful.

But even with clear communications, the inference problem likely will always be an issue, regardless of the particular form the tools take. In particular, it's very hard to communicate the message that we're invoking nontraditional tools because the economy is slow and needs more accommodation, but taking these actions means that "The future will be bright, so you should spend more today." Most people are going to stop at "The economy is slowing and needs more accommodation." So they are going to hunker down, and they initially may spend less, not more. So while I think we should use both forward guidance and asset purchases, I think we should remain humble about the magnitude of the effects we can hope to achieve with these tools. The empirical evidence is not clear-cut, and the real world is more complicated than our models.

Regarding the formulation of forward guidance about the future policy path, I think qualitative, date-based and outcome-based formulations all can work, so long as we communicate what we're doing, why we're doing it, and that we will be reviewing and extending the guidance as necessary depending on the evolution of the economy. My preference would be to combine outcome-based and date-based guidance. Outcome-based forward guidance links policy to the achievement of certain goals, which is desirable.

Now, when choosing the outcome setting, some judgment needs to be applied. In the December 2012 outcome-based forward guidance, the 6½ percent unemployment rate threshold turned out not to be ambitious enough. But, remember, that's partly because u^* was changing as well. If structural changes to the economy are occurring in addition to cyclical changes, there's going to be an element of art as well as science in choosing appropriate outcomes to put into your forward guidance. But I think, when the policy is first invoked, some of that could be explained.

As to the role of date-based guidance, if people have different forecasts, they're going to have different views of when the outcome specified in the forward guidance will be reached, and these differences of opinion can affect the effect of the forward guidance. Giving the public some indication of when the Committee thinks these outcomes will be achieved would be a useful way to coordinate expectations. Although some people might be able to infer the Committee's view from the SEP forecasts, it would be desirable to include the consensus view about the timing in the forward guidance itself.

Now, regarding balance sheet policies, the relative benefits and costs of flow-based versus fixed-size formulations depend on the communications that surround the program. The fixed-size program, coupled with an announcement that the Committee will extend the program if economic conditions warrant, is similar to a flow-based program that doesn't give explicit conditions for adjusting the pace of flows.

However, if the economy improved more rapidly than expected, it would likely be harder to wind down a fixed-size program early than it would be to slow the pace of purchases in a flow-based program. So this suggests that flow-based programs may be easier to implement and communicate, although I am somewhat skeptical that going a step further and specifying an appropriate rule tying the flow rate to forecasts of the output gap and inflation rate could be committed to.

Regarding targeting interest rates further out on the maturity spectrum via asset purchases, the Committee had previously considered this as an alternative to longer-maturity asset purchases. The concern at the time was that the quantity of purchases needed to hit a particular interest rate cap was unknown. According to the staff memo, though, the Bank of Japan was eventually able to enforce its cap on 10-year bond yields simply by announcing that it was ready to buy unlimited quantities, and purchases were minimal. So if we do find ourselves needing to augment forward guidance about the funds rate path and longer-term asset purchases, then we might want to consider this type of policy, with careful thought about not only the entry into the program, but also the exit.

I'm hesitant to use negative interest rate policies in the United States. The experience in Europe and Japan suggests they may have some beneficial effects on bank lending, and so far they have not had adverse effects on market functioning and financial stability. But their financial systems are considerably different from our own.

We experienced unexpected volatility in overnight lending markets in September, which I think is a cautionary tale that we may not fully understand the interconnectedness of our markets. The market complexity in the United States makes me hesitant to want to try a negative interest rate. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. I will answer the questions in the order they were asked of us. I view all three types of forward guidance as being potentially helpful, and I agree with the literature review in the memo that, at times, forward guidance provided significant stimulus during the financial crisis.

My own view is that forward guidance was most useful when it was paired with concrete balance sheet actions. I do not think there is a clear playbook for deciding the form of forward guidance, as the effectiveness is likely to be situational. The choice of forward guidance will likely depend on how forceful the policy needs to be, the distance between the Committee and market expectations for the policy path, and the ability to make guidance less conditional.

Date-based guidance, particularly with few caveats, is effective in situations in which there is significant certainty about the need for action, and a premium is put on very clear communication. Although I view outcome-based guidance as useful while the economy recovered from the recession, it did seem harder to explain to the public, and that lack of clarity may have made it somewhat less effective. However, when the speed of recovery is uncertain and caveats may be necessary, outcome-based guidance is likely preferable to qualitative guidance.

On question 2, the primary benefit of negative rates is that if the entire yield curve is at zero and there is little spread between rates on MBS and Treasury securities, it may be one of the few tools that remain for monetary policy unless we choose to ask the Congress to purchase riskier assets. The downsides are significant. First, in Japan and Europe, I do not view the effect as particularly beneficial. It appears that, particularly in Europe, there is a reevaluation of the effectiveness of negative interest rates at this time.

Second, monetary policy is still transmitted through financial intermediaries. Negative rates can impede incentives to lend and, depending on how implemented, can severely impair the capital position of banks. And impairing the profitability and capital of banks can have the perverse effects of reducing credit availability and increasing loan interest rates, rather than stimulating lending—although tiering, of the kind done by the ECB, can lessen the negative effect on bank profitability. In view of the likely difficulty in the United States of subsidizing intermediaries affected by negative interest rates, this problem might be more severe in the

United States than in other places, in which subsidies to the banking sector may be more politically palatable.

Third, it is unclear how negative rates affect households' and firms' willingness to spend. Though it may encourage investment in risky assets, it is less clear how much spending by households and firms would be stimulated if we were to implement negative interest rates. For example, the increase in the household savings rate in the euro area over the most recent eight quarters could hint at the limited efficacy of negative interest rate policy when households need to build savings for retirement.

Overall, I view this policy measure as one of the last tools that I would turn to—after virtually all alternatives have been exhausted.

Question 3: I view the balance sheet policies as having been quite effective during the financial crisis. However, we started in an environment in which long-term Treasury and MBS rates were significantly higher than they are today. Given how depressed long rates are now, when the economy is at full employment and core inflation is near our inflation target, I am concerned that once we enter a recession there will be limited scope for pushing long-term rates even lower.

We have already removed much of our buffer on short rates when the economy is beyond full employment, and the 10-year rate has traded well below 2 percent. It makes me skeptical of how much room will we have to maneuver in the next recession.

Question 4: I view yield curve control likely to be quite effective and one of the ways to enforce forward guidance. Placing a ceiling on interest rates on shorter-term Treasury securities likely would result in better outcomes than forward guidance without the short-term yield control. Long-term yield curve control carries greater risks because it is not as connected to forward guidance and risks the potential to need to buy large quantities of long-term securities. However, either type of yield curve control has the same caveat as balance sheet policies. If both short- and long-term rates quickly reach zero, we may not have much room to maneuver.

Like Governor Clarida, I think we should be spending more time considering what we would do if all Treasury interest rates are at zero. My own assessment is that this is highly likely in the next recession, and we need to plan more for this outcome. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. I appreciate the leadership of the Chair and Governor Clarida on this review and the great work by Ellen Meade, as well as the excellent papers that were presented today by Rebecca and Stefania.

Just going back to why we're doing this review: There are three key changes in the economy's "new normal" that warrant this review. First, inflation is low. Underlying trend inflation is stuck below 2 percent. And there is a risk that inflation expectations have also slipped.

Second, the sensitivity of price inflation to resource utilization is very low. That has the advantage of pulling more sidelined workers back into productive employment. But it has made it more difficult to achieve our 2 percent inflation objective on a sustained basis.

And, third, the long-run equilibrium interest rate is very low, which means that the conventional policy buffer is now only half of the 450 to 500 basis points—or below half—that the FOMC has typically cut the federal funds rate to counter recessionary pressures in the past five decades. That large loss of policy space will tend to increase the frequency or length of periods when the policy rate is pinned at the lower bound. And, in turn, that experience of frequent or extended periods of being at the effective lower bound with inflation below target will erode private-sector inflation expectations, further compressing conventional policy space in a Japan-style downward spiral.

This risk is compounded by potential spillovers from monetary policy in other major jurisdictions. The fact that the euro area and Japan are struggling with more extreme versions of this "unholy trinity" reinforces the case for strengthening our policy framework now.

In order to avoid a Japan-style downward spiral, the new framework needs to accomplish two goals. We need to expand policy space to respond to adverse developments occurring when the policy rate is near the effective lower bound, and we need to move realized inflation up in order to re-anchor expectations and strengthen our buffer away from the effective lower bound.

In order to bolster public confidence in our capacity and will to act as we approach the effective lower bound, which we are likely to do with greater frequency, we need to lay out clearly and convincingly in advance how we would intend to continue providing accommodation. The long-run statement should make clear the Committee will actively employ its full set of tools in responding to significant economic disturbances so that the effective lower bound is no impediment to providing accommodation.

During my work on the international response to the financial crisis, I was struck by just how much of an impediment the effective lower bound proved to be. Monetary policy in all of the advanced economies lost potency at key inflection points when delays allowed doubt to take root. The delays necessitated by policymakers having to develop agreement and take action on quantitative purchases, for instance, once conventional policy was exhausted, sapped confidence and tightened financial conditions. It's fair to conjecture that many in the euro area and elsewhere were out of work and for longer in part because of the lack of will or foresight to act decisively to deploy a richer set of tools.

In the United States and elsewhere, asset purchases were effective in providing accommodation. However, quantitative approaches have proven to be lumpy to initiate and to calibrate over the course of the recovery. This creates discontinuities in the provision of accommodation that have been costly. Similarly, at the end of the program there can be, as we have seen, significant frictions associated with the normalization process. For these reasons, I tend to find QE suboptimal in many circumstances.

That's why I support developing an approach that smoothly expands the space for targeting interest rates or prices rather than quantities as an extension of our conventional policy space.

Like those who have already spoken, I would be strongly disinclined to do so by moving rates into negative territory, because the additional space is limited and comes at the cost of considerable complexity and distortions. I view the cost–benefit calculation as unattractive in the U.S. context.

Instead, as others have suggested, I would support capping rates moving from the short end toward the middle of the yield curve. Putting a ceiling on rates out toward the middle of the yield curve will transmit additional accommodation through the longer-term interest rates that are most relevant for household and business spending but would be smoother than outright purchases. The horizon on the yield curve caps would be designed to reinforce forward guidance. As described in one of the options in the 2010 memo to the FOMC as well as the memo provided for today's discussion, because such yield curve ceilings are likely to be credible, this likely means less of a balance sheet commitment and provides for predictable and automatic roll-off. In that regard, I would be interested in seeing the staff undertake further work on what rate caps going out to the middle of the curve would require and deliver in practice. Of the options on the table, this is the one approach with promise that wasn't actually undertaken in the crisis, and I worry that it won't get as serious consideration unless we do the requisite analysis ahead of time.

In addition, I believe that forward guidance conditioned on reaching our inflation target is a complementary and critical tool to boost the amount of accommodation at the effective lower bound. That, in part, would address what I saw as tremendous pressure to normalize or lift off prematurely at the end of 2015 and again in 2016, on the basis of historical relationships that were no longer in evidence. My inclination to stay the course until we achieve our target is given strong analytical underpinnings by recent research. Forward guidance that delays liftoff from the effective lower bound until 2 percent inflation has been achieved on a sustained basis—say, over the course of the year—could improve performance on our dual-mandate goals, as shown by simulations undertaken by Bernanke, Kiley, and Roberts.

Such forward guidance, along with rate ceilings out through the belly of the curve, are complementary and lend themselves to implementation in tandem, as suggested by Governor Clarida. To illustrate: As the federal funds rate approaches the effective lower bound, the Committee would commit to holding the funds rate at that level until inflation reaches 2 percent over the period of a year. The Committee would also state its assessment of how long this is likely to take. So, for instance, if the Committee's assessment is that inflation is likely to reach 2 percent in three years, it would commit to capping rates out the yield curve to three years. Of course, the Committee would continue to assess how long it will take to get inflation back to 2 percent as the outlook evolves and adjust the yield curve commitment accordingly.

One benefit of this approach is that the forward guidance and the ceilings on the short to middle segment of the yield curve would reinforce each other, and, once the desired outcome is achieved, any securities that were bought under the program would organically roll off, unwinding the policy smoothly and predictably.

An approach along these lines could work well for most recessions. For very severe downturns, such as the financial crisis, this approach could be supplemented by purchases of longer-duration assets, in order to provide additional accommodation, if needed, at the long end of the yield curve if the rate caps at the front and middle segments of the yield curve aren't transmitting sufficiently to the long end. Presumably, the requisite scale of such purchases, when combined with the forward guidance and medium-term yield curve ceilings, would be relatively smaller than if QE were used alone.

The second challenge was the focus of our discussion in July. We may need to support inflation above 2 percent for some of the period when the economy is away from the effective lower bound in order to compensate for periods below 2 percent. That's why we should clarify in the Statement on Longer-Run Goals and Monetary Policy Strategy that we aim for inflation to average around 2 percent over time. That could mean targeting inflation in the range of 2 to 2½ percent over the next five years to make up for the past five years when inflation has been in the range of 1½ to 2 percent.

We might also want to review that after we've had some experience at the top of the range. That is one of the few ways in which we would partially reclaim some of the lost conventional policy space associated with the decline in the real equilibrium rate and get at the issue that both President Rosengren and Governor Clarida were discussing of negative term premiums.

And, finally, I hope we will have an opportunity to discuss the place of financial stability in our monetary policy framework. The last time we discussed this issue was in April 2016. The changes to monetary policy we're contemplating suggest that a low-for-long environment will be a feature, not a bug, of the new normal, and we should talk about how that implicates how financial stability and monetary policy interact. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chair. I want to thank the staff for an excellent set of memos summarizing what we've learned about the effectiveness of the various nonconventional tools we have available to help us execute monetary policy. The memos were very useful in helping us think about when a particular tool would work well and when it wouldn't. I can see most of these tools fitting into the outcome-based policy strategy we've talked about before.

I don't believe there should be a preset playbook. The best choice of a tool or a combination of tools is going to depend on the circumstances the Committee finds itself in. One major theme of outcome-based monetary policy is that clearly communicating the relationship between the setting of a tool and the achievement of our policy goals will enhance the effectiveness of whatever tool we choose.

For example, think about the "Delphic problem" in forward guidance—that is, the public may interpret the introduction of guidance about a more accommodative rate path as a sign that economic conditions are worse than they thought. In turn, these more pessimistic views can contribute to yet worse growth or inflation outcomes. Other than live streaming an FOMC meeting , we can't do much about the public thinking we know more than they do, although—

MR. QUARLES. That would do it.

MR. EVANS. —that might disabuse them. [Laughter] Governor Quarles once again beats me to the punch line. But we can help our cause by communicating that even though we've experienced a negative shock, the new policy path that we are taking is expressly designed to counter that shock and achieve our dual-mandate goals as expeditiously as possible. More generally, we can guard against overly pessimistic private-sector expectations by making it clear we will do what it takes to achieve our goals within a reasonable amount of time.

Let me now turn to the specific options discussed in the memos. My outcome-based orientation makes me somewhat predisposed to forward guidance and flow-based asset purchases that are linked to the achievement of economic outcomes. But I recognize there could be times when date-based forward guidance may be the best way to push down expectations for the policy path.

Likewise, with balance sheet policies, there may be times when a large, fixed-size asset purchase program would provide a bigger jolt to long-term rates than an open-ended outcome-linked program. Maybe. It could happen. So I would not want to establish a particular hierarchy for the various types of forward guidance or balance sheet policy. Circumstances will determine the best course. But with whatever we choose to do, it will be key to communicate that the end goal of the action is to achieve our dual-mandate objective sooner rather than later.

The memos also covered a couple of tools we haven't tried: negative interest rates and yield curve control. I don't think they're getting a lot of positive play today yet, but it's still early. Although I'm not ready to rule them out, I do remain skeptical. There are a lot of unknowns about how negative rates might function in the United States. Our financial markets are different from the countries that have used them, and the scope for negative rates is clearly limited.

Unless we radically change institutions, it seems unlikely that we could take rates negative enough to fill meaningful shortfalls in policy accommodation. I think, according to some measures of the Taylor rule, back in 2009 we should have been at about minus 4 percent for the funds rate. That would be hard to achieve.

I also think yield curve control is fraught with difficulties. Nominal interest rates reflect expectations of real rates and inflation, as well as term premiums. A policy that is expected to boost real GDP growth and inflation would normally produce higher long-term market interest rates almost immediately. This makes it difficult for me to see how we would calculate the appropriate rate ceilings or decide when they should be removed. And communicating these decisions clearly would be quite challenging.

As to the allure of the yield curve control as a way to lower long-term rates without requiring large increases in the balance sheet, well, I'm unconvinced. As the memos point out, to effectively control rates, we may end up purchasing a very large quantity of Treasury securities. If you didn't like LSAPs before, you're going to hate them in that mass purchase situation. There is no risk-free lunch here.

That said, I am more open to versions of yield curve control that are aimed at managing shorter maturity rates in order to complement forward guidance, along the lines Governor Brainard was discussing. I'm open to them. I'm not convinced. I would like to hear more about their pros and cons.

Now, an expectation has been mentioned that perhaps, during the next downturn at the ELB, long rates might be at zero. That is a shocking expectation, in my opinion, and, although we can look at different monetary policies, I think I wrote down, "Hello! Fiscal policy!" It almost seems like it would be incumbent upon the Fed Chair and pretty much everybody to stand up and say, "There must be fiscal policies that can help do this," because it is very cheap to do a whole bunch of things if we actually had long-term rates at zero, unless there's something else really weird going on that circumstances might be dictating.

In sum, I think the various forms of forward guidance and balance sheet policies covered in the memos give us a good set of tools to supplement conventional policy when needed. Deciding when to use them will depend on circumstances, but, in all cases, monetary policy will be more effective if we clearly communicate how the particular tactical approach we choose will move us toward our mandated policy goals as expeditiously as possible.

Now, Governor Clarida mentioned developments soon to come in terms of the long-run statement and the discussion that the communications committee has been having. I just want to mention that discussions like this, well, historically—and I would expect in the future, too—take a lot of time, and, actually, quite a number of discussions in the past have been required in order to do the relatively minor changes that we've already contemplated.

I would suggest that serious consideration be given to reserving additional time, maybe by video conferences in the run-up to meetings to come up with the first long-run statement when there wasn't really enough time in FOMC meetings. An intermeeting videoconference to kick around some of the ideas. I think it's quite ambitious to expect that this can be done by the first half of next year unless there are simpler details that I'm not quite contemplating myself.

I think agreeing on language changes and discussing concepts are time consuming. For example, the concept that I think we'd benefit from and we need to talk about is inflation symmetry and what we mean by "symmetry." We touched on this a little bit with average inflation targeting and different versions, but I think a very full discussion of what we might mean and what everybody can embrace—I think that's the hard part, what everybody can embrace.

I'm trying to remember what candidate phrasings were offered before the Committee decided on the balanced-approach language, because there was an alternative that Governor Tarullo and I worked on that was much more expansive and I think probably encompasses things like "more symmetric inflation." And so I'd ask my staff to go unearth that language. I don't know where it is, but, at any rate, things like that would be helpful. Thanks very much.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. And thanks to the staff for putting together a set of memos that help frame the issues associated with the use of forward guidance, balance sheet policy, and other tools in the execution of monetary policy.

My first reaction is that we should definitely keep the nonstandard tools employed in the aftermath of the Great Recession in our toolkit. Central banks have encountered circumstances in which the use of all three types of forward guidance and various strategies regarding balance sheet policy were deemed appropriate, given the prevailing context, and they have been effective.

I think this highlights an important point: Context clearly matters. In thinking about when a particular tool might be used, the right answer will be heavily dependent on the details of the challenge that might prompt the consideration of using such tools. And this is not to suggest that there are not issues associated with the implementation of any of them. Communication and commitment will certainly need to be addressed, but these are distinct issues from whether we should consider using these tools at all. And on this latter question, I think the answer is a clear "yes."

I think the staff's statement on slide 13 of the handout today has it exactly right. It is valuable for the FOMC to have a variety of balance sheet policy options and employ the ones that best fit the economic situation that it faces. This, to my mind, includes which assets to purchase, and I would extend the sentiment to forward guidance as well.

I have no appetite for actively exploring negative interest rate policy today. I don't feel this is something that we should be promoting publicly as a possibility. It consistently sparks much consternation among households, business leaders, and bankers, and I think that going this way would adversely affect sentiment in significant ways that would be difficult to manage. And I also doubt that it would work as expected.

I have a similar view regarding yield curve control. I think it is quite probable that yield curve control would require a very large expansion of the balance sheet, especially in the early phases when markets will almost certainly test our resolve. That's certainly a lesson that I take from the Bank of Japan's experience. And though I'm probably less concerned about balance sheet size than some others, I don't think it is productive to send signals that we would be willing to cede control of the balance sheet to engineer interest rate levels that are mostly not in our direct control.

In fact, even if we were successful in maintaining relatively tight control of rates along the yield curve, I am not sure that would be a great idea. Removing a large portion of the market's signal on interest rates risks losing important information about the state of the economy as transmitted through financial markets. That, to me, would be a substantial cost, as we have a lot of experience and lean heavily on using those signals to appropriately calibrate policy.

I'd be somewhat more sympathetic to the approaches that might mitigate some of my concerns: ceilings on short-dated rates that are set somewhat above the announced policy path of rates. But as the staff memo points out, it is far from clear that this would add much to the policy mix. So I share President Evans's views on the mix of these issues.

Finally, with respect to both negative interest rate policy and yield curve control, I suppose "never say never" is the correct response. But I prefer a message that makes it clear that these policy approaches are not on the table now. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman, and thank you to the staff for the memos and framing this discussion. So I'm going to first comment on the tools, and then I am going to come back to recommend maybe a complementary approach that I think would help—at least would help me—think this through. And I'm going to truncate my remarks on the tools, because I think the comments so far pretty much capture them.

On forward guidance, whether it's qualitative, date based, or outcome based, I don't need to repeat some of the comments that have already been made, but I agree with most of what has been said by Evans, Clarida, Mester, Rosengren, Bostic, and others who have just spoken. I think the key is that these tools depend on the situation, and the communication needs to be tailored to explain the overall FOMC strategy, and they need to be in the context of a narrative about our diagnosis of the situation and our FOMC strategy. But I'll leave it at that.

On negative interest rates, I agree with many others. It is not clear to me that the benefits outweigh the costs, and I am very concerned about the adverse effect on financial intermediaries, and I am always reminded about the structure of the U.S. economy, particularly with the very large money market industry and the very large reliance of our companies on commercial paper issuance, which in turn relies very heavily on the money market fund industry.

I'm very doubtful, to the point that if we find ourselves approaching the zero lower bound, I might be advocating in that situation that the FOMC signal that it will not go below zero, and that we'll use forward guidance and balance sheet policies. But there are going to need to be other policy steps, away from monetary policy, to address this issue—that is, fiscal policy. But we'll come back to that.

On balance sheet policies, I don't have anything brilliant to add, other than—I think a number of people have already said—whether it's month-based, flow-based, or fixed size, the key to me is, it has to be tailored to the situation—I'll come back to that—and in the context of the narrative.

On yield curve control—last comment—I would be very hesitant, maybe other than as a last resort, to "double down" on QE. It's possible, as others have said, that I would be receptive to doing something on short rates, but this approach would concern me.

So that leads me to where to go from here, and I think my main take from this exercise and doing this exercise with my team is, not only are we going to have to be open minded about tools, but I think it's very important that we are not wedded to a specific set of tools. As a number have alluded, you don't want to be in a position of fighting the last war. And I think my guess is, we are going to have to innovate tools we may not have even mentioned today, and I'll give an example in a moment.

My own view—I'm not smart enough to know, but my guess right now is, as we all said, the next downturn is not going to look like the previous downturn. I don't think it's going to be a financial crisis. It is going to be driven, in my view, most likely by nonfinancial corporates and, in particular, by a gapping out of credit spreads and a severe tightening of financial conditions. In this context, the banks may well fare reasonably well, but the gapping out of credit spreads will cause a slowing of the economy. In this scenario, low Treasury rates will get super low, and the problem will be credit spreads for everybody else.

Now, the good news is vulture funds are already forming and stand ready to swoop in and are doing a lot of work to get ready for this. So they'll buy a number of these credits, but the equilibrium level of credit spreads is going to be much wider than it is today, in my view. It's not that it will be unstable. It'll just be wider.

In this scenario, ironically, housing may be okay, because long-term Treasury and mortgage-backed securities rates may be very low. In this scenario, what is the role of QE? It's not clear to me. Is it even appropriate to be buying securities out along the curve? I might be strongly against that, because I'm not sure whether that will help if Treasury rates are already super low.

I am certain—it may be ill advised—we will be under a lot of pressure and be having a strong debate about whether we should buy infrastructure bonds, corporates, or other securities for which there has been a widening, and I think we are going to need to probably push that to the Treasury, but we need to have that debate.

The point of it is, I don't know, but I do think we should be having a tabletop—or several tabletop exercises now or in the near future that go through this scenario and other scenarios and then brainstorm about what tools would we use in that scenario. And also get ourselves emotionally more ready to deal with the pressures we're likely to be under.

So while the tools-based approach, I think, is essential, and I think you've done it very well, I am not sure how helpful it's going to be getting us ready for the next downturn. I think a scenario-based approach to monetary policy, analogous to what we've done on financial stability, is in order and I think would serve us well. And I think we'll learn a lot from it, and it may actually change our views and change this discussion about tools. And so I hope we will do something like that. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. Before I address the questions, I want to acknowledge that, as we dig into these various tools and approaches, I frankly find myself pretty torn. I'm inherently skeptical of the effectiveness of many of the newer approaches that we've been discussing. I see high risk of unforeseen negative consequences. I worry that we will try to respond to even garden-variety recessions with industrial-strength tools. I worry that we will spend all of our ammunition without the effect we want.

But I deeply respect the role that the FOMC played in bringing the U.S. economy out of the previous downturn. I believe a critical part of that success was the Committee's portfolio of approaches. Across qualitative, date-based, or outcome-based forward guidance; QE1, 2, or 3; or Operation Twist, the Committee gave participants in the economy confidence there was always ammunition in reserve.

I believe that confidence supported investment and inflation expectations. So, even though I lack confidence in many of these approaches, I believe one of the objectives of our work on the monetary policy framework should be to communicate the fact that we have a portfolio of them partly, as many have said, to have "horses for courses"—unique circumstances needing tailored efforts—but partly to maintain confidence that we always have ammunition in reserve. That said, while projecting confidence, I think we should be measured and should husband these approaches to use them when they are most needed. The biggest punch the extra tools pack may come from people seeing that we have them on the shelf.

Now, turning to the questions, my views on forward guidance match my views given in previous meetings on makeup strategies. We should not pretend to commit to things unless we want to follow through on them. For me, forward guidance is mainly a tool for communicating about policy at the lower bound, as opposed to a tool for commitment.

At the lower bound, there is less history available in our reaction function, so it makes sense for us to talk explicitly about the conditions, time, or state under which we expect to lift off. I interpret the 2008–15 experience as revealing that date-based forward guidance is to be preferred to qualitative, and outcome-based forward guidance is even better. However, as many have said, there may be circumstances when qualitative or date-based forward guidance is all we can honestly communicate.

On negative nominal interest rates, it is true that central banks that have tried them have not experienced disastrous consequences. However, it is also true that central banks that have tried them still have them. [Laughter] If I can make an outcome-based argument, I lean toward not going there without seeing clear evidence of the longer-term effect on these countries. I see balance sheet policy as being secondary to forward guidance. We used balance sheet policy, it didn't cause major problems, and some research suggests that there were benefits. Like President Mester, I am a bit skeptical that the benefits are as sizable as what research would suggest. That said, I agree we could move faster next time, that moving would be a positive signal, and we could better counter the concerns that we wouldn't shrink the balance sheet later.

Flow-based policies are more flexible than fixed size, and that's appealing. However, to the extent that we are concerned about the eventual size of the balance sheet, unrestricted flow-based policies don't appear to be credible.

Yield curve control would complement forward guidance on short-term rates, putting our money where our mouth is. Although I'm open to learning more, I'm not yet convinced that the added control is worth the potential balance sheet volatility.

And, as for yield curve control with longer-term rates: That genie went into the bottle with the Treasury-Fed Accord, and I don't think we should let it out again. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. I appreciate the staff's work on these background memos as we continue the review of our monetary policy framework. With shrinking policy space, now is a very good time to talk about issues relating to the use of forward guidance and asset purchases.

Anticipating how to use the different types of tools to address different economic circumstances is challenging, though. We'll have to be flexible in thinking about their application. But I liked a suggestion made by President Mester at our September meeting when she talked about road-testing our models and assumptions about these nonstandard tools under various economic scenarios. This type of simulation in the form of a tabletop exercise, which President Kaplan just talked about, might help to estimate how these tools would work when we are confronted with real-world policy choices.

Considering the merits of the three types of forward guidance described in the memos, research by my own staff suggests that more accommodative forward guidance does ease financial conditions and leads to a modest improvement in economic activity and inflation. Their work finds that our experience with qualitative and date-based guidance has generally been more effective than our abbreviated use of outcome-based guidance. With outcome-based guidance, I recall some confusion about the issue of thresholds versus triggers, a reminder of the possible communication challenges when using this form of guidance.

With regard to negative interest rates, I see little evidence that the benefits outweigh their cost. The international cases suggest that negative interest rates ease some measures of financial conditions. But the memos highlight the point that these policies may not produce positive outcomes for the banking sector or real economy. Recent work by my staff suggests that negative interest rates may actually be contractionary and, hence, counterproductive for policymakers.

Regarding balance sheet policy, our experiences with this unconventional policy tool do give us some perspective for judging its potential usefulness at the effective lower bound. As the staff memo notes, our understanding of the nature of cost and benefits has advanced over the decades since these balance sheet tools were deployed, but, of course, our understanding is not complete.

For example, given that balance sheet policies put downward pressure on longer-term rates, one would expect increased borrowing by households and businesses. These policies likely contributed to an increase in mortgage and auto borrowing by households for sure, but business fixed investment in this recovery has remained consistently weaker than in previous expansions, particularly when compared against the pace of employment growth. It's also worth considering whether asset purchases would be as effective today with longer-term interest rates already near their historical lows.

Although the staff's analysis points to the benefits of previous balance sheet policy actions, the memo is silent on whether the reduction in the balance sheet in 2018 and 2019 had a similar effect in the opposite direction. Further analysis about the expected effect of a reduction in the balance sheet on financial markets and real activity would add to our understanding of the use and efficacy of balance sheet policies.

Finally, the memo discusses the possibility of expanding our balance sheet policies to include yield curve control. I'm open to further consideration of this tool, especially around short-term rates, but I'm mindful of our historical experience with caps on longer-term bond yields. The Treasury–Federal Reserve Accord of 1951 gave the FOMC to ability to exercise its independence and pursue its congressional mandates. Our economy and financial system looked quite different than in the '50s, but we should be careful in entertaining yield curve control, especially in explaining it to the public, in that it could open the door to an erosion of our central bank independence. Thank you.

CHAIR POWELL. Thank you. I'm going to suggest that we take a short—let's call it 15-minute—break, and resume at a quarter of 11:00, sharp.

[Coffee break]

CHAIR POWELL. Welcome back, everyone. Governor Bowman, please.

MS. BOWMAN. Thank you, Mr. Chair. I first want to thank the staff for their insightful memos on forward-guidance and balance sheet policies and for the helpful conversations we had in the lead-up to this meeting. The overview of our previous experiences with these tools while at the effective lower bound were particularly helpful for me. The memos reinforce my view that forward guidance is an effective and important component of our policy toolkit. Date-based forward guidance seems to be preferable in most situations because it's easy to communicate and it's more likely to be well understood by market participants. And from my previous experience in banking, I know that clear guidance on the direction of policy provides an expectation of stability that's beneficial to long-term planning of businesses, consumers, and other economic decisionmakers.

Outcome-based policies pose challenges in terms of transparency, credibility, and ease in communication. To implement explicit forward guidance, either date based or outcome based, it will be important to build a clearly defined escape clause so we maintain credibility without sacrificing our flexibility. But, whatever approach we decide to take with forward guidance, our communications need to be crafted carefully to avoid confusion or misinterpretation.

I'd note that we also use forward guidance in periods of normal policy away from the lower bound on interest rates, and the same communications challenges arise in normal times as at the lower bound. We should look for ways to communicate forward guidance clearly and effectively in all scenarios. For this reason, I'd like to recommend that the staff examine the effectiveness of our forward guidance in periods outside the time when we were at the lower bound on interest rates.

Regarding balance sheet policies, it's clear to me that these need to stay in our toolkit, given the low interest rate environment. But I think we need to think carefully about how the effects might be different in different circumstances and in the current environment of ample reserves. And in communicating our long-run policy framework, I think we want to be clear that long-run asset purchases are not the preferred means to provide policy accommodation and would only be used in cases in which our other tools prove to be insufficient to meet our goals. We also need to keep in mind that another large expansion in the size of our balance sheet could potentially become a bone of contention as it did in the previous episode of quantitative easing.

And, finally, I see no benefits to negative interest rates and high potential costs. Negative interest rates would provide a very unhealthy economic growth environment and would suggest to markets that we have no other options, which could seriously undermine our credibility, especially with the public, including bank depositors. If the situation arises in which we feel we have little remaining room to provide policy accommodation, then we would be much better served by acknowledging the limits of monetary policy and possibly leveraging our relationships in other parts of the government to encourage additional fiscal policy support, as Presidents Evans and Kaplan noted earlier. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chair. And thanks to the staff for the thought-provoking memos. And, as I said in previous meetings, I think that this discussion of our toolkit needs to be as robust and thorough as our discussion of alternative frameworks for a few reasons. One, in the circumstances that we're living in, I think any change in the framework such as a nod toward average inflation targeting is unlikely to keep us off the effective lower bound indefinitely. We're likely to find ourselves having to adopt unconventional policies again. So we need to think through how it is that they would work and what they might be likely to be.

And, two, some of the problems that, again, something like average inflation targeting would be seeking to address, such as an ELB-induced downward drift in inflation expectations, could also be eased with a more public discussion of the effectiveness of our unconventional toolkit. I think that, come the next time that we need to use them, we'll be in a better position if we can moderate the notion that the ELB is a hard constraint on monetary policy.

In that regard, on balance sheet policies—part of the toolkit that we have used before—I was encouraged by the emerging consensus that QE was an effective tool. We don't always hear that in the circles that I run in. Before reading the memo, I had believed that the consensus was also that QE3 was less effective than earlier actions. So I was surprised that recent studies suggest that that may not have been the case, and that there may not have been a diminishing return on balance sheet policies. I don't know that I'm 100 percent persuaded, but I think that that is worth more discussion and more public discussion—again, for the reasons that I think we will be in a better position if the public doesn't believe that the effective lower bound means that Earth is getting hit by an asteroid.

In regard to the discussion of the tools we have not used, I was less skeptical than a number of folks around the table have been in yield curve control. If the ultimate goal of balance sheet policies is to influence longer-term rates, it seems logical, as Mr. Spock would say, to target those rates directly rather than feel our way toward our ultimate policy objective with quantity targets.

So I'd be interested in, again, additional assessment—additional work on how effective such a tool might be and additional work on an assessment of the implications for the size of the balance sheet. Again, contrary to some of the concerns that have been raised, it seems likely to me that an interest rate target could match the effectiveness of a quantity purchase program but with a smaller effect on the size of the balance sheet, as Governor Brainard discussed, if the target was believed to be credible.

One thing that was mentioned in the memo is that a particularly tricky issue with yield curve control policies is exit. Once the market starts to perceive that the price target could fall, there could be substantial selling. Japan, presumably, is a useful example for learning about exit—or, perhaps, about the inability to exit. So, since exit seems so thorny, that's obviously something that, if we were to think further about such policies, we should focus on thinking about the possible exit strategies in advance. In that regard, I would think that a useful analogy might be with exchange rate pegs. And while people haven't thought a lot about that—it hasn't been a hot topic recently, but there has been a lot of thinking about exchange rate pegs, how you enter them and how you exit them. And that would be a useful analogy.

The memo also discusses the use of balance sheet policies to affect lending to firms and households if not directly, at least a little less indirectly than we do now. And I thought President Kaplan's intervention was extremely interesting, right up until the point of getting into infrastructure bonds, at which point President Evans said he thought he was going to have to bring out a defibrillator. [Laughter]

MR. EVANS. Not for myself. [Laughter]

MR. QUARLES. But as part of the family that brought skiing to the Rocky Mountains in the '30s and '40s, I know something about slippery slopes [laughter], and I think the risks of getting involved in credit allocation are just too high. Once you offer incentives for one type of lending, it will only be a matter of time before there is irresistible political demand for an ever more ambitious variety of ever more targeted programs.

Let me just end with a comment on negative rates. I agree with everything that everyone has said about negative rates probably not being a good idea for anyone and certainly not a good idea in the United States at the current conjunction. I do think the one interesting point about the argument for negative rates—and particularly about how they don't have a negative effect on the financial sector, which is the transmission mechanism for everything—is that while they do reduce net interest income, they also improve the quality of the portfolio. The banks are not losing as much on their portfolio, so it's a net "wash" or a net positive for the financial sector while being a benefit for the rest of the economy.

And that may be true if negative rates are a relatively temporary policy. But what we're seeing now—particularly in Europe, where you're expecting to be in a negative rate environment for an extended, perhaps an indefinite period of time—is that the portfolio that was underwritten in one environment will benefit if you now have negative rates. But once you've gone through all of that, and you're now expecting to underwrite a portfolio in a particular interest rate environment that's going to obtain forever, that benefit will be lost, because it will have been underwritten expecting the rates that obtain at the time. So now all you will have is the effect on that interest income, which will be very negative for the financial sector. This is why I think that banks, which had been grumbling—but only grumbling in Europe in this environment beforehand—now, as they see it going on for as far as the eye can see, are really beginning to scream that this just doesn't work. So thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. I also want to thank the staff for their work on these memos. Due to the secular decline in the neutral real interest rate, the effective lower bound has become our nemesis when combatting economic downturns. We now face the reality that we may be driven to the ELB every time we go into recession. As a result, we will likely resort to using so-called unconventional monetary policies. Therefore, it's appropriate for us to review these policies before having to use them again.

Let me just give a comment about my view. My view would be that ideal monetary policy would be that the Committee would be able to communicate a state-contingent policy rule in normal times that would delineate Committee actions in all states of the world. In some ways, that kind of guidance would be perfect forward guidance. You'd be telling the private sector exactly what you're going to do in every state of the world. There are models that have this kind of thing, and it works perfectly inside the model. Obviously, that's a lot different from reality, but that would be kind of the Holy Grail.

This Committee has never been able to come to an agreement on writing down such a state-contingent monetary policy rule, and there's just too much disagreement over both theory and practical aspects, I think, to get to that. But now we have a more difficult assignment, which is that not only do you, ideally, have to write down the monetary policy rule in normal times, but also announce to markets what you would do in situations in which you encounter the effective lower bound. So you want a state-contingent policy rule that says we are going to do such and such in normal times, and we're going to do such and such when we encounter the effective lower bounds.

We've kind of got the same problem, squared. The rule should also now say how the effective lower bound will be confronted, and this will affect private-sector behavior away from the effective lower bound. And, actually, if we could do it effectively, it might help us stay away from the effective lower bound. So I think that all of that is very promising, but the fact that we haven't been able to do it for the normal-times case suggests that it will be all that much harder to do this for the effective-lower-bound case as well.

Of the four policies discussed in the memos, we have used two of them in the past: forward guidance and balance sheet policy. Thus, we have a better understanding of these policies and their effect on the economy by itself. This suggests that these are the most realistic options at the effective lower bound and the most widely expected in the private sector as of today. The other two, negative nominal interest rates and yield curve control, would be new tools, post-Accord, for this Committee, although they have been used by other central banks. As a result, I, like others, view these as last resort policies, not something that we would adopt soon after hitting the effective lower bound, if at all.

My comments will focus on each of these four policy tools. First, regarding forward guidance, I have long worried that, by itself, this policy tool may have little effect, because it lacks credibility. Promises to maintain the policy rate at a suboptimally low level into the future are unlikely to be acted on by the private sector, since it is difficult to commit future incarnations of the FOMC to enact the promised policy at the appropriate time in the future. As a result, the promises may not be credible at the time they are made—and, therefore, nothing happens. That is, you don't get any response from the private sector to the announcement of the forward-guidance policy.

My interpretation of world events over the past decade is that the prospect of forward-guidance policies falling flat is a very real possibility. One case that's famous, when it worked, was Mario Draghi saying "whatever it takes" at a speech in London. Another case in which, famously, it didn't work is the BOJ's announcement of a 2 percent inflation target—and their saying they'll do "whatever it takes." That's an example of one that did not change expectations and fell flat.

One could say that there is no harm in using forward guidance, as it either works or it falls flat. But forward guidance also suffers from being misinterpreted as signaling that we expect the economy to perform badly in the future, and also that we cannot do anything about it. This has a serious cost to our credibility and is, therefore, a mitigating factor in wanting to use forward guidance at all. So the bottom line on forward guidance, at least by itself, is that we should use it sparingly and very carefully. And I would just remind the Committee that forward-guidance announcements are what I would call "pure expectations plays." You're trying to get the private sector to, suddenly, shift its expectations. If they don't shift, then nothing happens at all, and you've lost credibility. Despite my concerns about the effectiveness of forward guidance, should we adopt it I favor outcome-based forward guidance to date-based forward guidance, since it conditions policy on the state of the economy as opposed to an arbitrary date.

Let me move to negative nominal rates. Second, like many others around the table, I am pessimistic about the use of negative nominal interest rate policy in the United States. The evidence that we have seen on its use in Japan and Europe does not give me much hope that there will be a stimulative policy here. On that, I think negative interest rate policy (NIRP) has more cost than benefits for the United States.

Third, balance sheet policies that we employed in the past appear to have worked well. The reaction in financial markets clearly indicates that such policies are effective in easing financial conditions and are consistent with "easier monetary policy," such as higher inflation expectations, currency depreciation, higher equity valuations, and lower real interest rates. And I might remark that all of those effects occurred in outsized magnitudes across Europe, Japan, and the United States when QE was used. All of these effects have been associated with quantitative easing in the United States. We've also demonstrated that we can unwind our balance sheet once it is appropriate to do so.

I have long argued for adopting state-contingent balance sheet policy that can be adjusted up or down, depending on the state of the economy. This is referred to as flow-based balance sheet policy in the memo. I believe that our guiding principle should be that we tried to use balance sheet policy at the effective lower bound in the same way that we use the policy rate away from the effective lower bound. As a result, state-contingent balance sheet policy is my preferred policy course. I also believe that state-contingent balance sheet policy will likely be our first response in the event that the policy rate hits the effective lower bound. I might parenthetically add that I'm also an advocate of trying to create policy space for use of this tool because I think it will be the one that we have to use if we encounter the effective lower bound again.

Finally, regarding yield curve control, while I'm open to further study, I'm dubious about the desirability of maintaining interest rate ceilings across the entire yield curve. As the memos point out, by adopting this policy in an unrestricted fashion, we may not be able to control the size of our balance sheet. The experience of the 1940s seems to bear this out. At times, the Federal Reserve had to purchase the entire stock in order for certain maturities' yields to be maintained at the interest rate ceiling.

My bigger concern with this policy, as others have mentioned, is that it effectively undoes the 1951 Treasury–Federal Reserve Accord and puts us at the center of the federal debt management process—if not literally, at least "optically." The Accord has served us well for nearly 70 years. I see no reason why we would voluntarily undo it if other policy tools are available.

And I agree with President Evans on the difficult aspects of changing the January statement. The January statement was viewed, when it was first adopted, as quasi-constitutional in nature, so it requires a lot of agreement to change it, much like the U.S. Constitution. It can be changed. There are certainly things that we may be able to achieve to get to a better document, but the previous effort used up a lot of time and was done with great care. So I think it may be more difficult than may be currently appreciated as to how hard it is to get language that everyone can agree on in a new document. So I would certainly advise that we have special meetings to get a sense of the Committee on possible language changes for the January statement—which, I guess, will no longer be a January statement but a consensus statement. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. As with others around the table, I support the form of forward guidance that conditions call for. In general, I prefer outcome-based forward guidance because I think it is the most clear and credible form of communicating our expected path of policy. I think qualitative and date-based guidance run the risk of miscommunicating a pessimistic outlook, but I can see scenarios in which they could make sense.

Just a quick reminder—what I have been advocating is outcome-based guidance, saying that the Committee will not raise the federal funds rate until we achieve our core inflation target of 2 percent on a sustained basis. That doesn't prevent us from cutting rates further, and it's not a commitment to do whatever it takes. It's not a guarantee that we will get there, but it's simply saying we are not going to raise rates until we achieve it. And this is essentially what the ECB announced in August.

Now, I'm very sympathetic with the scenario that President Rosengren and Governor Clarida talked about, which is one in which there is a downturn and the whole yield curve is at zero. What do we do? I mean, that's a tough situation for us, and I'm sympathetic with what President Evans said, that it could be that the Congress will have a role to play in that scenario.

And all of our tools are limited. I mean, I think we all acknowledge that. So, to me, the key is, we have to avoid getting there. And that's why—I know this is not the policy go-round, but I am going to use the opportunity to say that we ought to think about using some of these tools now to try to avoid getting in that situation of being stuck at the lower bound with a bunch of tools that we all acknowledge are limited. And that's why I think such forward guidance today could be effective. And I would just note, and I appreciated the staff's candor, the two risks that they saw are: one, the risk that it doesn't work—okay, that's true with all of our policies—and the other risk is that it's too powerful. Of all of the tools we've talked about today, this is the only tool that they've said might be too powerful. So that's a feature, as far as I am concerned.

I would also note that, as President Bullard talked about how forward guidance works, it is changing the expectations about the path of the policy rate. Look at the power of the move that the Committee implemented from December through the spring. There was no change in actual policy, but that "pivot" had a big effect on economic conditions, on financial market conditions, and on the housing market even before we actually cut the federal funds rate. So forward guidance away from the ELB just recently has shown that it can be very, very powerful if we use it. I think we ought to use it to try to avoid getting to the lower bound.

Turning to negative rates, I'm skeptical, as many of you are. I think it provides limited policy space, but maybe I am more sympathetic. Imagine a scenario in which we are at zero across the yield curve. In that situation, might we want to lower the front end of the curve? Maybe. So I think I'm not so ready to dismiss it as enormously costly. We may get dragged there. It might not just be us choosing to go there.

And then, in terms of the balance sheet, I favor flow-based balance sheet policy. I'm more sympathetic to yield curve control, as others have said, in conjunction with forward guidance and in conjunction with specific outcome-based triggers and outcome-based policy. I think the two can work very, very well together.

I would be very interested to see the staff run some scenarios. I mean, be very specific. This is the scenario that we are seeing when we go into this yield curve control. Here are the possible outcomes. Here are the possible problem scenarios and how we get out of it. I think this is very complicated, and I'd like to see some very specific scenarios considering how it can go wrong and how it can go right—just thinking through what are the potential tradeoffs. That would be helpful to me. Thank you.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. Let me be the 15th person to say "thank you" to the staff for the excellent memos. I have found the whole review of our long-run framework to be excellent so far, but many questions remain. And so, for me at this point, it's less about taking tools off the list than about prioritizing their use and figuring out where we might need more study.

And I, like others have said, don't think we were anywhere close or maybe even we can't get to a place where we have a playbook that says, "When this happens, use these," but, rather, we're just evaluating the tools. I might like to see some "tabletops," largely to try to think about policy interactions and where we're going to fall flat, because we don't even have terminology that we all agree means the same thing. I think that's the big benefit in that practice.

While the particulars of our future situations are surely going to be different, and we'll have to be nimble in those situations, the overarching problem remains the same, and that's how best to achieve our mandated goals and deliver on a symmetric inflation target in an era with persistently low r^* and more frequent encounters or near encounters with the ELB. And, as President Kashkari said, this is really about avoiding getting there and then using these when we have to, as opposed to thinking that these are as good, and thus it's okay if we hit it. I think that's really important to emphasize.

As we pursue our objectives, the funds rate, of course, remains our primary policy tool. And next on the list, in my opinion, is forward guidance, which I view as a very well established form of routine policymaking at this point, appearing regularly in qualitative form in FOMC statements over the years and in quantitative form in the Summary of Economic Projections.

This type of forward guidance has proven effective in a range of economic conditions, good and bad—at the ELB, but also away from it. And I thought President Kashkari had it written down here, but I will just say—he already mentioned it—that the actions since December, just with the SEP and our communications and our statement changes, really did change how the mortgage interest rates and the housing market performed well before we did all of the cuts that we had penciled in. I think this is something we know how to use, and we've got practice at it.

So then, under more challenging circumstances such as actually being at the lower bound, I would start with more direct forms of forward guidance as the best and most practical method of reliably providing additional accommodation. And, among the different variants of this type of forward guidance, my read of the evidence favors outcome-based measures, because, as many have said, they automatically calibrate policy in response to incoming economic information. Explicitly linking future monetary policy actions to macroeconomic conditions fosters transparency and accountability and reduces the public's uncertainty about the path of policy. It's really the path of policy that matters the most.

And so, by contrast, date-based forward guidance can be powerful, and it was powerful. But the experience over the past decade suggests that it may create undesirable tradeoffs between policy flexibility and credibility. We really have to do the date-based guidance if we are going to have it be credible the next time we need to use it.

I remain humble about these situations. We are likely to face situations in which we don't have the choice but to use things that we would have low on the list. And so, for that reason, I don't want to have an ex-ante playbook that says we'll never use something, but more just this rank ordering that I went through.

So then, when we turn to episodes when the federal funds rate is constrained by the lower bound but downturns are even more severe and can't be solved with simple forward guidance, I would next turn to balance sheet policies. Although both our experience with, and economic research on, these tools are limited, I think there is little doubt that QE contributed to the recovery of the economy in the aftermath of the financial crisis.

With Governor Quarles now certified by self revelation as an ambassador of its effectiveness [laughter], it will surely be more effective from now on. Still, even with that great endorsement, I think we need to be humble about what we know. As I and others have noted in previous meetings, and President Mester mentioned today, the literature on the effects of balance sheet policy is split between mostly Federal Reserve staff studies that find substantial effects and academic literature that reveals greater skepticism.

That doesn't mean they are right and we're wrong. It just means some caution on this is warranted. So continued study of these effects and any associated conditionality—a financial market crisis in which the markets are very impaired, versus a normal economic downturn—is essential. And this will put us in the best position to activate these policies should another deep recession occur.

On the final tools described in the memo, negative interest rates and yield curve control, more study is truly warranted. Negative interest rates are having mixed results in other countries, as many have mentioned. In the United States there are many intermediaries, such as community banks and money market funds, that would feel a disproportionate effect from these policies. So I am not optimistic that we could just apply them today and we would get the same results that maybe the euro area is getting. But we shouldn't, in my opinion, completely rule them out, because we're in a situation in which we want to never say never. More study and having them at the ready could be important.

Now, yield curve control is, I think, theoretically appealing. It directly targets the asset markets we are trying to influence through the funds rate, so it goes to the rates that we want to influence through the transmission mechanism. But uncertainty about r^* creates risks of misjudging the appropriate target rates, especially as you get out along the yield curve. And achieving yield curve control, by definition, as the staff memos describe, means to lose tight control over the size of the balance sheet. So more research on these tradeoffs is needed, if we are going to have those in our toolkit.

In sum, in a world with low r^*, we will need to be prepared to deploy a range of tools to support the economy. But given the uncertainty about their effects, serious consideration of a monetary policy framework that works to more automatically stabilize the economy by naturally keeping rates lower for longer is warranted. And I think this is something we can do in our long-run consensus statement—and, really, should make a top priority. Thank you.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. On account of the breathtaking number of go-rounds today, I will try to keep my remarks brief. I am told that brevity is a sign of wit. We shall see. [Laughter] I want to add my thanks to the staff. I thought the memos did a great job of summarizing what we know, what we've learned from our experience and the experience of central banks around the world, but also highlighting, importantly, where the uncertainties lie and where the debates are. And I think that was very helpful.

I do think one thing that would be good for us to do is avoid the terminology—and I'm not talking about the briefing, more about the discussion regarding "nonstandard" and "unconventional." I think we should be clear to ourselves and honest with ourselves that forward guidance and balance sheet policies are conventional. They are being used around the world and will be, I think, in any future downturn that we may face. So calling them "nonstandard" or "unconventional" does, I think, put you in a different mindset—how you think about them. And I think the evidence from the experience and research is that these are really just parts of our toolkit.

Again, like many others, I think what we've learned from experience and from the research and analysis is that we do have this playbook or this toolkit that tells us what a lot of options are and different circumstances. And, as many have already said, we can't know in advance what play we'll want to call, given circumstances, so I don't really want to get into the game of trying to say, you know, what kind of forward guidance you would use, what kind of balance sheet policy you will use.

We know, from having been through this, that it really depends on the circumstances. What is important is that we have a playbook. But given that the 49ers are back into a good, strong football team, I'm going to go back to my history of what Bill Walsh did when he was heading the 49ers. He would script the first dozen or so plays at the beginning before the game, preparing what are the best attacks against the defenders, knowing the other team, and knowing that, as the game progressed, you were going to have to adjust that. And I think we should have that same approach. We can't anticipate every circumstance. But we should have a clearer strategy and, I think, articulate that strategy as well as we can, giving information about how we'll use our tools.

I do think—and this is something that I know President Daly and others said—part of this is about helping, even in times when we're not at the lower bound, the public understand how we'll address it, which should add confidence to and support the effectiveness of our actions. So I do think aggressively cutting rates to zero in the face of a downturn or significant risk to the economy is the first.

The second is using forward guidance and perhaps yield curve control—but using forward guidance to really keep expectations of short-term rates out for a few years when we think it's most consistent with achieving our dual-mandate goals and, obviously, using the balance sheet as appropriate. And that's my ordering. And then you kind of get into the issues about what the specifics are. But I think having that clear understanding that that's what our first scripted plays will be is important.

Now, I've heard the words "be humble." I heard President Daly say that, President Mester. I have often been told of the benefits of humility [laughter], but I don't think we should take that approach to monetary policy in the next downturn. We don't want to be humble. We don't want to be timid. We need to be decisive. We need to act quickly, aggressively. We are going to face situations of uncertainty, but we know from experience that the sooner we can get accommodation into the economy—stimulus into the economy—the sooner it reduces the effects of the downturn and gets the economy back on track.

If I go back to what we experienced in the early parts of the crisis and the recovery, if anything, the lesson is, we should have acted more quickly and more aggressively, not the other way around. So I do think one of the challenges for this Committee in a downturn is to cast aside the doubts, the uncertainties, the confidence bands, and the discomfort with some of these actions on balance sheet policy or forward guidance and recognize that it's really the tough decisions, the uncomfortable ones, that are the ones that have the biggest effect.

I remember looking at the use of date-based guidance on August 9, 2011. That was a very contentious discussion in this room, with a number of dissents, and a difficult decision to make, I think, for everybody. That said, it was an incredibly powerful decision—really shifting markets' understanding of what our policy approach was going to be.

I guess I want to end where President Rosengren started with his first question, which I think is the real question for all of us. And my fear is that, as we go through the debate and discussion about date-based versus outcome-based, flow-based, stock-based, that we are actually whistling past a graveyard here. The real issue is not about, are we going to affect short-term interest rate or longer-term interest rate expectations? My expectation, to answer President Rosengren's perhaps rhetorical question is that, if we have a downturn—an actual recession, not a crisis but a downturn—the two-year yield will be zero or negative. We won't need to do anything to accomplish that. We are starting at such a low point. Everybody knows we are going to cut to near zero. Everybody knows we are going to keep rates near zero for a couple of years in that situation, because that's the right thing to do.

So we are not going to have the problem, at least initially, of controlling the yield curve at the short end. I think that is just going to happen automatically. I'm not saying that's good news. I'm saying that's just the reality we're in. I think even at a five-year yield, I would say the probability of a five-year yield being zero or even below zero is extremely high, even without thinking about doing a lot of policy actions.

So I think that, as we think about these tabletops that Presidents Kaplan and Daly and others—Kashkari, I think, commented on, we really need to be real about, what are the scenarios that are harder to handle? What are the realities of what the policy options are? And I'm even feeling that the question we are asking today—Do you think we should use negative rates?—is kind of missing the point. I mean, that's like a decision to cut the funds rate target below zero. I get it.

Yields at 5 to 10 years are most likely going to be negative in a severe downturn, because the term premium is going to be pushed down so low that, even if expected interest rates are above zero, the term premium will draw the actual yields below zero. And we could easily have a negative-sloped yield curve, with all of the issues that we debate about—the effects on bank profitability and things like that.

Maybe these tabletops will help us change our mindset about what the circumstances are. It's not just about, "Oh, do you like negative rates or not?" But really think about the environment of, if you are doing balance sheet policies, you are pushing the 10-year term premium maybe down to minus 150 basis points: A, will that work? and, B, what does that mean for some of these issues?

And, you know, all of these comments I am making are not to be negative or critical of the thought that's gone into these issues. I just think we really need to challenge ourselves about how we would prepare for those kinds of situations. It does reinforce my view, and I think Governor Brainard made this point too, that we really need to keep inflation expectations anchored at target. Every basis point matters. I want to hold on to this precious policy space that we have right now, because if we get into a situation like the euro area or Japan, then all of these issues we are talking about are going to be that much harder. Thank you.

CHAIR POWELL. Thank you. And thank you for a great set of memos and a great set of comments. I think it's all been said and said well. And so I just have a few brief things that I'll share.

On forward guidance and large-scale asset purchases, I agree that they had positive effects at the effective lower bound during the crisis and afterward. As for forward guidance, it clearly does work in circumstances at and away from the effective lower bound. It really depends on the ability to shift expectations. I think President Kashkari's absolutely right that he saw a case of that early this year.

As far as large-scale asset purchases are concerned, I guess I'm a little less sanguine than the memo, and I see that reflected in that very diverse range of perspectives in that broader community of analysts. Nonetheless, I do agree that they have positive—perhaps modestly positive, but positive effects. I also agree that there are synergies between forward guidance and asset purchases. I think we saw that during the crisis. There is an issue, though, that you can run into, which we ran into in 2013—which was complexity. At the same time we had a flow-based QE3 asset purchase program along with complex "knockouts," we also had complicated thresholds for a while there with complicated "knockouts." And it was very common during that period to talk to market participants and have everything be quite confused and to have people really have a hard time understanding it, because some people don't spend 80 hours a week thinking about monetary policy. [Laughter]

A key point, though—and this is where President Rosengren started and many have hit along the way—is these tools worked well in a high-rate environment in which the market assumed that a quick return to normal rates was coming. And there is a quite likely scenario, as we have heard, I think, that rates will go very low. I mean, I can remember way back in the summer of 2019 when the 10-year was at 1.45 percent at a time of 2 percent growth and pretty decent prospects. Nonetheless, I would see forward guidance and LSAPs as absolutely in the toolkit and in many possible forms. I think the actual form will depend heavily on the facts and circumstances at that time. But in this very low rate environment, particularly if rates do drop precipitously, as seems likely, the efficacy of these tools will be questioned.

So that means we move to the next level of tools. I guess I take a more constructive view than some others on yield curve control, particularly in a world in which interest rates are very low at the outset of an effective lower bound, or even before we get to the effective lower bound, long rates may be quite low. I would certainly keep yield curve control in the toolkit. There may be situations in which it may prove useful. At this point, we're looking at tools that we don't "love." You know, it's a little bit like that fourth back operation: It's not something you want [laughter], but it's something that maybe you have to do. The same thing, but to a much lesser extent. I agree with all of the concerns about negative interest rates in our institutional context. It's just really not something we want to do, but I think it gets some sort of tail risk possibility.

In terms of what we would buy in QE, I want to put in a vote for a high bar to reach before buying anything but Treasury securities. And of course, it's not legal for us to buy anything but Treasury and agency securities.

In terms of communications, I think there are three things to talk about. The first is—and John mentioned this just now—we need to communicate that we will use our tools to assure that inflation expectations are anchored in a way that is consistent with achievement of our symmetric 2 percent inflation objective. I think the public has to have confidence in that so that we don't see our policy space being eaten away.

Second, we think we need to communicate the message that we have a range of tools, and that we have confidence that they will work to support the economy in the event of a downturn. And we'll use those tools as appropriate and do so aggressively as appropriate. I think it's quite hard to be very specific about it beyond that.

I would say that there is still a good chance that we will just not have the policy space that we need. And, to echo President Evans's point, I think we'll be pounding the table for fiscal support, because it's quite likely that we'll need it. In fact, I tried to include that in conversations with people on the Hill in a non-alarming way, just to point out that there is less policy space, and the time may come when we don't expect it, when fiscal policy support will be needed.

So, again, thank you for a terrific round of comments. And now we will go back to the Desk report from Lorie, before having lunch. Thanks very much.

MS. LOGAN.[2] Thank you, Mr. Chair. I'll be referring to the handout "Material for Briefing on Financial Market Developments and Open Market Operations." Financial markets were less volatile over this intermeeting period compared with the sharp swings experienced in late summer. Nevertheless, uncertainty about the outlook remained elevated, and markets reacted strongly to incoming information. I'll review these developments and discuss expectations for monetary policy and then turn to money markets and operations.

Overall, although U.S. financial conditions were little changed, on net, shown in the leftmost column in panel 1, offsetting developments played out over two phases, shown in the middle two columns. The first was characterized by concern about weaker-than-expected U.S. economic data against a backdrop of continuing global growth concerns. The second reflected improved sentiment following some attenuation of prominent near-term risks—namely, U.S.–China trade tensions and Brexit. Notably, the disruption in funding markets in mid-September appeared to have little effect on broader market conditions.

Panel 2 decomposes the net changes in Treasury yields over the intermeeting period by aggregating the daily changes according to the main driver cited by market participants each day. Early in the period, contacts focused on signs of weakness in U.S. economic data, shown as the gray area. In particular, the weak ISM manufacturing and nonmanufacturing "prints" triggered much larger declines in the 10-year yield than would be predicted from the historical relationship between data

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

surprises and yield moves. Some market participants reportedly saw the ISM "prints" as substantiating concerns that global headwinds would spill over into the U.S. economy. Later in the period, markets responded strongly to positive news on Brexit and a partial U.S.–China trade deal, as shown in the pink and red areas.

Progress toward a partial trade deal between the United States and China modestly eased concerns about the potential for a sharp escalation of trade tensions. As shown in yellow in the right-hand bar in panel 3, a majority of respondents to the Desk's surveys now think tariffs will remain at their current level, with the additional tariffs scheduled to take effect in mid-December either canceled or delayed. This is a notable change compared with September, when a majority expected trade escalation. However, sentiment regarding trade has often shifted rapidly, and survey respondents continued to highlight ongoing uncertainty.

Market measures of interest rate implied volatility are also consistent with this theme of continuing heightened uncertainty. Implied volatility of short-term interest rates, shown as the light blue line in panel 4, is particularly elevated. Meanwhile, equity market implied volatility, the dark blue line, looks more in line with historical averages. Some contacts have suggested the difference may reflect, in part, an expectation that monetary policy will temper shocks that would otherwise weigh on equity valuations.

In an environment of weaker U.S. data and ongoing uncertainty about the global outlook, measures of inflation compensation remained near multiyear lows in the United States and all-time lows in the euro area, shown in panel 5, although they did tick up some in recent weeks.

In the United States, investors continued to cite downside risks to growth, low realized inflation, and, more recently, declines in some survey-based measures of inflation expectations. In the euro area, growth remains sluggish, and investor doubts persist about monetary policy efficacy. Against this backdrop, Desk surveys and market-based measures point to a high likelihood of a 25 basis point cut in the target range at this meeting. As shown in panel 6, the number of survey respondents whose modal expectation is for a cut at the October meeting increased since the September survey. This adjustment reportedly reflected the weaker-than-expected U.S. data and the ongoing expectation that the Committee will seek to provide a buffer against downside risks.

As shown in panel 7 on your second exhibit, the probability that respondents now place on this outcome is broadly similar to the probability of a 25 basis point cut ahead of both the July and September meetings, though the likelihood attached to the other outcomes at this meeting has shifted to no cut, as opposed to a larger 50 basis point cut.

In looking further ahead, panel 8 summarizes the market-implied and the survey-based expectations for the path of policy. The market-implied path suggests that investors expect around 50 basis points of additional easing by the end of 2020, including any easing expected at this meeting. Meanwhile, the median survey respondent's modal path, shown as the red dots, remains essentially flat after this meeting. As we've discussed previously, the divergence between the market-implied path and modal expectations may, in part, reflect perceived downside risks to the outlook. I'd also note that survey respondents' views are quite dispersed.

Panel 9 plots the distribution of modal expectations across all survey respondents at various horizons through 2022. The median expectation is that, if there were a rate cut at this meeting, it would be the Committee's last over the forecast horizon, as indicated by the gray area that represents just one rate cut from the current setting. But changes in only a couple of responses could have moved the median expectation at most horizons to a lower rate by reducing the gray area and expanding the pink area that represents an additional cut. Moreover, a sizable minority expects a target rate below 1 percent by mid-2020, as shown by the dark red area.

What might explain this dispersion in survey respondents' modal views? We see some evidence that respondents' differing modal policy paths reflect differing views on the outlook. For example, in looking at respondents' expectations for the likelihood of a U.S. or global recession within the next 6 months in panel 10, the average probability of either of these outcomes is lower among those who expect no further cuts beyond the October meeting.

With most expecting a rate cut at this meeting, market participants' focus is on the signal FOMC communications will send about the path ahead. Panel 11 summarizes survey respondents' views. Roughly half expect a downgrade to the characterization of economic conditions, especially household spending or the trend in survey-based measures of longer-term inflation expectations. However, most did not indicate expectations for material changes to the description of the economic outlook or forward guidance in the statement. Several respondents suggested that the statement could signal that further near-term rate cuts are less likely than has been the case following recent meetings. However, many thought the door would be left open to future rate cuts, and several expected the "act as appropriate" language would be retained.

Regarding the press conference, a number of respondents—including both ones who anticipate further rate cuts following this meeting and ones who do not—expect the Chair to emphasize that monetary policy is data dependent and not on a preset course.

On the remaining exhibits, I'll turn to an assessment of money market developments since early October, when the Committee made the decision to maintain reserves at or above the level that prevailed in early September through a program of Treasury bill and repo operations. I'll then discuss the outlook for reserve conditions and risks around year-end.

The October 11 announcement was well received by market participants. The timing was sooner than expected, and participants welcomed the details on the strategy to maintain ample reserves. As shown in panel 12, money market rates moderated, on average, relative to the IOER rate over the intermeeting period, and the effective federal funds rate remained within the target range.

As shown in panel 13, Treasury bill yields fell modestly right after the Federal Reserve announcement but were, on net, little changed at the end of the day.

Since the October 11 announcement, the Desk has conducted regular operations that have offered at least $75 billion in overnight repo funding and between $135 billion and $170 billion in term funding, as shown in panel 14. These operations fostered conditions to maintain the federal funds rate within the target range through two channels. First, they provided funding in repo markets that damped repo market pressure that would otherwise have passed through to the federal funds market, and, second, they supplied more reserves that were distributed across the banking system.

In anticipation of another projected sharp decline in reserves and expected rate pressures around October 31, we further increased the size of overnight repos to $120 billion and the two term repo operations that crossed the October month-end to $45 billion. However, as depicted back in panel 12, despite the significant presence in repo markets, federal funds rates are still higher relative to the IOER rate and more variable than earlier in the year. This may relate to the frictions associated with repo operations that limit our ability to fully offset this pressure. For example, take-up in some operations was below the amount offered even when market rates were well above the minimum bid rate. One reason is that dealers view the expansion of their balance sheets for this activity as costly and appear willing to intermediate from our operations to other participants only if the spreads are very attractive. In fact, there was pressure around the mid-October settlement date, despite term operations being undersubscribed.

With respect to the reserve management purchases of Treasury bills, we've purchased more than half of the initial $60 billion monthly amount for October. The five operations so far were well covered, and the pricing offered by primary dealers was quite attractive.

For now, we expect the initial pace of Treasury bill purchases to be maintained. There are roughly $2.4 trillion of Treasury bills outstanding, and the daily turnover in bills is roughly $85 billion. In addition, as shown in panel 15, the SOMA portfolio currently owns a very small amount of bills and is significantly below the Treasury bill proportion of Treasury securities outstanding.

Respondents to the Desk surveys also expect reserve management purchases of Treasury bills to continue at the same pace for some time. As shown in panel 16, the median Desk survey respondent expected Treasury bill purchases to remain at $60 billion per month through March 2020 and then to decline, reaching $30 billion by June. The purchases have proceeded smoothly so far, but we will continue to monitor the competitiveness of the operations and indicators of market functioning to assess capacity and stand ready to adjust if appropriate.

With that update on our operations, I'll turn to current reserve conditions. The current repo operations and bill purchases are lifting reserve levels above those observed in early September. Panel 17, which we also showed at the July meeting, plots the daily level of reserves and the spread between the effective federal funds rate and IOER, updated with the most recent experience. This chart shows what appears to be a notable steepening in the reserve demand curve at just below $1.4 trillion, and in mid-September, when reserves fell to $1.3 trillion, money market rates became quite elevated, as shown in the highest light blue dot.

What other observations do we take from this experience? Panel 18 gives a brief summary. Some of the significant elevation in the federal funds rate on September 17 reflected pass-through from the extraordinary rate volatility in repo markets. This is a dynamic we've been reporting since April this year although with more limited effects than we saw in September. The sharp moves in rates also occurred against the backdrop of an ongoing decline in reserve levels, though the drop in reserves in mid-September was especially steep and revealed a point at which distributional frictions increased unsecured rates. Although some banks were willing to borrow at high rates to maintain reserve balances, bank lending in the federal funds market increased only modestly, reflecting reluctance to lend in unsecured interbank markets among banks that had surplus reserves. Further, some of the banks that hold surplus reserves consider their lowest comfortable level of reserves as a firm minimum and have expressed to us a preference for maintaining higher balances when possible. When asked about these additional reserve holdings above their lowest comfortable level of reserves in the August Senior Financial Officer Survey, the most important reason banks cited was a desire to hold a cushion of reserves against unexpected outflows. Over time, banks may adjust their reserve management practices to operate with lower levels of reserves, and markets may become more efficient at redistributing liquidity. However, it appears for now that reserves at or above the current level are required to maintain an ample regime.

In looking ahead, at least initially, the repo operations will be an important component for supplying reserve balances above the levels that prevailed in early September. Assuming full take-up at overnight and term repo operations currently offered, reserves would be around $1.5 trillion at the end of October and remain fairly stable at around $1.6 trillion for most of November. This path is indicated as the total area, including both the solid and shaded areas, in panel 19.

There is uncertainty in this outlook, though. For example, it is based on projections of Federal Reserve liabilities, which may change over time. In that regard, I want to provide an update about a planned change in policy for one of these Fed liabilities that may increase reserve levels relative to the reserve forecast shown. In light of the Committee's January 2019 operating framework decision and a desire to reduce operational risk associated with the current pricing approach, the staff revisited the rate used to price the foreign RP pool. As repo rates have increased relative to the IOER rate since 2018, the pricing has become attractive, and usage has increased, as shown in panel 20.

After consulting with the Chair, the New York Fed, authorized as the selected bank, intends to change the rate on the foreign RP pool to the overnight RRP rate, given the significant similarities between the RP pool and overnight RRP facility. This change is expected to be implemented by the end of the year, and the slightly lower rate may result in some modest outflows from the pool over time and corresponding increases in reserve balances.

Another uncertainty in the outlook for reserves is that dealers may not take up all of the repo operations in coming months, as I noted earlier, particularly given balance sheet constraints heading into year-end. The projection using an estimate of take-up based on recent experience is shown as the total of the solid areas back in chart 19. The difference between the solid and the shaded areas suggests that reserves could fluctuate within a range of around $1.45 trillion to $1.65 trillion between now and January.

Potentially lower take-up at repo operations and the generally diminished willingness of dealers to intermediate across money markets in December may result in upward pressure on short-term money market rates. Indeed, forward measures of market pricing continue to indicate somewhat notable pressure around year-end. As shown in panel 21, since September 16, the spread between the implied rates on SOFR and federal funds futures contracts has come down for the contract months before and after December. However, the spread on the December contracts is about 9 basis points, roughly unchanged from its level on September 16. As this spread reflects differences between the expected average SOFR and effective federal funds rates over the calendar month of December, the spread on the year-end date itself could be significantly larger. Using one indicator: Forward starting repo trades for a two-day period around year-end have recently traded at levels of over 3.25 percent.

We will continue to monitor money market conditions closely and will adjust operations as needed to maintain the effective federal funds rate within the target range and to achieve over time a level of reserve balances at or above those that prevailed in early September. Based on our recent experience of bill purchases, we intend to continue with a purchase schedule of $60 billion in bills for now. However, as we approach year-end, we may adjust repo operations further to help maintain the federal funds rate within the target range.

I'll conclude with two operational notes. First, the New York Fed will release next week a request for public comment on a plan to publish a series of backward-looking SOFR averages and a daily SOFR index to support the transition away from LIBOR-based instruments. We expect to initiate publication in the first half of 2020. Second, the Desk will conduct a small-value repo that will settle on a one-day-forward basis, also known as "regular" settlement. Repo for regular settlement has become an increasingly important segment of the repo market, and conducting this exercise should provide assurance that we could use this settlement option should we

> assess it will enhance effective policy implementation. Additional upcoming small-value operations are summarized in the appendix. That completes our presentation, and we'd be happy to take any comments or questions.

CHAIR POWELL. Great. Thank you. Any questions for—

MR. CLARIDA. Yes. Lorie, thank you for the excellent briefing. A couple of questions on figures 17 and 18. Obviously, figure 17—we've seen versions of this chart before. As I recall in some past briefings, we've seen a version of this chart in change-over-change, so the change in this spread versus the change in reserves—this is in levels. So I guess the question is, is that showing similar or different information about potential pressures?

I'll just bundle my questions. The second question is with regard to 18, because I think this is an issue that we're trying to understand. And I went back and reread the surveys, and they were very clear to me. So how do we interpret a bank that tells us that it has the lowest comfortable level of reserves, and now it tells us that it's actually not the lowest comfortable level? The lowest comfortable level of reserves is the lowest comfortable level of reserves plus $40 billion.

MS. LOGAN. Okay. I'm going to take the second question, and Patricia is going to take the first one.

MR. CLARIDA. Okay.

MS. LOGAN. On the survey, we started that process with systematic outreach to the banks to better understand how the organization as a whole was thinking about these issues, and that helped us develop the questions for the survey. And I would make a couple of observations about how we think some of the firms are approaching it. First, I think in reporting the lowest comfortable level of reserves on the survey, they're reporting what they see as the governance minimum within the institution, and that governance minimum is something for which they would take action so that they wouldn't go below that level. But they may decide that if they happen to have reserves above that level, they'd be happy to maintain them and they would not go out and arbitrage using that level above that.

So, for example, if you took a bank that may have reported $100 billion in their lowest comfortable level of reserves and maybe they started the day with $200 billion, they might be willing to arbitrage, bringing that level of reserves down to maybe $140 billion but not the full amount, because they wanted to protect themselves against unexpected outflows. And we saw that in practice with respect to a couple of large G-SIBs.

Second, within the organization as a whole, at lower levels of management, they may add buffers on top of that so that they then don't need to report up to their senior level of management if they were going to go below. As the institution is large and it's complex, it's difficult to know for sure how various trading desks are really putting that information into action. So those are some of the things that I think we saw with respect to the survey, and we can adjust over time in how we're asking those questions.

MR. CLARIDA. Thank you.

MS. ZOBEL. In response to the second question you asked: We showed a chart giving the levels of reserves and the level of the federal funds–IOER rate spread. The staff, both here and in New York, have done a lot of work examining the relationship and changes with analytical models, and some of that was given to the Committee through a technical note that was circulated ahead of the September meeting. Over longer time horizons, what was established is that there has been a relationship between changes in the federal funds rate and changes in reserve levels. Over time, as reserves levels have come down, that relationship has gotten stronger.

In the most recent experience, there's been a lot of volatility, and we are reluctant to look at this relationship over very short time horizons. So I don't know what the relationship is, let's say, over the past 20 days or how that has added to the long-term relationship that has been established through the models.

MR. CLARIDA. Thank you.

CHAIR POWELL. President Kaplan.

MR. KAPLAN. Just two basic questions. You mentioned about the year-end stresses, and that we're going to need to make some adjustments. I'll ask you—just between what we're talking about today on repo as well as the open market purchase plan, do you feel like you have enough fire power or authorization from this Committee to do what you need to do to get us through year-end?

MS. LOGAN. There are a couple of things that we would be thinking about going into year-end. One of them, with the current directive with respect to the repos, is exploring this difference between term and overnight, and we've been learning as we've been conducting the repos about the value that our counterparties place on the term versus the overnight. So we can first look to adjust that mix, and we did that for the October month-end.

The second is that we could consider lowering the minimum bid rate to make the operations more attractive, and that is within the governance that's already been established. We're also exploring this concept of a forward-settling repo. That's a small issue about settlements that we could make, but it could make the instrument a little bit more attractive as well. Of course, we could also bring forward some purchases if we thought that bringing those purchases forward would further support year-end conditions, the ones that have already been authorized. So we could also look to bring those forward.

I think, between upsizing and some changes around the repos, those would be effective tools. The only other thing that we have that we're watching is with respect to the purchases of Treasury bills and whether we may need to make adjustments to the composition. If we did, that would require a governance change. As I discussed today, I don't think that's necessary at this time.

MR. KAPLAN. And just one follow-up: I gather we're having discussions that are, obviously, at the desk level, middle-management level. Are we having discussions at the senior management level? Because I'm thinking of past situations. And I'm not worried about next year yet, I'm just thinking about getting through year-end when we're talking to the CEOs of the four or five largest banks, just so that they're constructive in doing what they can to help us at least through year-end before we worry about the tax payments date in April. And if you'd rather not say in this way, I understand, but—

VICE CHAIR WILLIAMS. What do you mean by "constructive"? [Laughter]

MR. KAPLAN. In the past, having sat in those seats, when you get a call from the Fed or from Treasury who say, "We're concerned about 'blank.' Would you—?" Their reaction function at that level versus midlevel and desk level is a very different reaction function, where at this level, our attitude was always we're going to try to be constructive, even if it's not completely in our economic interest—we're going to try to do what we need to do, because we got a phone call.

VICE CHAIR WILLIAMS. We are actively engaging in all levels of the organization.

MR. KAPLAN. OK, good. That's all I need to know.

VICE CHAIR WILLIAMS. They seem to think that they want to be constructive as well, by the way. [Laughter]

CHAIR POWELL. Just to offer something, which is in terms of buying other short-term securities, short Treasury bonds. John, I think, has mentioned that as a possibility, and we've always said, "Of course, we're willing to adapt." So I think if we've said that, it's out there. And I think, if we have to do it, then it won't be a big surprise. It won't sound like some huge change. President Daly.

MS. DALY. I don't know if you'll be alarmed or pleased, but I was reading the reserve conditions report for research directors in detail, and I noticed that the number one reason given for excess reserve demand over the comfortable limit was this concern about unexpected payment outflows. I just have a question. Why are they so confused about their payment outflows? They're large institutions. So what's the unexpected part in this? Is this always something they've had but now it's solved with reserves, or is it something new that we should take some other kind of signal from?

MS. LOGAN. As we discussed, I think that has been a big theme that we've been hearing through the systematic outreach. But it came out clearly in the last survey, because we asked specifically about it. I mean, I think a background factor in the way they're thinking about the deposit outflows reflects their views about daylight overdraft and the discount window to some extent, because the concern is really being left short at the end of the day.

And I think some of those issues existed pre-crisis, but they're really much more prominent post-crisis, and I think that, plus the risk-management experience and the value of liquidity generally that the senior management encourages within institution, leads to a very low risk-tolerance perspective with respect to their liquidity position, which also has many benefits from a financial stability perspective as well.

CHAIR POWELL. Thanks. President Rosengren.

MR. ROSENGREN. A comment on reserves, and then a question. When I talk to large banks, the number of capital ratios and liquidity ratios—and when you try to do a linear programming problem for the number of capital and liquidity ratios we have, that's not particularly straightforward. And just—the large institution in my District argues that they have a tough time figuring out which of the various curves at various points are binding and which ones aren't.

So the logical reaction to the complicated regulatory structure we have is that you build in buffers. And if you don't want to be close to the line, I guess I have less confidence that over time we're going to see these buffers go down unless we go through a major change in how complicated our regulatory structure is, which may or may not happen. I don't see it happening quickly. I guess I'd be less confident that the level of buffers over time would move.

The second, which is a question, is a question on your chart 2, "Changes in U.S. Treasury Yields over the Intermeeting Period by Driver." And so I'm looking at the gray bar, which is U.S. data, and at the two-year it has—I don't know, 35—somewhere between 35 and 40 basis points. And then I look at the forecast in the Tealbook, which had the second half of the year go down 0.2 percent, and that seemed pretty consistent with how the private-sector forecasts viewed the incoming data. So how do you square the very large movements in Treasury security movements to data with the fact that almost all of the forecasters have not changed their forecast very much at all? So should we be concerned about our forecast? Has the world become very sensitive to very small changes in outlook? How would you square that? Because I find that gray bar seems oversized relative to the movement of the forecasts.

MS. ZOBEL. I think what we saw over the intermeeting period were two effects at work. I think there was some data that people perceived as substantiating a slowdown in some sectors of the U.S. economy on a current basis, related to what they saw as maybe the effects of trade. And this was something that they reacted to. The reaction in markets was stronger than the reaction that we normally see for a surprise of that size.

But I think you also saw some offsetting effects, which were related to the fact that some of the risks to the outlook diminished a little bit. For example, there's modestly more positive sentiment regarding China trade negotiations, and there was a little bit of a reduction in the tail risk associated with a Brexit event, as well. So I think the offsetting effects to the current and the expected resulted in little net change over the period.

CHAIR POWELL. President Mester.

MS. MESTER. This is a question for Lorie—back on reserve levels. I think I heard you say that in mid-October we still had pressures, but the offering was undersubscribed. So can you give me a feel for why that was? And then, why was it undersubscribed if there were these pressures? And does that—should we infer anything about the effectiveness of these repo operations to actually help us control some of the spikes?

MS. LOGAN. And some of the counterparties that we transact with have indicated that the balance sheet cost of conducting repos are quite expensive, given some of the regulatory measurements that they use internally for balance sheet usage. And so if the spreads between what they take the repo from us and then lend to others is not sufficiently wide, then they will not take down the operation and intermediate. Even if the market spread is wider relative to the minimum bid rate that we see, if the full distribution of rates is not wide enough, we might not see that full take-up.

Now, they're also taking down their repo operations because the rates are lower than maybe they're receiving on the transactions that they're borrowing for, so—their own funding needs, not what they are doing to intermediate. And we see that sometimes they won't even substitute between the lower rates, because they want to maintain that relationship with the private-sector counterparty that's really going to be important for them over the long run, knowing that the Federal Reserve's intention is not to stay in these repo operations.

Both of those frictions are going to limit the full effectiveness of the repo operations for achieving the two objectives that we set out to use them. Now, overall, they're performing quite well. It's just not the perfect pass-through that we'd like to see.

MS. MESTER. And does that mean, then, if we do come to some agreement of how we're going to handle this on a more sustained basis, that that would alleviate one of those frictions?

MS. LOGAN. The key thing we're focusing on is building up the securities holdings, because the repos in the securities are not perfect substitutes. And so we're trying to be really focused on that pace of the bill purchases to build up the underlying level of reserves. And then, some of the things that I mentioned earlier to the question from President Kaplan are that there, are some smaller things that we might be able to do and adjust the repos to make them a little more effective with respect to that pass-through, so we're looking at the settlement. And then this balance between term and overnight, and which one is more attractive for the counterparties, for the pass-through, or their own funding, is something that we are continuing to learn. And this week, with the month-end term transaction we did today, and what we see in the overnight on the month-end, that will give us some more information that will help us structure the repos for the year-end.

CHAIR POWELL. Vice Chair Williams.

VICE CHAIR WILLIAMS. Yes. I agree with everything Lorie just said. I think that the angst that we experienced was that even though we were doing a huge amount, offering a lot of repos, we saw the funds rate trade at, I think, 1.9 percent, at a point when you're thinking, that's actually pretty steep relative to the IOER rate, given how much total reserves—so I think, just at a very basic level, clearly having roughly $1.45 trillion to $1.5 trillion total reserves in the system is helping keep the funds rate in the range.

What it's not doing is getting that relatively low level and low volatility that you would expect at that level of total reserves. Just to reiterate what Lorie said: These aren't perfect substitutes, and our expectation is that as the level of underlying security holdings continues to go up, we're going to see something like in chart 12 that looks more like what we saw in the summer when the funds rate trades were relatively close to—a little bit above—the IOER rate. It doesn't move around as much as we've seen recently.

And right now, we're actually in a "sweet spot." The amount of reserves is kind of high enough that the funds rate is trading closer to the IOER rate. But that's the not-perfect-substitutes part that—and, you know, when you're sitting there and you're watching the screen come up and, is it going to be 1.90 or 1.93 or 1.95, with each basis point getting closer to the top of the range—it's definitely at least a quadratic loss function. [Laughter] Thanks.

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

VICE CHAIR WILLIAMS. So moved.

CHAIR POWELL. All in favor? [Chorus of ayes] Approved. Thanks very much. We will now take a 45-minute lunch break. And the reason is, we have a lot more to do today. It's a long day. So I'll see you at 10 minutes of, by that clock.

[Lunch recess]

CHAIR POWELL. Thank you. Our next agenda item is a review of the options for repo operations to support control of the federal funds rate. It is a timely discussion. It'll be a thoughtful one. It'll be succinct, I hope, but it will not be decisional. So let's get started with staff briefings from Patricia Zobel and Laura Lipscomb. Over to you, Patricia.

MS. ZOBEL.[3] Thank you, Mr. Chair. I will refer to the handout on repo operations. From the experience in September that Lorie described, we learned more about potential shocks to money markets and the effectiveness of repo operations in restoring calm and maintaining the effective federal funds rate within the target range. Repo operations are currently an important part of maintaining reserves above the level that prevailed in early September and mitigating the risk of money market pressures. Plans have been announced for repo operations through the end of January, and reserve management purchases of Treasury bills are ongoing and will, over time, build up levels of reserves more permanently.

The staff memo discusses options for the Committee to consider should it wish to maintain ongoing repo operations after January. Ongoing repo capacity could complement a regime with ample reserves by providing insurance against pressures that may unexpectedly emerge in money markets, putting upward pressure on the federal funds rate. These could occur through spillover from other funding markets or other unexpected shifts in the demand for or supply of reserves that affect the federal funds rate more directly. As levels of reserves rise, the probability of such pressures may diminish, and at higher levels of reserves, the likelihood of these pressures affecting the federal funds market may become quite low. So the extent to which the Committee values this insurance is, at least in part, related to the ultimate level of reserves it wishes to maintain.

As the FOMC considers how ongoing repo operations fit into an ample-reserves regime, lessons drawn from the recent experience could inform the design of such operations. I will discuss three main lessons before turning it over to Laura to talk about options and some associated policy considerations.

The first lesson and, most importantly, our recent experience with repo operations demonstrated that they are effective at restoring calm in money markets and

[3] The materials used by Mses. Zobel and Lipscomb are appended to this transcript (appendix 3).

maintaining control over the federal funds rate. This was not a foregone conclusion. We had not operated in repo markets for over 10 years before September, and dealer business models have changed markedly over that time. What we found, though, was that dealers were willing to engage in these operations, and the transmission to money markets was very good. Repo operations provided additional funding to dealers, reducing pressures in repo markets that were passing through to the federal funds rate. In addition, the repos added reserves. We found that these reserves were distributed across the system, easing pressures on banks whose reserve balances had fallen close to their lowest comfortable level of reserves and that were borrowing at elevated rates to maintain reserve levels. Overall, the operations were effective at maintaining the federal funds rate within the target range.

Nonetheless, as a second lesson, we also learned that determining when to introduce repo operations and calibrating the size and rate of those operations to appropriately meet the policy objective can be complex. Operating once pressures emerge can appear reactive and requires larger operations to restore confidence. The Desk has the ability to move quickly; however, money market events are not always predictable. In September, the sizes of the tax payment and Treasury settlement were not exceptional, and forward rates suggested that market participants expected a typical amount of pressure on that date. However, the reaction to these events was really extraordinary. This degree of pressure was not really foreseeable.

Calibrating the parameters of operations is also difficult and requires discretionary assessments. Our operations have been well received. However, as shown in figures 1 and 2, some of the operations have been oversubscribed, as we were not able to fully anticipate the amount of funding demanded on particular dates. As Laura will discuss, standing operations reduce the need for these discretionary assessments; however, they have other costs that the FOMC may also wish to consider.

Finally, as a third lesson, through this process, we discovered some limitations to repo operations. In particular, we find that primary dealers are sometimes reluctant to take up in full the Desk's repo offerings and intermediate to other money market segments unless the spread to market rates is wide. This lower take-up can, at times, limit the effectiveness of operations at damping upward pressure on rates, particularly around settlement and reporting dates when there's higher volatility in money markets. In fact, on the midmonth settlement and month-end dates, we've continued to see elevated rates and higher dispersion in traded rates, despite having operations that were sometimes undersubscribed. These frictions may be a factor heading into year end, as Lorie noted, and are something we are watching.

Overall, our assessment is that repo operations are really quite effective. However, discretionary decisions regarding when to act and in what size can be difficult, and there are dealer balance sheet constraints that create some limitations. With that, I will turn it over to Laura to share options for ongoing repo operations informed by this experience.

MS. LIPSCOMB. Thank you, Patricia. Building on the lessons drawn from recent experience that Patricia discussed, the memo provides two different approaches to how repo operations could be used in the future to support control of the federal funds rate. As noted by Patricia, we expect that, as bill purchases accumulate, repo operations will be much less necessary to support control of the federal funds rate and provide reserves. But repos could still be important in some instances.

The first approach would be to conduct modestly sized operations on an ongoing basis. This approach would maintain a high degree of operational readiness as well as a high level of Federal Reserve discretion. The Desk would still need to determine when and how much to ramp up operations to address money market pressures that could spill over to the federal funds rate. The second approach would be to offer a standing repo facility to provide an automatic backstop to market rates and a means of supplying reserves. These two approaches result in different tradeoffs and policy considerations.

First, I will address how the two different options provide different levels of assurance of control of the federal funds rate. A standing facility with a large offering size at a rate modestly above the top of the federal funds target range would provide strong assurance that repo market volatility would be contained and not pass through to the federal funds rate. The facility could provide an automatic stabilizer, providing funding and reserve balances when money market rates rise.

In contrast, frequent, modestly sized repo operations would have less ability to automatically stabilize rates. But, with more of an ongoing presence in the repo market, the Desk and its counterparties would be more ready to act if pressures emerged than was the case in September. Nevertheless, the Desk would need to anticipate and calibrate operation terms to perceived funding needs or needs for reserves—which, as Patricia discussed, has proven challenging. This approach would retain a greater degree of Federal Reserve discretion but could also require greater acceptance of variability in the federal funds rate, all else being equal.

The second tradeoff I will discuss is the degree to which operations may become stigmatized and thus be less effective for rate control. A standing facility with a minimum bid rate well above the federal funds target range would likely see little use on most days and thus have the potential to become stigmatized. Stigma could be mitigated by a lower minimum bid rate, but this rate setting would incent more frequent and larger usage.

Figures 3 and 4 of your handout depict the distribution of repo and federal funds rates relative to the IOER. The repo rates at which our counterparties, the primary dealers, typically borrow is represented by the blue area, labeled TGCR, which is the triparty general collateral repo rate. As shown in these figures, most TGCR repo trading is conducted at rates relatively near to the IOER on normal trading days, but the distribution of repo rates, including TGCR, becomes much more dispersed and goes well above IOER on month-ends. One means to mitigate stigma on a standing facility would be to set the rate at a level where the facility would be likely to be used at least occasionally by at least a few of our counterparties.

Frequent but modestly sized repo operations could have a minimum bid rate closer to the IOER rate. The Federal Reserve's role in the repo market would be limited by the smaller size of these operations, but, with the minimum bid rate closer to the IOER rate, using the operations would not be stigma inducing. With regular operations, the Desk might be able to see signs of emerging pressures if these operations began to see higher stop-out rates and higher bid-to-cover ratios. If the Desk needed to ramp up the size of the operations based upon judgement that the volatility in repo might spill over into federal funds, participating in the operations in size would be unlikely to be seen as a signal about an individual firm's funding strains.

Lastly, we wanted to point to a few broader policy questions associated with providing a backstop facility and offer some means to manage concerns. A standing facility would represent a commitment to expand the Federal Reserve's balance sheet and provide liquidity at the discretion of the counterparties chosen, currently primary dealers. As you know, the Federal Reserve has a long, pre-crisis, history of using repo operations with primary dealers to conduct open market operations. A standing facility would be different, however, because it would allow the dealers to access liquidity at their discretion. Although the eligible collateral and the time of day would be constrained, this offering would have some similarities to the discount window, which is available only to banks. The standing, fixed-rate nature of the facility may lead some to argue that the facility appears akin to a lending facility for dealers. Moreover, the facility could create incentives for dealers to take on more liquidity risk in their securities portfolios if they knew they had a set rate at which these securities could be monetized.

The Federal Reserve could mitigate the policy issues associated with a standing facility through the parameters on the facility. As an open market operation, a standing repo facility could, at the maximum, only accept OMO-eligible securities, which are Treasury securities, agency debt, and agency MBS. But eligible collateral could be further constrained—such as, for example, to only Treasury securities. In addition, per counterparty maximum allocations and overall operation size could also be limited, which could partly address concerns about the commitment that the facility would represent.

In conclusion, we have provided some perspective on how repo operations have been important in recent weeks in keeping the federal funds rate in the target range. We expect that in 2020, repo operations will not be needed in the same way. Yet recent events have pointed to how repo operations have effectively addressed market pressures. In light of this experience, the Committee may wish to incorporate repo operations in some way into the implementation framework of an ample-reserves regime. Questions along those lines were sent to the Committee ahead of the meeting, and we are happy to take questions.

CHAIR POWELL. Thanks very much. Questions for Patricia and Laura? President Harker.

MR. HARKER. I have a somewhat odd question. We are committed to an ample-reserves regime, but I think it's worth—at least at some point, maybe not now—asking ourselves, if and when we implement a standing repo facility, are we reducing the complexity that we sought to reduce by having a floor system? And if the answer to that is "no," then should we revisit a corridor system? I don't have the answer to that.

But, really, the question is, is that just dead? That is, we're never going to go back. That's a possibility, right? We can just never go back to a scarce-reserves regime. That's possible. But I guess what I'm worried about—and, again, not right now— if we're not getting the benefit of the reduction in complexity, is it worth it? And I'd just like to hear your comments on that.

I don't have an opinion on that, by the way. It's just an honest question.

MS. ZOBEL. One of the things I would note is that a standing repo facility is used in most settings.

MR. HARKER. Yes.

MS. ZOBEL. Even in floor systems, they have a standing facility just to be a backstop for rates for unexpected pressures like we're talking about here. Most regimes that operate with floors have that. But also, on the issue of complexity, one of the things we highlighted when we had the discussion about different operating frameworks early on was, it wasn't just that you had to have some form of temporary open market operations. A corridor regime requires you to be able to very precisely estimate and manage the supply and demand for reserves, and that, in and of itself, is quite a complex exercise.

I think the options that were being offered today were more consistent with an ample-reserves regime, where we would be maintaining an ample level of reserves such that administered rates were still providing the means of control. But there would be a facility or standing repo operations just as a backstop for that.

MR. HARKER. Yes. So, again, I'm not advocating going away from the ample-reserves regime. I do think, as we go down this path, we should at least have, in the back of our minds, that there is a potential alternative to it if things don't work out the way we anticipate.

MR. LAUBACH. If I can add: I think one issue of complexity that's specific to the U.S. context—and, for example, not present I believe in, say, the ECB's context—it's a legal distinction between depository institutions and primary dealers. That just creates, inherently, a lot of complexity, because of what is written in the law. The ECB doesn't have to wrestle with that distinction.

MR. HARKER Thank You.

CHAIR POWELL. Further questions? President Kashkari.

MR. KASHKARI. Just a quick follow-up: Do you have a sense of administering a standing repo facility? I mean, I get the concept. But, operationally, what will it take—when I picture the two alternatives, one alternative is a bunch of smart people at the Desk running around with a fire hose every once in a while, using judgment and opening up the fire hose, which is not that attractive, in my view—no offense. The other alternative is this automated backup facility, which sounds very elegant and very slick. How elegant and slick would it actually be in practice?

MS. ZOBEL. Currently, we're operating a standing operation, which is the overnight RRP, which we conduct every day, and that takes real people to open up the operation, conduct it, and then settle it as a normal operation. Operating a standing repo facility would probably be of the same operational intensity. I don't think it would add meaningfully to the staffing or the operational intensity of our group. It is one more operation, but we conduct a lot of operations every day.

And in terms of how you would transition to it—so, for example, right now we currently are running repo operations every morning. You could imagine, if the Committee were to choose either one of these options, that there would be a transition path from these current operations to something that looked a little bit more like the ultimate choice that they made. And then, after that, it could be refined. Certainly, there are other aspects of this—of a standing facility or ongoing operations, improvement opportunities that you might have over how we're doing it in an existing fashion, and those could be implemented over time.

CHAIR POWELL. Thanks. Okay. If no more questions, why don't we move to our opportunity for comment, beginning with Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. I would like to thank the staff for the collaboration that has gone on not only in preparing these briefings, but over a long period of time thinking through these issues. We had a memo in June. Obviously, there has been a lot of work on this. I just want to make a couple of points. They've already been covered by Patricia and Laura in their remarks, but I think it's just good for us to remember them when we think about this.

First of all, we are not currently operating what I would think of as the ample-reserves regime. We have a shortfall of something on the order of $175 billion to $200 billion relative to what we think ample reserves are and our term or overnight open market operations are filling that gap currently. We are buying the T-bills, and, over time, as in the chart that Lorie showed, chart 19, the reserve balances chart—which I think is a really nice summary of where we are and where we're going—we will get to what I would call a true, ample reserves place in terms of having permanent holdings of securities supporting the level of reserves without OMOs necessary to have the right amount of reserves.

When you think about some of the ways we're operating today, they are really more of just adding reserves. So the pricing is at the IOER rate or something equivalent to that for the term OMOs, and it's really doing a different thing. We're injecting reserves into the system. It's not a backstop. I think everyone knows that, but I think it's important to keep that in mind.

When I think of what an ample-reserves system looks like—and we have discussed this and debated this thoroughly, and I think have come to a strong agreement on that—an important feature of an ample-reserves framework is that success is defined by the not needing to do or, I would say, repos would only be an infrequent element of that. In fact, I would say that repos are not absolutely necessary for an ample-reserves system to work well. So if you look back at how things worked up through this summer, we weren't doing repos. The amount of reserves was enough that the movements in repo rates—which is a private market—happened, depending on conditions on a given day. That didn't really affect the federal funds rate in a meaningful way. So I would view success in ample reserves as not only that we do not absolutely need repo operations oropen market operations, but even in if they were used, it would be infrequent.

That gets me to really thinking about the options we're talking about. So this isn't absolutely necessary. It would be used very infrequently. However, I have lived through the past six weeks, and unexpected things can happen, things that nobody saw coming, and that did call into question whether our ample-reserves framework, as we designed it, was actually working—questions about, "Do we have effective control over the federal funds rate?" In a way, a panic broke out, especially on Tuesday morning. And given that as we move forward in the ample-reserves regime over the next several years, we are going to encounter changes in the structure of financial markets—changes that may change what is the appropriate level of reserves in unpredictable ways.

We may, again, despite our best efforts, find ourselves in situations in which market stresses developed, and the federal funds rate was at risk of being pushed out of the range, like we saw in mid-September. That does argue, at least from my point of view, that we should be thinking seriously about a backstop that is available in a consistent and predictable way that can provide that benefit of interest rate control when the unexpected happens. Now, I would not see this as a facility or an approach that would be targeting repo rates directly, but it would really be there as a backstop to the ample-reserves regime and focused on federal funds rate control within the range. It does leave a lot of questions about counterparties, pricing, quantities, the issue of "How do you avoid stigma?" These are the issues that we have talked about in the summer that we are talking about again now, and I think we do need to think through all of those things.

Now, one piece of good news here is that we are currently still operating repos, as Patricia pointed out, every single day, along with many, many other operations. And I think that that gives us some time as we transition from where we are today into the first quarter of next year where we actually, according to figure 19—I know I'm told that there should be error bands on these charts, but just taking the point estimates is—the first quarter of next year we will be operating in, at least for most of the quarter, the ample-reserves regime. And we can use that time to actually develop, along the lines that Patricia I think just mentioned, a transition or learning—more importantly, learning—about how our overnight repo operations would work in one of these future—maybe backstop— ways. So we could move the pricing up from currently at the interest on reserves up to at or slightly above the target range, change some of the other parameters to make it more of a backstop, and presumably it would only be utilized on specific days—end-of-month, end-of-quarter days—where there were large payment flows or other developments.

So I think we'll get that chance over the first few months of 2020 to learn more about these parameters and details about how that will work, and we should use that opportunity. And, again, I don't see any need to make any specific decisions at this point, but I do think that we should, as a Committee, be prepared as we get through the end of the year and move into early next year to really use that as an opportunity to learn more about how, in the ample-reserves regime, to design a backstop repo facility, if we choose to do that. Thank you.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. I also want to thank the staff for the memo and the briefing that lay out some of the options we have for conducting ongoing repo operations to support controlling the funds rate. Ensuring that the federal funds rate remains in the target range is important. Now, some of the volatility in the funds rate at year-end should be expected—and shouldn't be viewed as a lack of interest rate control, any more now than it was under the pre-crisis operating framework. Missing the target repeatedly is cause for concern, and we should put mechanisms in place to prevent this.

One option is to have the Desk do regular ongoing repo operations, setting a dollar volume that could be ramped up on a discretionary basis if needed. The other option is to have the standing repo facility setting a price somewhat above the top of the federal funds target range, which would serve as an automatic backstop that would help limit volatility. I agree with Vice Chair Williams that, given our experience in mid-September, I would prefer we explore setting up a standing repo facility. The Fed knew corporate tax payments and settlement of Treasury options would put upward pressure on money market rates, but the magnitude of the volatility in the rates in mid-September caught us by surprise. The repo operations were successful, but conducting them after the volatility emerged did not instill confidence. Regularly scheduled interventions by the Desk would help, but estimating the appropriate size of the operations needed to limit volatility may be complicated, especially around quarter-ends and settlement dates.

I think a standing repo facility would likely be more effective by setting the price and allowing the quantity to vary automatically with market conditions. Of course, both methods involve the Federal Reserve intervening, but if one of the intentions of the ample-reserves regime was to avoid frequent interventions by the Desk to achieve interest rate control, the automatic backstop characteristic of a standing facility has some appeal, because it would likely mean the Desk would need to intervene only in exceptional circumstances, depending on the parameters that we set in the facility.

Now, the facility does have some drawbacks: It would mean that the Fed would be playing a larger role in money markets in normal times, thereby crowding out private-sector intermediation in the repo market, and the Federal Reserve's balance sheet would become more volatile. The take-up of the facility could be quite large at times of market stress or when a large firm faces a large liquidity need. Of course, the offsetting benefit is better interest rate control.

But there's also another potential benefit that I think we're supposed to be talking about at a later meeting. If banks knew they could pledge eligible securities for reserves when needed with the Fed as counterparty, they might actually reduce their precautionary demand for reserves. If so, that would lower reserve levels and the size of our balance sheet, which might give us greater capacity for doing quantitative easing at the ELB, especially if the public's concern about the size of our balance sheet places some limit on the usage of this tool.

Of course, decisions would need to be made about this facility's design, including the pricing, the set of eligible counterparties, and eligible collateral. A higher rate above the funds rate target would mean the facility would likely be used less but at a cost of less interest rate control. If you look back at September, if you had a facility with a rate 25 basis points above the top of the funds rate target range, you would probably likely have seen significant trades only in the days around September 17. So that might be a starting point for pricing to think about. To limit counterparty risk, you could start with maybe those firms that are eligible for the reverse repo program, and for collateral, you might want to restrict it to Treasury securities or perhaps add Ginnie Maes, which count as Level 1 high-quality liquid assets under Basel III.

Further work is needed to nail down these design parameters. And, as Vice Chair Williams said, we're going to learn a lot as we get through year-end and see what our experience is. As we do that, this might also be a good time to give serious consideration about what interest rate we should be using to communicate our policy stance. We last discussed this issue almost a year ago. The federal funds market is unlikely, in my view, to return to the robust market it once was. The overnight bank funding rate is one possibility for communicating our policy stance. But, if we do set up a standing repo facility, the Treasury repo rate is another possibility worth considering. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. I see little advantage to following a strategy where we will routinely face challenges keeping the funds rate within our target range. Choosing an operating procedure that allows significant interest rate volatility has cost to market participants and their willingness to hold inventories of securities, raises questions about liquidity requirements, undermines our desire to move to SOFR, and can cause the Federal Reserve reputational damage. If we define ample reserves as the reserves necessary to avoid market interventions, including most end-of-quarter and tax payment dates, the Desk should continue purchases until we have built a sufficiently large buffer of reserves to minimize such disruptions.

My first choice would be to continue growing Treasury bill purchases to reach a stock of reserves that is consistent with this definition of ample reserves. Over the past decade, we experienced almost no shortages of reserves until the past year, which suggests we can avoid shortages quite simply by holding more reserves. An additional benefit is that this sidesteps some of the difficult decisions regarding potential tradeoffs associated with the modest-scale repo operations and the standing repo facility. For example, with my preference for sufficiently ample reserves so that regular repo operations are not necessary, there is no concern about crowding out the private-sector repo market, and the problems associated with the various frictions in reserves going from primary dealers to others in need of additional reserves are mitigated. Although my preference would be to make available ample reserves so sufficient that we almost never needed to undertake emergency repo operations, surprises do occur—as the recent episode makes clear. Thus, we need to be prepared by having a "Plan B" ready to go.

My second choice would be to have a standing repo facility, because it would operate as an automatic stabilizer whenever needed. One concern that I have with the memo is that, under its proposal, such a facility is restricted to primary dealers only. One lesson that we learned from the recent episode is that repos with primary dealers may have to overcome frictions in the system to get the reserves to the entities that need them. Thus, I would be in favor of expanding the set of counterparties to address such frictions.

My least favorite option is the modest-scale repo proposal. I'm particularly worried about the suggested small-value operations during normal times. Although they might be effective in identifying glitches in the system, I am not sure that they would provide adequate information about the effectiveness of large-scale repo operations during a stress event. As we recently observed, our repo operations did not go as smoothly as one would have hoped, given the frictions that were not fully anticipated.

In summary, I expect that if we expand our reserves sufficiently, the need for a standing facility is likely to be significantly reduced. As a result, I am not sure we need to put in place a standing facility now, although we should be gathering information and preparing the technical system required to activate such a facility in the future, if necessary, either because shocks are larger than we anticipate or because of political pushback against the size of our balance sheet. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. I am supportive, as others have said, of growing our reserve level, because we may have unwittingly stumbled onto the level of reserves at which we're uncomfortably close to entering a corridor. That said, I am a little bit puzzled—we're actually experiencing this at close to $1.5 trillion in reserves, and I am suspicious about the fact that regulation implicitly or explicitly may be hindering the flow of this liquidity as well. So it may not necessarily be a question of the absolute level of the reserves but some other frictions, as President Rosengren put it, that are inhibiting this market right now.

That said, I am supportive of a standing repo facility. I think it's a good idea. And such a facility would likely enhance rate control, and rate control should be our primary concern. Now, by control, in line with what others have said, I don't mean absolute control. Occasional spikes in the funds rate should not be much of a concern, as long as these deviations are not large enough to, say, drive the weekly funds rate averages outside the target range. Before the crisis, rates often spiked at the end of reserve maintenance periods, and those episodes were, at that time, of little concern.

I prefer the standing repo facility to regular Desk interventions, because the size of the necessary intervention will generally be uncertain. I also have to commend the Desk for their admirable performance in maintaining market confidence in our ability to control the funds rate. We've just gone around our District and met with the banking community, and I think the banking community in the District is uniform in expressing confidence in the Fed and particularly the Desk's ability to effectively manage the federal funds rate. So I find it acceptable for repos to be carried out on a regular basis by the Desk, but my overall preference, again, is for a standing facility. I believe we are the only major central bank that does not have such a facility. And as others said, designing the standing repo facility will take considerable care, but it's clearly a manageable undertaking. I mean, this is something we can do.

There is a need for the rate on such a facility not to be so high as to engender stigma and only occasional use, but not so low as to displace intermediation by the private sector. Finding the appropriate spread may take some experimentation, as, again, others have said. Frequent use should minimize any stigma that could be associated with the facility. I also favor, as President Rosengren said, allowing banks to access the facility, because doing so would make the control of the funds rate more direct. I understand that allowing every bank to access the facility individually would be too tall an order. But we could allow institutions that directly or indirectly manage reserve balances, for example above some established threshold, to access the facility.

That would allow smaller banks indirect access and larger banks direct access. As well, moral hazard considerations make individual caps desirable. Individual caps would also help ensure the continued viability of private overnight markets, as the facility would not be available to fill all the bank's funding needs all the time.

To sum up: My primary concern is funds rate control. With that in mind, I'm in favor of a standing repo facility that is open to banking institutions that manage a threshold level of assets and to setting rates that make using the facility a regular occurrence but that still allows for a vibrant, private overnight market.

The last thing I want to say is, in meeting with my discount window team, they made an interesting observation that President Kashkari has been leading an effort to think about removing stigma in the discount window. And there's a statement that I think is on the shelf, for reiterating our commitment to those facilities, and I would also include in that daylight overdraft facilities. If—and I would say, when—we implement a standing repo facility, assuming that's the case, we might want to think about the communication that is not just about that facility, but all the facilities that the Federal Reserve provides. Because it still is a bit of a mystery that, particularly with something like daylight overdraft credit, that people aren't accessing that, particularly the midtier to smaller institutions. And so I think just making a communication effort about all the facilities we have would be a useful step. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. I'd like to also thank the staff for preparing this thoughtful background memo on repo operations. The Committee's long-run monetary policy framework entails use of a floor system. We want reserves to be sufficiently ample to drive our policy rate near the floor of our target band for the effective federal funds rate. At the same time, we do not want reserves to be arbitrarily large. According to our 2014 normalization principles and plans, the Committee intends to hold no more securities than necessary to implement monetary policy efficiently and effectively. As recent experience has shown, estimating the size of this ample-reserves level is a challenging task.

One approach to mitigating liquidity events in money markets is to expand the SOMA together with the buffer stock and then rely on discretionary OMOs to accommodate episodes of reserves scarcity. Another approach—and my preferred approach—entails replacing discretionary OMOs with the standing repo facility. This would be consistent with the best practices of other central banks. Establishing a standing repo facility would meet an international standard in central banking. We would also be consistent with our own practice of establishing interest rate control in part through the overnight reverse repo facility. In my view, a standing repo facility should include a broad set of counterparties including, at the very least, depository institutions and primary dealers and, at most, all the counterparties that presently have access to our overnight reverse repo facility. The set of eligible securities should be limited to high-quality liquid assets or possibly even to just Treasury securities. The lending rate should be set at or just above the top of our policy target range.

I see two main benefits of a standing repo facility designed in this manner. First, unlike a discretionary operation that has to wait for evidence of a liquidity event to reveal itself as an interest rate spike, a standing facility would automatically accommodate the demand for reserves and provide at least a soft ceiling on repo rates. Second, a standing repo facility may induce the G-SIBs to substitute high-quality liquid assets for reserves in their resolution planning. This, in turn, would permit the Committee to drain reserves to a lower level than would otherwise be possible. That is, for any given IOER rate, the Committee would conduct monetary policy with a lower average level of reserves with enhanced interest rate control. This may give the Committee more policy space with respect to the balance sheet in the future and thus represents an important advantage of this approach, and in this I agree with President Mester.

Let me now address some of the concerns raised in the memo. First, there's a presumption that the facility could significantly disintermediate private lending. While some disintermediation is likely, the more obvious effect, to me, would be to truncate the upper tail of the distribution of contracted repo rates. That is, the facility might instead serve as a competitive threat for borrowers that simply caps the terms of trade in private arrangements. The memo states that "A standing repo facility represents a commitment to expand the Federal Reserve's balance sheet ..." I think this may be misleading.

The commitment to expand our balance sheet will be accomplished through additions to our SOMA in accordance with the Committee's desire to operate a floor system. A standing repo facility is better thought of as providing a more elastic supply of reserves for the purpose of interest rate control. Discretionary open market operations work in the same manner. Moreover, I as explained earlier, there's reason to believe that a standing repo facility would actually reduce the precautionary and regulatory demand for reserves. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chair. It's a very interesting topic, a good discussion. As I listened to some of the early comments and think about my comments here, I was thinking, if I were going to put a title on my comments, it might be, "Why do I care about repo operations?" Let me try to answer that. [Laughter] Interest rate control is key for achieving our monetary policy goals. If the federal funds rate moves above the target range or if our choices about policy implementation lead to unnecessary volatility, financial conditions will be tighter than we intend, and we will risk falling short of our macroeconomic objectives. This is not just a Wall Street problem. It can have real consequences on Main Street.

A large automaker told me that, as a result of the dislocations in the repo market, there was no demand for its commercial paper in the second half of September. Now, this ended up not being a big problem because the company happened to be ahead of its funding schedule for the year, but if its needs had been more urgent or if the market pressures had persisted, the automaker told me that their higher funding cost would have eventually been passed along to dealers and car buyers. That would have had consequences for real economic activity.

Of course, in the long run, businesses could probably find ways to adjust to more volatile money market rates, but those adjustments could increase the cost of financial intermediation and put a drag on the economy. Now, that would affect our inference about what the neutral rate would be for monetary policy, too, having to offset that. So we do well to keep our focus on maintaining strong rate control and implementing policy efficiently and effectively.

Now, for the second off-script comment—I almost asked this question but didn't. What if, when we were thinking about what policy tool we were going to choose, instead of the federal funds rate target range, we decided on "Let's set the IOER rate"? It's an administered rate. We can hit that every—[laughter]. There's a governance issue as to who gets to decide it. What if that wasn't an issue? What if we just said, "The IOER rate is going to be 1¾," whatever it would be right now? How would I think about money market rates? Why would I care about repo?

If I've got a financial stability argument for money market rates, I guess I would pay attention to it, but everything that we're talking about here is providing ample reserves—doing repos so we can hit our funds rate target. If I just had the IOER rate, I'm not quite sure what we would be asking the Desk to do except keep us informed about what people are thinking about it, things like that. I literally don't know the answer to that. But if it caused more money market volatility, then we'd have to offset that. That would have an effect on economic activity and funding costs, and so we'd probably have a lower IOER rate. We'd have less capacity against the ELB, presumably, in order to offset that on a regular basis, so I think we have to figure this out. The staff memo provided an excellent analysis of how we can accomplish this goal, and I know that the Desk has been working very hard, and I appreciate your efforts.

But, mainly, the memo reminded me of why I prefer an abundant-reserves regime. It's simple, efficient, and effective. In contrast, while the repo operations described in the memo can strengthen control of the federal funds rate, they come with a whole lot of complexities. Discretionary operations require the Desk to make challenging judgment calls, continually, about how to calibrate price and quantity parameters as market conditions change. A standing facility would bring other tough issues. For example, how would the existence of the facility change incentives in financial markets? Might we solve the rate control issue at the cost of creating some other problem?

Even a simple fundamental question of what rate the facility could charge has no easy answer. Too low a rate would draw lots of activity, give us a large "footprint" in the repo market, and perhaps even disrupt private intermediation. Yet if the rate is too high, the facility could become stigmatized and no one would use it, which would prevent it from controlling rates in the first place. Maybe there's a way to split the difference here, but it seems pretty tricky to me. All these problems really come from the fact that repo operations are active management of the supply of reserves to achieve rate control.

And we decided last January that we didn't want to go that route. It is true that many other central banks have standing ceiling facilities, but financial systems around the world differ, and there's no guarantee that what's appropriate elsewhere will work well here. I think our primary goal should be to get more comfortably into the flat portion of the reserve demand curve. Where is that? We've emphasized that we'd learn more about the appropriate level of reserves during the normalization process. Well, we learned that the mid-September level is too low, and the early September level of reserves is probably too low as well, at least given where reserve demand is now. Remember that we're talking about having to use complicated repo operations even at that level.

So we are likely going to need to keep building reserves even further before active reserve management is no longer needed. In the meantime, we will need to do something to control rates. After all, we're not planning to be sustainably back to even the early-September level until April. I would leave it up to the experts on the best way to construct repo operations to control rates until we get reserves back up to an efficient and effective level, but it is key that we clearly communicate we do not intend to use these operations indefinitely.

Let me finish by reiterating a pretty basic point. We went through a lot of work to decide that, for rate control, we would rely on adjustments of administered rates and we would not use active reserve management. And in January, we made a public commitment to that operating regime. We have not learned anything in the meantime to change that conclusion. If anything, we see more evidence that it was right, so we should stick with that commitment. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, and congratulations to the markets team. I think we pulled off the recent announcement on increasing reserves incredibly well, and I do believe that that's going to address the vast majority of our operating risk as we go forward. I am sensitive, though, to one remaining risk: We have learned that market participants may not participate as we predict in times of liquidity stress. Increased reserves do reduce that risk, but they may not eliminate it. In thinking, then, about how we might respond to that risk, I'm drawn to a minimalist approach. I am not much concerned with volatility in repo *per se*, only to the extent it affects federal funds. And in the federal funds market itself, I am perfectly comfortable with variation within our target range and even with the occasional short-lived movements out of range of the magnitude we saw in a corridor system.

The bigger the intervention, the bigger the effects will be on private-market behavior, which we need to be thoughtful about. If we strongly limit price variation in the repo market, for instance, with a frequently in-the-money widely accessible standing facility or aggressive discretionary interventions, we might also limit the market's price differentiation according to counterparty risk, and we would encourage more short-term funding of securities portfolios than might be prudent. A more limited intervention—say, a standing facility that is mostly "out of the money" and is accessible only to holders of reserves, or, alternatively, less aggressive discretionary intervention—would have less incentive effect and might achieve adequate control of the federal funds rate, given that I'm fairly tolerant of volatility in that market.

Of course, a less frequently used standing facility could be more subject to stigma, which would further damp its effectiveness. So I'm also interested in exploring alternative approaches. I applaud what you've done with the foreign repo pool and hope there are other opportunities to reduce or manage our nonreserve liabilities, which I see as unhelpfully commingled in our balance sheet and reserve management. I am also interested in understanding better the potential to evolve our stance toward liquidity supervision or to adopt tiered pricing to reduce incentives to hold excess reserves or to communicate more comfort with somewhat more federal funds rate volatility. Rather than creating additional tools to fix the market when it doesn't behave as expected, perhaps we can also take steps to encourage the expected behavior. Thank you.

CHAIR POWELL. Thank you. Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. And I'd like to begin by thanking Vice Chair and President Williams for his leadership and his team in New York for all their fine efforts in navigating the challenging conditions in the repo markets in these past six weeks and to second President Barkin in his remarks regarding the recent meetings that we had and decisions that we made between meetings. I think that was very well conceived and executed. And I would also like to thank the staff today for the excellent memo on options for a standing facility. I am going to devote most of my remarks to the standing facility. I'll say a little bit about the backstop.

Now, in preparing these remarks, I went back and reviewed the remarks that I delivered at our June meeting when we previously discussed this topic. And as I reread them, I realized I have not changed my mind—and, indeed, if anything, recent events have reinforced my inclination. So I will begin by highlighting the relevant passages. There are really two models for a standing facility—one that would operate with primary dealers and be focused on repo markets and another facility that would also include banks—that could be focused on funds rate control and the demand for reserves. And I realize this is not decisional today, nor was it in June, but if we were going to discuss those options, I would personally prioritize a standing facility, including banks as counterparties, with the potential benefit of reducing demand for reserves and enhanced control of the funds rate.

A couple of reasons for this. First, the Committee, of course, currently sets the policy rate decision with regard to the federal funds rate, so that, to me, seems like a natural first priority. Now, it's important that other money market rates and repo rates be in alignment with our funds rate decisions, but repo rates go up and down for a variety of reasons, and I, for one, would not prioritize eliminating spikes in repo rates. Importantly, I think a facility including banks—if we went down this road, would keep the Federal Reserve's role in financial markets more circumscribed than a broader facility, so I continue to believe that.

If we were to set up a standing facility, I think it would be very important to set the stop-out rate at the appropriate level—and many of you have discussed that—and, certainly, at the top of our desired range and potentially above that. As many have said, in an ample-reserves regime, by definition, we should not be intervening frequently and in large size. Our current operations are meant to bridge the gulf between where we are now and where we want to get to by the middle of next year, and thus far, the stop-out rates have been set at or close to the IOER. Not surprisingly, at this rate, many of our operations are well subscribed, although not on every day. That is probably necessary now, but I do believe that any permanent facility should only be in the money when the spikes in repo rates would threaten to pull the funds rate above the top of our range.

Finally, and I think this is also amplifying other comments that we have made, while we and myself often refer to "the" repo market for GC collateral, as figure 1 on page 8 of the memo vividly illustrates and figures 3 and 4 on page 2 of the handout vividly illustrate, there are at least two GC repo markets, and they are very different. We transact in the triparty market with an elite group of primary dealers, most of whom are subsidiaries of the big holding companies that we regulate. The other market is actually much larger.

My nominee for acronym of the week is "FICC DVP." I'm embarrassed to say that I've spent 60 years on this earth, and I had no idea what that was. You can call that FICC DVP, and it is the Fixed Income Clearing Corporation Delivery versus Payment market. It systematically clears at higher rates in those spreads to the funds rate, and presumably it always has and always will. Now, if I were still teaching Macro 101, my students would ask, "How can this be, since these are riskless trades backed by Treasury collateral with a haircut?" And I will admit that I would've been stumped for an answer, before September. But after some study and discussion with folks, including many in this room, it now seems crystal clear that, although GC repo may not expose the lender ultimately to credit risk, it apparently does expose even sophisticated lenders to counterparty risk, which I interpret to mean the cost and uncertainties that lenders incur to claim collateral to settle the default of the borrower.

The point is that counterparties in the FICC DVP market are systematically riskier counterparties, as is evident in the fact that they regularly have to pay higher rates to borrow. So once we acknowledge this, it's very hard for me to see why it would make sense for us ever to consider doing anything more than the minimum that we need to do to keep the funds rate or the OBFR rate in the target range that the FOMC sets. And I would not find it persuasive over the long run to cap repo volatility beyond what is necessary for funds rate control. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you Chair Powell, and thank you to the markets team for doing an outstanding job in—I guess an understatement—an intense period in which you've been under a lot of pressure, and so I'm very sympathetic and appreciate all the work you've done.

Just on the questions you've asked, let me just say, my tolerance for the federal funds rate outside the range is low. I think it's critical that, with confidence, we can set the federal funds rate within the range. As I've said before, I think it's critical that we act preemptively versus reactively. And "preemptively" means, I don't think it's good for the Federal Reserve to be seen to be constantly in motion and taking actions to tamp down this volatility. And I think Charlie mentioned it. Interestingly the banks, I've noticed, are pretty sanguine about what's happened. The people who have been a little less sanguine I've talked to are the companies that issue commercial paper, and this has created some ripples through the commercial paper market. And it's just reinforced to me that, in weighing these tradeoffs, I'd want to take steps to be preemptive and err on the side of, with confidence, being able to set this rate.

In that context, I agree with comments that have been made that, ideally, we would build reserves as we are doing, and maybe even revisit whether we have to do a little bit more to build reserves. But if we don't have confidence with that, I would support doing a standing repo facility. My own two cents: We will have to have more discussion about whether it's primary dealers as counterparties versus a broader set of banks, and I know you all will have views on that.

My own view has been that maybe primary dealers should be sufficient, but I could see arguments against that. In terms of the rate, many have commented. I'd want to give you the flexibility to adjust it. We've been thinking that it could be within 5 basis points of the upper end of the federal funds rate range. That is one of these things that, on the Desk, you will have to manage in order to make it a truly backstop facility that comes into play in stress periods, as opposed to having us have a permanent "footprint" in the repo market. I would be supportive of the collateral being Treasury securities only, not other collateral. And I could throw out a number, but I think it should be in sufficient size that you are satisfied that it would take up what we need to take up.

Lastly, we mentioned this before—I do think, while we are doing all of this, and we are growing reserves and anticipating whether we need to do a standing repo facility, we should continue to look at potential changes to the regulatory regime that will make reserves and short-term Treasury securities more fungible than they are today. And I hope we will continue to take a look at that. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. The decision to either use discretionary repo operations or establish a standing repo facility depends largely, in my view, on the underlying cause of the mid-September volatility. Did our reserve balances simply decline beyond the point of abundance, or does last month's episode reflect a deeper issue of money market functioning? If the reserve runoff process simply advanced to the point of threatening reserve abundance last month, then the volatility in money markets should prove transitory once reserve balances are replenished. We should be sure that the current plan to return reserves to early September levels will accommodate swings in nonreserve liabilities.

In reviewing the plan for transitioning to an ample-reserves regime, the staff analysis highlighted that it would be important to include an allowance for uncertainty in the selection of a minimum operating level of reserves. As part of that analysis, the proposed allowance for that was $190 billion. The reserve level announced in the current plan to maintain, over time, ample-reserves balances at or above the level that prevailed in early September should include that allowance for uncertainty.

While I am not looking to have an unnecessarily large balance sheet, reserve abundance is necessary for interest rate control in our floor-type system. If demand for our repo offerings remains persistently high and market rates remain volatile after transitioning to a higher level of reserves, then we may need to revisit multiple facets of our operating procedure. In the coming months, both the demand for our repo offerings as well as the dispersion across money market rates will be informative. A standing repo facility may well be necessary in order to implement and transmit monetary policy effectively, should persistent rate dispersion emerge. But I think that it’s too soon to make that decision, at our current degree of understanding of recent events. Thank you.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. I, too, want to thank the Desk and Vice Chair Williams for helping us navigate the dislocation in the repo market. The Committee has demonstrated resolve to address the stress in repo markets by acting decisively to supply ample reserves and reestablish control over the federal funds rate.

Nonetheless, even with our announcement and operations, the dispersion in traded rates widened over the September quarter-end and on the mid-October Treasury auction settlement date, and market contacts remain focused on mid-December and year-end. As President George noted, before knowing the right answer, we need to better understand the cause. And I, for one, don’t yet understand the dynamics in short-term money markets sufficiently to feel confident that we won’t see renewed volatility or the need to step in again at scale. So I hope the Committee will continue studying this market carefully before settling on the right answer.

There seem to have been three forces at work that combined to produce the surprisingly wide spreads seen in late September. Reserves have clearly fallen below demand, Treasury security issuance is rising to historically elevated levels, and there are some frictions in the pipes. It's important to understand the relative contributions of each of these factors, in order to understand whether our current policy response is likely to prove sufficient. Our ongoing commitment to adjust supply in order to ensure reserves are truly ample should address any shortfall in relation to demand associated with the first two forces. With regard to the frictions, it's important to understand whether these are associated with changes in business models, risk-management practices, or regulatory requirements in order to decide what type of policy response might be appropriate.

The noticeable differences among the large dealer banks in their practices regarding reserve holdings and their responses to the widening of repo market spreads suggest that the preference for reserves in HQLA holdings is not a monotonic function of the requirements such as the LCR, the G-SIB surcharge, or the leverage ratio. Staff discussions with several of the key dealer banks reinforced this finding.

Instead, as is emphasized in the report on reserve conditions memo circulated to research directors, firms' risk management appears to be determining the degree of monetization risk that each firm chooses to take on. Risk-management practices appear to reflect a low perceived cost of holding a reserve buffer as self-insurance to meet volatile payments relative to being highly reluctant to use any Federal Reserve credit. Despite the efforts of the SCRM and supervisory staff to reduce discount window stigma, internal firm scrutiny and the Fed's required disclosures appear to be important ongoing impediments. Although some large firms occasionally use intraday credit, this usage is limited, compared with pre-crisis, in part because of fears that daylight credit could turn into an overnight discount window loan, which is discouraged by senior management and the institutions' boards.

Moreover, the internal risk limits and governance processes appear to have some inertia. So the dealers' incentives to step in when spreads widen because of perceived idiosyncratic short-lived factors are somewhat muffled by risk limits that appear to be changed only at longer horizons in response to more sustained changes in the opportunity set. With regard to regulation, I think we should continue to assess whether there are, in fact, some areas of guidance in which we can smooth those frictions.

More broadly, I agree with Presidents Rosengren and Evans that the first and primary goal should continue to be to supply genuinely ample reserves. Beyond that, it is hard to tell how effective a standing repo facility will prove to be as compared with as-needed repo operations. In principle, I can support the establishment of a standing repo facility, but, as President George observed, not until we understand more about what "ample reserves" constitute.

Of the options sketched by the staff, my initial inclination would be to maintain operations on a sufficient scale and frequency to give the Desk the ability to discern emerging pressures in money markets and allow the Committee more time to learn what level of reserves will be truly ample relative to demand, as well as what frictions may be resulting in distributional inefficiencies.

In the medium term, if the Committee chooses to establish a standing fixed-rate repo facility to provide a backstop, there are some important tradeoffs between the degree to which that facility overcomes stigma and is readily accessed, on the one hand, and the Federal Reserve's "footprint" in the market, on the other. If the standing facility rate is set at a low spread over money market rates, take-up could be high and broad based, which would limit concerns about stigma but at the expense of disintermediating a greater share of private-sector activity. Conversely, if it's set at a high spread over money market rates, take-up will be low, on average—limiting the Federal Reserve's "footprint," but running the risk of stigma. Whether there's a "sweet spot" that achieves stigma-free moderate take-up that enables the facility to provide a useful ceiling on rates, while also limiting our disintermediation of private-sector activity, is an open question. On balance, I would prefer a relatively small "footprint" in the course of normal conditions.

There are also important questions regarding counterparties that were discussed previously. To the extent that the reason for establishing a facility was to limit the volatility of the federal funds rate, this is best accomplished through a bank-focused facility, whereas a facility focused on primary dealers would work only indirectly to influence unsecured rates.

For me, the guiding principle should be establishing effective rate control and broader transmission by ensuring that reserves are ample. Although I am open minded about whether we might ultimately establish a standing ceiling facility, I'd prefer to delay the decision on that until after we have fully restored the necessary level of reserves—which might mean the middle of next year—and better understand the forces at work. In the meantime, I support maintaining discretionary operations, which don't suffer from stigma. Thank you.

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Chair Powell. Like others, I'd like to thank the staff for all of the work that you've done in the intermeeting period and for putting together the materials for this discussion on such short notice. It was very helpful. The questions that have been raised are both very timely and very time sensitive. And I'll be brief and start by saying that I'm skeptical that a standing repo facility is a good long-term solution to rate control-related issues. This is mainly because I think it will be difficult to employ any type of backstop facility without encountering the same stigma issues that many have noted before me that the discount window currently faces.

In addition, we could run the risk that it would be interpreted by markets as a sign of a greater and deeper concern than what we are communicating. Instead, I would prefer that we rely on the ample-reserves framework that we announced last January. I'd like to see us continuing to increase the size of our balance sheet gradually until we again feel reasonably confident that the supply of reserves is sufficient to ensure good control over short-term funding rates. It will take us several months, at least, to get to that point and, to me, it seems likely that the risk of money market pressures will remain elevated through next year's tax-filing season.

Because of that, I think we should consider communicating to the public that we intend to continue with discretionary overnight and term repo operations, at least through the second quarter of next year. Since we know that short-term funding pressures are likely to occur in that period, it may reassure markets to have a plan communicated in advance. We have learned quite a bit from the money market developments over the past several months. For one, we've learned that the survey-based estimates of banks' lowest comfortable level of reserves when totaled are not an accurate depiction of the true level of reserves that would mitigate the risk of funding pressures.

Therefore, I'd like to see the staff undertake further research into the factors driving demand for reserves as well as distributional frictions in money markets, taking on board all of the lessons learned from the money market developments over the past several months. But I'd also like to see this research include an analysis of how changes in financial supervision and regulation over the past decade have affected money market dynamics. Before making any decisions about how to structure our repo market operations over the longer term, I think it's important that we have a deeper understanding of these issues, especially those related to regulatory influences. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair, and thanks to all who worked to settle the situation and those who produced these helpful memos.

In our long-run framework discussion at the November 2018 meeting, I expressed my desire to adopt an ample-reserves framework that would be robust to a potential return to the effective lower bound and minimize the risks to monetary control and minimize risks to the perception of monetary control. At that time, I highlighted my discomfort with the myriad uncertainties related to the demand for reserves and operational details that would accompany a return to a scarce-reserves regime.

Reading the background memo prepared for this meeting only magnifies my discomfort, as it underscores the complexity and the magnitude of the challenges to monetary control when reserves are scarce, which they appear to be now. Plainly stated, I have little tolerance for taking on significant risk to monetary control, but my preferred risk mitigator is the maintenance of sufficiently ample reserves and not the introduction of a standing repo facility.

For me, as has been stated by many today, "ample reserves" means a large enough level of reserves that, during normal or non-crisis times, we can rely on administered rates as the primary policy tools and not engage in temporary open market operations. To be sure, this definition of "ample" is imprecise. But it can be operationalized by building in a sizable buffer.

And my approach to the buffer would be to err on the side of being too big rather than attempt to hit an estimated minimum amount.

Now, maybe I'm really standing with President Evans in feeling more comfort with abundant reserves. And I have to say, I have heard "abundant" reserves, "sufficiently ample" reserves [laughter], "genuinely ample" reserves—many ways to really try to say "more" reserves [laughter], and I have to support that. Implicit in this preference is my assessment that the benefits of holding sufficiently ample reserves outweigh any associated costs.

So the question then becomes, in the interest of resilience, what is the strategy for operational readiness in times of money market stress? Like Governor Brainard, I favor the use of small to modest-sized operations to maintain readiness in order to minimize any disintermediation of the private sector and preserve operational flexibility. When we achieve and maintain sufficiently ample reserves, there should be little to no need to calibrate these operations to market conditions, which, should market stress arise, I am confident in the Desk's ability to minimize variability of the federal funds rate. Notice I said "minimize" and not "eliminate" variability. Athough I do not wish to take on significant ongoing risk to monetary control, I do not perceive volatility within the range or even the occasional breach of the target range to be a problem.

Historically, the effective federal funds rate would fluctuate a bit around this point target on a daily basis, and this did not cause a problem with respect to monetary policy transmission. Big picture, the market has now learned how we will respond to these kinds of market stresses. This is important, because confidence that we will take action to minimize deviations from target is an important component of monetary control, so I think we are well on our way in this regard.

While it was not the subject of the memo, I will end with an observation and a question on a topic raised by President Mester. Last fall, we had a long discussion about alternative policy rates. We had the effective federal funds rate, the overnight bank funds rate, and secured rates like SOFR, and today President Evans added IOER. Many participants, myself among them, expressed concerns about the risks of the continued use of the effective funds rate as a policy rate, given how small the federal funds market is and how idiosyncratic it can be. My question is, would a move to a policy rate that is more representative of overnight market rates help mitigate the types of risks to monetary control we are concerned about, and wrestling with, today? Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chair. Just one quick addition, before starting on the repo rates. There was a point that I'd wanted to make on the toolkit that I inadvertently didn't before. Both President George and President Bullard raised the potential of the yield curve control approach being in tension with, or possibly abrogating, the Treasury–Federal Reserve Accord. I, of all people, would certainly not want to do anything that would impinge the authority of that accord, a framed copy of which is stitched into a sampler over the headboard in our bedroom. [Laughter] But I don't think there is any necessary tension at all. I mean, the last time that the Federal Reserve, as a practical matter, engaged in serious yield curve control was during and immediately after World War II, where, basically at the instruction of the Treasury, in order to support the national goal of victory in the war, the Federal Reserve pegged interest rates at levels that were set by the Treasury.

What the Accord said is, that will not be the case. It didn't say that yield curve control was something that was an inappropriate tool for the Fed as long as the decisions that are made about it are made here. Then it's up to the Treasury to decide, well, what will its issuance be in light of Federal Reserve policy with respect to yield curve control? That's totally in accordance with the Accord. I don't think there is any tension there at all. So that was the only point that I wanted to make, partly for the minutes and partly for the ongoing discussion. Okay.

MR. BARKIN. And thank you for putting in that thing about your sampler into the transcripts. [Laughter]

MR. QUARLES. Repo. So, again, the memo is very interesting, very useful, and the work that the New York Reserve Bank has been doing has been both excellent and effective, and everyone deserves congratulations for that.

The memo identifies two options for repo operations and rate control. One, regular repo operations up to $20 billion to maintain a high level of readiness. Two, the setup of a standing repo facility. What both of those options effectively imply is that we may not be confident that increasing the size of the balance sheet alone would be sufficient to solve the problem that we have been facing.

In light of our uncertainty over what exactly is driving the demand for reserves, we'll have to maintain a level of operational readiness, no matter what the level of reserves. So with all of that in mind, as I have said before, I find the idea of a standing facility appealing and maybe, really, not even materially as a mechanism to provide better rate control, but as an instrument to decrease the demand for reserves and, therefore, to reduce pressure to increase the size of the balance sheet over time.

Such a facility could be helpful in dealing with periods of stress but would also likely lower the overall level of demand for reserves in nonstress time by guaranteeing the convertibility of Treasury securities. In that regard, it might be useful just to review how I'd see the relationship between a potential standing repo facility and the effect of our bank regulatory framework and supervisory practices on the question. Not all banks, but many banks have told us that a significant element of the market frictions that we saw in September was the instruction that they have received from Fed supervisors to prefer reserves over Treasury securities in the composition of their high-quality liquid assets.

Our supervisory staff insist, in turn, that they do not have such a preference, have never told the banks to have such a preference, and point to the facts that Governor Brainard has cited—that some banks, in fact, do not hold a particularly large percentage of their HQLA in reserves. Both camps appear to be quite sincere and quite vehement. I think the way one squares the circle is by looking at the operation of the internal stress liquidity test that we require the banks to run. So we have an overall liquidity regulation that requires the banks to hold a minimum amount of liquid assets. But, quite sensibly, we also require the banks to run an analysis of how those liquid assets—which could be Treasury securities, reserves, or, after the passage of a law in the summer, municipal bonds—will perform under stress.

Now, in the world as it currently stands, there is a modest but measurable difference in the liquidity and usability of reserves versus Treasury securities in extreme stress. Treasury securities settle a day later. There may be problems of severe disruptions to markets and to the economy. And so, required to perform this stress analysis, many banks conclude that they should keep very high levels of reserves. The supervisors say, “We didn’t tell them that. They came to their own conclusion.” The banks say, “We came to that conclusion because of the way you require that we run our stress-testing practices. It’s a direct result of the supervisory framework.”

And an appropriately designed standing repo facility would cut through that. By telling the banks that, in times of stress, they would be able to immediately monetize their Treasury holdings with the Federal Reserve as the counterparty, a liquidity stress test would no longer create an incentive to hold excessively high levels of reserves during peacetime. So the benefit of the facility, in my mind, is less in its usefulness for rate control during normal times—as Vice Chairman Williams and a number of others have pointed out, in an ample-reserves regime you don't really need a repo facility—or even, in its ultimate use, under any circumstances at all. But the confidence that, at some point in the future, it could be used would likely materially reduce banks' immediate demand for reserves. Now, in my utopia, that would mean that at some point in the future we could again hold the balance sheet steady and allow it to decline further as a percentage of GDP, a desire that has been reinforced by today's brief drive-by glimpse of infrastructure bonds. [Laughter]

But even if the Committee is not persuaded that that's a worthy goal, we should all be interested in ensuring the ampleness of our reserves regime not only by increasing the supply of reserves, but also in reducing the demand for them, if that can be sensibly done—especially in a world in which we can't be sure that increasing the supply, whether in the amount we've announced or in any amount at all, will fully address the problem, given some of the frictions that we have seen and have been further described to us in this market.

That view then affects how I would think about the design of the facility. Again, as I have said before, I think in designing such a facility, therefore, it would be advantageous to not just include banks, as Governor Clarida suggested, but to limit our counterparties to banks. Our target remains the federal funds rate. Our focus should be on maintaining the credibility of that target perhaps at the acceptance of slightly more volatility in the broader repo market. In my view, the primary aim of this facility would be to affect the price of reserves to banks and not to manipulate the broader repo market. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. I think one thing that has been clear to me over the past couple of months is, we don't know how many dollars of reserves are going to be needed to fulfill our ample-reserves regime. There's a lot of uncertainty. I thought the discussion about the survey and how banks say one thing and then they do something different—I think that's really informative of how little we really know and how little confidence we should have in what we know.

And, faced with the two alternatives, I'd prefer a ceiling facility. I would price it at the top end of the federal funds rate target range. I would not have a penalty rate. We are the source of our stigma on the discount window, and we need to police ourselves from stigmatizing any new facility. We want banks to use it. I think the more we talk about it as a backup, never to be used, the more likely we are going to have a path of stigma once again. And if we are going to go down the path of stigma, then I would rather have ad hoc interventions than to stigmatize the facility. I think that is the worst of all scenarios. I would encourage it to have a wide range of counterparties—at least all banks if not all banks and primary dealers. As Governor Quarles has said, if it's credible and it's not stigmatized, I think it may lead to a reduction in the demand for reserves. It'll lead to a reduction in the preference for reserves over Treasury securities, and I think that's a good thing from a policy perspective.

Others have mentioned that—we talked about this a year ago—we may need to transition away from the federal funds rate at some point in the future. I think the existence of the ceiling facility will help us if we eventually transition away from the federal funds rate. So that's a nice down payment there. To me—we've talked about this today—what do we mean by "ample"? I think the ceiling facility can help us be precise in defining what we mean by "ample." We can define "ex ante": We expect it to be used monthly this many billion dollars, or quarterly this many billion dollars. If it's used less than that, we've got too many reserves, and we're beyond ample. If it's used more than that, we're not quite at ample. That information can actually help us tune the size of our balance sheet to achieve "ample" over a range of conditions. So I think that's informative.

Regarding the discount window itself—this is not the primary purpose of the ceiling facility, but one of the observations in our work over the past couple of years is, it is massively stigmatized. This would be a big down payment. The purpose of this is not lender-of-last-resort, but it would improve our liquidity provision capability as an institution, taking into account how broken the discount window is. It is not a perfect substitute, because it would only be for high-quality collateral. But we would be far better off than we are today with this broken window. So I think the ceiling facility has that side benefit as well.

The last thing I would say is, there has been commentary today that I'm struggling with, about the idea that we don't want to disintermediate the private sector by having a facility that's used all the time. But if the alternative, as some people are advocating for, is just a much larger balance sheet in all states of the economy, isn't that also disintermediating the private sector, if you permanently have this bigger "footprint"? What's the advantage of having a big "footprint"—a big balance sheet—versus a smaller balance sheet, in which case you have a window that is actively used? I don't think the disintermediation is worse by having a ceiling that is actively used. I think the disintermediation is worse by having a permanently larger balance sheet with a permanently bigger "footprint" in financial markets. Thank you.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. And let me just echo everyone else's comments to thank the staff, the New York Desk, and Vice Chair Williams for the work. I have to say this, because my group asked me to—I was at a Community Advisory Council luncheon and meeting, and they made a special motion to applaud the New York Fed, in particular, and the Desk for their great work. And two things were remarkable: one, that at a CAC, Community Advisory Council, we were talking about the repo market; and, two, that they thought we had done an exceptional job. And I think it was really about the idea that we stepped in, did everything the way that people thought we should, and communicated effectively. So, hats off.

With that said, the recent dislocations, praise aside, in funding markets have reaffirmed my view that maintaining generally tight control of our primary monetary policy tool is crucial, and failure to keep the federal funds rate within the target range, even for a brief period, can be quite disruptive. So ongoing difficulties in being able to do that—keeping the rate stable or where we want it—has the potential to erode confidence in our ability to smoothly implement monetary policy. And here, just because of some of the remarks that have been made, you know, if you look back in history, we have reached it when we had a scarce-reserves regime, and we're relatively new in exercising this ample-reserves regime as we reduce the balance sheet. So I think, certainly, for now, keeping the funds rate trading in its range is important. And then we might be able to experience some breaches temporarily down the road, but not right now.

So then, what is the best way forward? And I backed up from this and said, "Well, you know, the way I think of it is like a peak load problem"—and this might be because I moved to California right when we were having the energy crisis. [Laughter] And this was what I worked on for the longest time.

One approach, if you are trying to solve a peak load problem, is to, in this case, issue sufficient reserves to keep the federal funds rate within the target range during normal situations, where “normal” is defined as the average demand for reserves through the surveys and other things. And so then the demand for reserves spikes or these peak loads could be addressed with fairly regular open market operations, depending on how many there are. And you could do this on an *ad hoc* basis, or you could do it by establishing a standing repo facility with attractive pricing so that it becomes this backstop. But, by design, this approach would involve a more substantial “footprint” in financial markets, as we would be the backstop for market pricing.

I think President Kashkari has raised an important point, but I don’t personally have enough information to know whether this disintermediation of the larger balance sheet is worse than the disintermediation of a variety of different relationships. And—something that President Mester asked a question earlier about—why aren’t they moving to the repo market when the rates are higher? And the answer was, because they don’t want to lose the relationships they have. Well, if we have a standing facility and they know they can depend on that, they are going to probably lose those relationships. And so I don’t know what the tradeoffs are, but I think that’s useful further study.

Alternatively, to solve this peak load problem, we could adopt a regime with abundant reserves, and I have added yet another thing—I have “abundant” not only italicized, but it’s underlined. So that’s ample, abundant—and abundant reserves that would ensure the funds rate would remain within the range even during the peak times when demand is high. And, under this regime, only very infrequent, sporadic market interventions would be needed to handle episodes of extreme demand. And this approach would require a larger balance sheet but only a small-value presence in repo markets to maintain operational readiness.

While either of these approaches would solidify our policy rate control, they present a tradeoff between a larger balance sheet and a greater "footprint" in financial markets. And my impression is that we have been more actively discussing and concerned about the optics of a large balance sheet than by the real or perceived cost of acquiring a larger "footprint" in financial markets. One of the things I'd like to have more thought about before we become "decisional" is, just what are we talking about in terms of these tradeoffs? What relationships will we be replacing? Will it be commercial paper? Will it be other types of things? I don't actually understand those fully, so I share concerns raised by others around here and in the background memo that having a permanent standing facility could adversely distort the incentives faced by market participants.

So, overall, I come down on the side of an abundant-reserves regime, which is defined as ample enough to deal with these peaks with only very infrequent open market operations. Our discussions last year pointed out that an attractive feature of our floor system was its simplicity. There was no need for daily market interventions, no need to set up special facilities, and this system has the additional benefit of not further distorting market dynamics, which could contribute to financial fragility. And this I just want to underscore: It's not just about disintermediation and crowding out—it's actually, what we really want to do is foster financial resiliency. And so I don't know what the tradeoffs there are, in terms of financial fragility.

Under either approach, I think it will be important to further examine options to do this fostering greater resiliency; and to learn more, as President George and Governor Brainard said, about what really went on, and how much this will change, and how much a standing facility would change anything that we are experiencing. And there I just don't think we have enough information to become decisional on this. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. A few comments from me. Let me start by saying, by agreeing, complimenting our New York colleagues for reacting with a plan that was aggressive and that succeeded in putting us in a good place. We did it on an intermeeting basis, and we thought there were risks that it might be seen as an emergency measure and things like that or somehow conflated with policy. I think we avoided all of that, and I want to thank you again for moving at warp speed and getting that done. Of course, much of the fun still lies ahead, but, nonetheless, great job.

As many have noted, we say that "ample reserves" means that we will control the federal funds rate without active management of reserves. One way to think about it is three things. First, our focus should be squarely on the federal funds rate. Movements in repo rates matter in our current regime only to the extent that they interfere in important ways with the conduct of monetary policy—admitting, though, that there is the point that it would make it easier to move to a non-reserve-based target rate in the future.

Second, reserves are below the desired level and need to be increased. We've got a good plan for that, and we'll learn much more about market functioning as we raise the level of reserves.

Third, frequent operations, even if small, are, by definition, not consistent with ample reserves. Of course, "frequent" is in the eye of the beholder. But the first order of business needs to be to raise the level of reserves to the point where we can have a better informed discussion of the appropriate level of frequency.

I am absolutely open to the idea of creating a standing repo facility. But, for now, given our commitment to an ample-reserves framework, which doesn't contemplate active management of reserves, the need for that facility is not obvious to me, as of today. I see plenty of plausible reasons that may prove out over time, but I would want to see them do so.

In terms of options, we can assure that usage is infrequent by pricing the facility well above market, which brings the stigma problem into focus and renders the facility perhaps not so useful. On the other hand, if we price a standing a facility close to the market to encourage use and dispel stigma, we risk assuming responsibility for the repo market. We'll be well down the road, if we do that, to targeting a repo rate instead of a federal funds rate. That would mark a major change in how we interact with this large, diverse private market and how we implement monetary policy, and we just would need to think that through very carefully before acting. There might also be a middle ground, in which the facility is expected to be used mostly on quarter-ends and tax days.

As for the specific questions, I have some tolerance for funds rate movements within the range and for allowing the funds rate to occasionally move outside the range for short periods, especially when associated with easily identifiable technical events. And I am committed to raising reserves to a level that will allow us to exert control of the rate through our use of administered rates.

Echoing a number of others around the table, it seems wise to take our time in deciding about this facility. We will learn many things in coming months, including the extent to which modest changes to things like our daylight overdraft policy or the foreign repo pool or some modest tinkering with capital requirements—the way we calculate them, not their level—could meaningfully affect reserve demand, whether they could meaningfully affect reserve demand, without sacrificing safety and soundness or financial stability. Any of that could be possible and would matter for this decision, I think.

Meanwhile, the bill purchases and the open market operations have given us some time to gather and evaluate more information, discuss the issues, and come to a consensus. I'll leave it there. I think it's wise to let this issue gestate longer. And, again, I am very open to this being part of the framework, but I think it's premature to try to make that decision today.

And with that, we'll take a coffee break. This will be a 20-minute coffee break, ending at quarter of 3:00. Hopefully. [Laughter] Thank you.

[Coffee break]

CHAIR POWELL. Now we turn to the review of the economic and financial situation. Stacey, would you like to start?

MS. TEVLIN.[4] Sure. Our materials are in the packet that says "Material for Briefing on the U.S. Outlook." In many past October FOMC meetings, I've enjoyed the friendly banter between presidents with World Series contenders in their Districts. But a reliable source told me that President Barkin may not be planning to mention the Fifth District contenders. And so, with apologies to President Kaplan, I've therefore put all my panels in the red and blue of the Washington Nationals.

MR. KAPLAN. I feel much better you mentioned it, after the past few days. [Laughter]

MS. TEVLIN. My remarks will be briefer than usual, because I plan to cede much of my time to Chris Nekarda, so that he can present some of the highlights of the memo that you received on unemployment-rate benchmarks.

The black line and dots in panel 1 show that GDP growth, which was 2.5 percent last year, held at that same pace in the first half of this year but appears to be slowing to an average 1.5 percent rate in the second half. This story should by now be very familiar, because we have had essentially the same forecast since June. For the third quarter, our latest estimate is 1.6 percent, and we will get the BEA's first reading on this figure tomorrow morning. This quarter, we expect growth of 1.5 percent. We estimate that each of these quarters is held down about 0.2 percentage point by the GM strike.

The bars in this panel contain the components of private domestic final purchases, lumped into two categories to illustrate the dichotomy we are seeing between different sectors of the economy. The blue portions, which represent the growth contributions made by consumption and housing expenditures, have held fairly steady

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

over the two years shown here. In contrast, business fixed investment growth, the red portions of the bars, has slowed and seems to have turned negative in the second half.

The slowing in the overall economy this year has also been evident in a slowdown in private payroll gains published by the BLS, the black line in panel 2. The red and blue lines show two alternative ways to assess the strength of payrolls. The blue line is a pooled estimate using both published BLS data and our alternative measure based on ADP microdata through September, while the red line makes an adjustment to the published data based on our rough estimate of how the BLS may fold in the downward revision implied by its preliminary annual benchmarking. Both of these alternatives suggest weaker gains in payrolls this year than shown in the published data. These two measures also suggest that payrolls are rising at a pace close to our estimate of the range consistent with unchanged labor market slack, the gray shaded area. In the fourth quarter, we expect payrolls—both adjusted and unadjusted, the red and black dots—to be close to where they have been over the past three months, and we expect the unemployment rate will flatten out at 3.6 percent. On Friday, we will receive the October labor report, and we expect total payroll increases to come in quite low, at only around 50,000, because of the transitory effects of the GM strike.

As shown in panel 3, we continue to see output decelerating modestly over the medium term, as the boost provided by fiscal policy wanes. With output growth expected to run roughly in line with potential growth, the green horizontal lines, over the next few years, the unemployment rate is projected to hold steady at 3.6 percent through 2022. This gentle landing depends importantly on our assumptions that the drag on growth from trade developments will not worsen but will gradually dissipate and that foreign growth will improve, as Beth Anne will discuss shortly.

Panel 4 shows our inflation projection. We estimate that the 12-month change in core PCE prices—the red line—was 1.7 percent in September. We expect core inflation to move sideways at this rate through year-end and then temporarily pick up to 2 percent by March of next year, as the weak readings from early this year drop out of the calculation and the transitorily high readings from the spring and summer remain for a while. Looking further ahead, we expect core inflation to run at 1.8 percent—our estimate of its underlying trend. This flat trajectory balances a drag on inflation coming from a rising dollar in our projection with a boost from the low unemployment rate, which remains well below our estimate of its natural rate throughout the projection.

As the unemployment rate has declined over the past several years, participants around this table have often discussed how it compares with their own natural or longer-run unemployment rate or how it compares with the Tealbook natural rate or to some other benchmark. At times, it has seemed as though people were talking about different concepts. The memo that Chris will summarize is meant to help clarify and categorize various types of benchmark unemployment rates that are frequently mentioned by policymakers and staff.

MR. NEKARDA. As Stacey noted, the gap between the unemployment rate and a benchmark rate often serves as a guidepost for policymakers' assessments of maximum employment and price stability. Our memo proposed two broad categories of unemployment rate benchmarks, which we called the "longer-run unemployment rate," or LRU, and the "stable-price unemployment rate," or SPU. As defined at the top of panel 5, the LRU is the rate of unemployment expected to prevail after the economy has fully adjusted to business cycle shocks. The SPU, defined at the top of panel 6, is the rate of unemployment such that there are no upward or downward pressures on price inflation apart from those stemming from underlying inflation or arising from supply shocks. In short, the gap between the unemployment rate and the LRU is an indicator of the cyclical position of the economy, while the SPU is the rate of unemployment at which there is no cyclical pressure on price inflation.

As noted in the bullets in panel 5, the LRU is largely determined by nonmonetary factors and will evolve with the changing structure and dynamics of the economy. For example, demographics, educational attainment, and industrial and occupational composition are thought to be important forces shaping the LRU. In practice, distinguishing these from business cycle shocks is challenging, and a particular estimate of an LRU will depend on which forces are directly accounted for. Finally, it's worth emphasizing that the LRU need not represent maximum employment. Indeed, as noted in the Statement on Longer-Run Goals and Monetary Policy Strategy, "the Committee considers a wide range of indicators" when judging success on the employment side of the mandate.

As noted in panel 6, the gap between the unemployment rate and the LRU is not necessarily the relevant benchmark for assessing cyclical pressures on price inflation. For example, inflation could also be affected by cyclical variation in firms' markups or cyclical changes in labor force participation and composition. Thus, an alternative benchmark—the SPU—needs to take these factors into account as well. A Phillips curve equation is the core of a common framework used for informing estimates of the SPU. As illustrated by the equation at the bottom, a particular SPU estimate will depend on the assumptions being made about underlying inflation and on which other transitory influences on inflation are directly accounted for.

Panel 7 describes the relationship between the LRU and SPU concepts. Changes in the underlying structure of the economy that are expected to persist in the longer run will affect both the LRU and the SPU. By contrast, cyclical factors relevant for price pressures will affect only the SPU. For example, a temporary extension of unemployment insurance benefits will increase the SPU relative to the LRU, as would a transitory increase in the degree of skill mismatch or a cyclical rise in firms' desired price markups.

Importantly, if the wedge between the SPU and the LRU was expected to persist for several years, policymakers might view the appropriate benchmark to use in the current setting of monetary policy to be different from their estimates of the longer-run unemployment rate. In practice, unemployment rate benchmarks are not directly observed and are difficult to infer, even with the benefit of hindsight. Your final exhibit summarizes some estimates of these benchmarks.

Panels 8 and 9 summarize a collection of time-series estimates of unemployment rate benchmarks, drawn primarily from models used within the System. The thick solid lines indicate the median estimate for each quarter. The lighter shaded areas denote the range of estimates, while the darker shaded areas highlight the middle 70 percent.

As shown in panel 8, estimates of LRUs decline gradually from around 6 percent in the mid-1990s to around 4½ percent in recent years. Estimates of SPUs, shown in panel 9, also decline, on net, but the most noticeable feature is the hump from about 2009 to 2014. Finally, you can see that the range of estimates is wide for both benchmark categories. Although the central tendency for the LRU narrows considerably after 2010, it remains sizable for the SPU.

Where does this leave us at present? The upper portion of panel 10 is a histogram of the most recent values from the time-series plots above, along with the median or mean forecast from several surveys of professional forecasters. The height of a bar corresponds to the number of estimates in each ¼ percentage point interval. The lower portion of panel 10 reports the distribution of longer-run unemployment rate projections from the September SEP.

As you can see by the light blue shaded area, the central tendency of the SEP sits toward the lower half of the distribution of estimates in the upper portion of the panel. Two additional observations deserve mention. First, the distribution of SPUs, the orange bars, lies somewhat to the left of the distribution of LRUs, the blue bars. That is, estimates that use information in inflation and nominal wage growth generally point to a lower benchmark unemployment rate than those that do not. This raises the possibility of being in a situation in which the unemployment rate is lower than what is expected to prevail in the longer run but not low enough to bring inflation back up to the Committee's inflation objective over the next several years.

Second, the unemployment rate is currently below most of the benchmark estimates that we considered. Panel 11 notes some potential costs and benefits associated with this situation, beyond the risks of undesirable inflation outcomes or the unanchoring of inflation expectations. Unemployment that is too low for too long has potential costs, including risks to financial stability or distorting incentives in favor of short-term economic gains. Of course, low unemployment may provide longer-run benefits over and above the likely short-term benefits it affords to many individuals. For example, a tight labor market might raise labor force attachment, create incentives for firms to provide additional training for workers, and improve job matches between workers and firms, possibly raising productivity. Moreover, these benefits might accrue, especially to disadvantaged groups or regions.

In summary, when considering various unemployment rate benchmarks, it may be helpful for FOMC participants to assess what type of benchmark they think is most informative for monetary policy and how the potential benefits and costs of being away from that benchmark relate to the Committee's objectives of maximum employment and 2 percent inflation. Beth Anne will continue our presentation.

MS. WILSON.[5] It is with tremendous self-restraint that I forgo a Halloween-themed briefing. [Laughter] Instead, I have found inspiration in a far more traumatizing fall ritual—applying to college. The pinnacle of this torture is the essay in which applicant upon applicant struggles to distill the very essence of their topic into a few pages to be reviewed by increasingly mindnumbed readers. So it is in this spirit that I present to you the "IF Foreign Economy Personal Essay." As required by this year's common application on slide 1, "Write an essay of no more than 854 words using one of the following prompts." For today, I'll choose, "Where do you, the foreign economy, see yourself now and how do you see your path ahead? How much conviction do you have about that path? What do you see as key challenges to your future?"

So, speaking as the foreign economy, I begin on slide 2. As you can see on the left, after strong performance earlier, my real GDP growth last year was frankly not Ivy League material. This year it has been hard to gain traction, and I continue to disappoint. I take ownership of some of this weakness—in Europe, Brexit uncertainty and unexpectedly challenging auto emission tests have been weighing down my GDP, as has deleveraging in China, the downside risk of an Asian tech cycle, and a deep slump in Latin America. But I have also been blindsided by trade policy uncertainty, which has shaken my confidence and made me reluctant to trade and invest. I now expect that the rest of 2019 will be a bit of a struggle but that I'll start to improve next year, boosted by recovery in Latin America and diminishing policy uncertainty, and grow above my potential by 2021. I am taking a more sober look at what my potential is, however. As you can see on the right, I've revised down my expectations a little on that score.

How much conviction do I have in this path? As discussed in the next slide, I have accommodative monetary policy on my side. Record-low interest rates in the advanced economies and a raft of rate cuts in the emerging market countries should support lending and sentiment. Indeed, credit is picking up in some key economies, importantly China and the euro area, seen on the left. Globally, labor markets remain buoyant. And there are signs that retail sales, in the middle, are turning around and some hints from high-tech exports and IP in ex-China Asia, on the right, that, despite the most recent downward moves, the tech cycle may be bottoming out.

As discussed in slide 4, however, I'm none too confident about these outcomes. I've learned to be wary of depending on Latin America or the resolution of uncertainty to pick me up. I also worry that the continued weakness in global manufacturing, seen on the left, could spill over into other sectors and drag me into recession. Over the past half century, aggregate foreign GDP and industrial production, to the right, have moved closely together, with IP falling sharply in times

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

of global recession. But does a decline in foreign industrial production always presage recession?

The table in slide 5 looks at this more carefully. The first five lines show, for each foreign recession since 1970, the deviation in IP growth from trend in the 12 months before the start of recession, column 1, and the deviation in GDP growth from trend in the first year of recession, column 2. As seen in line 6, IP growth falls an average of almost 2 percent below trend the year preceding a recession. It is concerning, therefore, on line 7 that foreign IP has fallen by more than 2 percent below trend over the past year. That said, outside recessions, line 8, there were 14 occasions when IP growth fell 2 percent or more below trend and, on average, GDP growth remained near trend.

Historical experience with the foreign purchasing managers indexes, or PMIs, discussed on your next slide also does not provide clear-cut evidence on the likelihood of an impending recession. The left-hand chart shows manufacturing and services PMIs for the euro area over 20 years. Typically, these two leading indicators of GDP track each other closely. Lately, however, the series have diverged, raising the question of whether manufacturing weakness will ultimately drag services down or be overcome by its strength. Granger-causality tests suggest that manufacturing PMI leads services, which points to some downside risk in my future, but the evidence is weak and the directionality not always consistent. Moreover, the foreign PMI series excluding the euro area, to the right, shows services and manufacturing tracking more closely and having held up better.

That said, as discussed in slide 7, even if Brexit and trade risks do not reintensify, the current weakness in manufacturing raises a key challenge to my future if it portends a greater and more sustained drag from trade policy uncertainty and other factors than anticipated. The possibility of such a global slowdown is explored in the Risks and Uncertainty section of the October Tealbook. In this scenario, lower productivity and confidence significantly reduce foreign real GDP, flight-to-safety flows boost the dollar, and U.S. real GDP growth weakens notably.

Concluding on slide 8, notwithstanding my disappointing performance and continued risks, I am still hopeful over the medium term. Odds are that the drag on manufacturing will lessen and foreign real GDP growth will begin to approach potential next year. Indeed, our richer models of foreign recessions, which also include information on retail sales and financial indicators, shown to the right, point to limited near-term risk of foreign recession. Moreover, uncertainty and risks from Brexit and trade policy appear to have lessened of late, and these improvements, if sustained, should reduce headwinds on manufacturing and investment. Thus, with a little bit of luck and a lot of policy accommodation, I still hope to reach my potential in coming years. I'm not going to lie, though—speaking as the foreign economy, I wish my application were stronger. Here's hoping that the next applicant, Andreas on financial stability, can present a more reassuring case. [Laughter]

MR. LEHNERT.[6] Thank you, Beth Anne. I'll be referring to the materials labeled "Material for Briefing on Financial Stability Developments." I'm going to briefly summarize our current assessment for financial stability, which was reflected in the draft *Financial Stability Report* you all received last week. Our current plan is to publish the report in mid-November.

What does our survey of imbalances show? For many asset classes, the measures we use to gauge risk appetite have returned to the rough middles of their historical ranges, suggesting that asset valuation pressures have eased. Household debt continues to lag GDP, but business debt is at or near record levels whether measured relative to GDP or assets. The financial system seems quite resilient. Financial institutions currently have robust capital cushions, although low interest rates and bank payout plans may point to some decreased resilience. Finally, liquidity mismatches, particularly outside the regulated banking system, seem to be falling.

On slide 2, I show a range of measures that we use to gauge investor appetite for assets related to the business sector. We use both price and nonprice terms to gauge the "heat" in the system. Measures of the compensation investors demand to bear risk rose in 2019 over their levels in 2017 and 2018. The top-left panel shows the staff estimate of the equity risk premium. As you can see, this moved to fairly low levels in the summer of 2018 but rose abruptly early this year and is currently in the middle of its range over the past 30 years. The panel to the right shows spreads on corporate bonds in the investment-grade (blue line, left scale) and high-yield (black line, right scale) sectors. These are currently just a touch below the medians of their historical distributions since 1997.

The bottom two panels zoom in on leveraged loans. For much of 2018 this market was "white hot." It has since cooled but is still "red hot." To the left, I plot the spreads on newly issued leveraged loans. Spreads on less risky loans, which are those rated double-B, the blue line, are near the bottom of their post-crisis range, and spreads on riskier loans, which are those rated single-B, the black line, are more in the middle of their range. On the right I have plotted a nonprice measure of heat—the distribution of leverage on newly originated loans. As you can see, even if spreads are looking somewhat normal, a large fraction of deals still carry very high leverage, the red portions of the bars.

Your next slide looks at property markets. The top panel shows the ratio of a year's income produced by a commercial property to its sales prices—commonly known as the "capitalization rate." This has been falling for several years, as price increases outstripped rental gains. While capitalization rates have been flat for some time and low rates provide support, commercial real estate prices remain high even as rental income has flattened out. The bottom graph shows an analogous concept for residential properties—the ratio of house prices to rents. For well over a year, prices have lagged rents, and this ratio has been declining.

[6] The materials used by Mr. Lehnert are appended to this transcript (appendix 6).

As discussed on the next slide, elevated asset prices are a particular concern if they are accompanied by excessive borrowing by households and businesses. On this page I show debt owed by the nonfinancial sector—that is, by households and businesses—relative to GDP. This ratio, while not completely satisfactory, remains our best gauge of whether debt has grown too much. As you can see, aggregate debt to GDP has been flat for several years. Looking into the components: Households—the yellow shaded region at the top—have continued their remarkable stretch of deleveraging, with their debt to GDP now back to levels last seen almost 20 years ago. But the story for almost the entire length of the current expansion has, of course, been business debt. As you can see from the bottom purple shaded region, business debt to GDP has continued to rise. An obvious question is the extent to which this debt growth has resulted in increased vulnerability of the business sector, the subject of your next slide.

The top-left panel shows the net increase in outstanding leveraged loans, the blue bars, and high-yield bonds, the tan bars. For several years the picture has been dominated by leveraged loans. But more recently, net issuance has slowed and, indeed, turned negative, as paydowns exceeded gross borrowing in the third quarter. High-yield bonds have made up some, but not all, of this slowdown. Despite recent slowing, debt to assets, shown to the right, is extremely high. The jump in the final observation of this series is due to a change in the accounting treatment of operating leases. It's hard to precisely disentangle the effect of this change, but if leverage did increase last quarter it was by a much smaller amount than shown.

Of course, interest rates are lower now than at the same point in previous expansions, so all of this additional debt is, in principle, more sustainable. Nonetheless, if the average borrower is better off, perhaps there is a tail of highly indebted companies that are struggling. The bottom panel shows interest coverage ratios for public firms; that is, the ratio of earnings to interest expenses. In particular, the graph shows the fraction of firms with ratios of income to interest payments below 1, the red region, and below 2, the pink and red regions. Both of these groups have been trending down in recent years and stand at or near 20-year lows. The picture that emerges of the business sector is one in which businesses are currently managing their increased debt loads but could be vulnerable in a downturn.

Your next slide gives two perspectives on bank capital. The top graph shows the ratio of a measure of high-quality, loss-absorbing capital to bank assets for three groups of banks: the U.S. G-SIBs, the blue line; banks with assets greater than $100 billion but that are not G-SIBs, the black line; and smaller banks, the red line. Looking ahead, while G-SIB capital ratios currently stand at or near multidecade highs, they have announced plans to reduce their equity cushions. Furthermore, recent declines in interest rates are potentially bad news for banks' net interest margins. As shown in the bottom graph, the market value of bank assets relative to their book value has declined in recent months, suggesting that investors have marked down their outlook for bank profitability. Over the longer run, the lower this ratio, the more difficult it is for the banking industry to attract and keep capital. And to be sure, while this ratio has fallen some, it is well above its levels from even a few years ago.

Your next slide looks at funding risk. Financial institutions and markets can be fragile if they have a mismatch in liquidity or maturity of assets and liabilities. We have focused on a particular area of funding risk: open-end mutual funds, which promise investors the right to redeem shares in one day but hold less liquid assets—in this case, high-yield corporate bonds or leveraged loans. You may recall that loan funds experienced considerable turmoil last December, with investors redeeming shares amid elevated price volatility and sizable, albeit temporary, declines in prices in the secondary market for loans. During that episode, the market adjusted quickly, in part because CLOs stepped in to purchase loans sold by funds. Over the course of this year, outflows from loan funds have continued at a notable pace, and assets under management, the red region in the graph, are now well below their earlier peaks. This concludes our prepared remarks. Stacey, Chris, Beth Anne, and I are happy to take your questions.

CHAIR POWELL. Thanks. Questions for the briefers? President Kashkari.

MR. KASHKARI. Thank you. Chris, I think, on your SPU chart, chart 9, the hump that you talked about in 2010, 2011, 2012—knowing what we know now, do you think that hump is real? I have to tell you, my bias looking at this is, knowing what we know now, I don't think it's real, but I'm just curious what you all think.

MR. NEKARDA. Well, I'll answer a related question. [Laughter]

MR. KASHKARI. How about answering our question? [Laughter] And then you can answer another question.

MR. NEKARDA. From the viewpoint of the models, and the factors in the models, we show in this panel how those factors account for increases in this SPU. So the rate of unemployment consistent with stable prices over this period ultimately proved transitory. One interpretation of this picture would be that, standing where we are in 2019, that wasn't really a factor. But I think that through the lens of these models, it would say in 2010 that the rate of unemployment consistent with stable prices was higher than it is today.

MR. KASKARI. What do you think?

MR. NEKARDA. What do I think? I think it will depend on the framework and the model you're looking at. So I don't have a strong view on that.

CHAIR POWELL. President Daly.

MS. DALY. I have a question for Beth Anne. I was looking, and you didn't have it in this briefing, but it was in the Tealbook. I noticed—and all of us have done this, it's not the staff here who have done it, but—there's been this consistent markdown in global real growth. It reminds me of the pictures that we had back after the financial crisis when we continued to think U.S. real GDP growth was going to be up, and from every Tealbook we got and from any private forecaster, you kept seeing this markdown. And, at some point, we just had to accept that we had something in the underlying trend or in our models that was off, and so we were building these ground-up calculations, but they were never delivering the outcome. And so I just wonder—I'm sure you guys have wrestled with this, and I know you're not that optimistic about your application, but why should we be so sure of this one if there seems like there's additional downside risk?

MS. WILSON. Right. I did want to convey a certain uncertainty about this, and it is a bit disheartening to have to keep presenting downward revisions in our Tealbook. Some of the reasons why we've had to mark down have reflected actual changes in the environment in which we're facing. Over this time, we've had some shocks that in some part have been responsible for why policy rates here have come down. We've had increases in trade policy uncertainty. We've had continued uncertainty about Brexit. And we've, in part, revised up our assumptions of the drag of those uncertainties on the underlying economy. And our baseline is conditioned on those uncertainties going away, but when they don't, then we need to alter how we think about those. So that's one thing.

Another thing is, in Latin America, the situation has been much more dire and long-standing. The incredibly long recession in Brazil, the collapse of the Argentine economy now, the change in leadership in Mexico and what that's meant for the Mexican economy, and the uncertainty that's meant, have caused us to revise down our forecast, to be surprised by how growth has come in, and, as you saw, to revise down potential output.

In China, too, we've been somewhat surprised. We had built in a slowing in the Chinese economy. That slowing has happened, been more manifest, in part exacerbated by trade policy uncertainty and the willingness of the policymakers to focus on financial stability concerns and deleveraging rather than do another round of boosting—we've taken that onboard.

MS. DALY. Thank you.

CHAIR POWELL. Thanks. President Barkin.

MR. BARKIN. Stacey, chart 4 on PCE inflation.

MS. TEVLIN. Yes.

MR. BARKIN. I guess some of us would get heartened in March when it finally gets to 2 percent. What's underlying your analysis that takes it down? Is it the weight of trend, and trend takes it down? Are there particular items that you see in the second or third quarter of this year that would be the cell phone pricing equivalent?

MS. TEVLIN. Yes, it's something like that. Early this year, we had really weak monthly readings in January, February, March. And then we had a rebound higher than we would have expected—but idiosyncratic mostly, we think—monthly gains in the second and third quarters. So as the first-quarter low numbers drop out, the 12-month change will move up. But then after that, we expect the high numbers seen in the second and third quarters of this year to drop out and the increase to move back toward its trend rate.

MR. BARKIN. Are there particular items, like financial services? Is that what's driving it? Or was it just low for a while, and it was high for a while, and we assume it will—

MS. TEVLIN. There's a bunch of different categories, yes. But it wasn't one thing from month to month. It was a lot of different categories.

MR. BARKIN. Thank you.

CHAIR POWELL. No further questions? Let's go ahead and begin our opportunity for comment on financial stability with President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. I'd like to briefly raise two topics. First, the *Financial Stability Report* shows that high-yield bonds and institutional leveraged loans outstanding now exceed $2.5 trillion. This is substantially larger than the subprime housing market that generated so many problems during the financial crisis. However, the distribution of how subprime mortgages were held was a critical factor in the magnified effect on the economy during the financial crisis.

I worry that we do not have a particularly good window on the overall size and distribution of riskier corporate debt, including the balance sheet data of borrowers. We can track a proportion of the debt through SEC filings or other sources, which report balance sheet data for borrowers, databases like S&P Capital, which looks like it's underlying most of the tables that we've looked at, or CompuStat are hampered by SEC filing limitations.

Because many private equity deals, which tend to have higher leverage multiples, fund with debt not captured in these common sources, we may have a limited window into the distribution of some of the highest-risk debt. There is information that the Flow of Funds Section receives, an aggregate using IRS filings for top-line balance sheet items, but my understanding is that we do not have access to the underlying microdata. The FSOC or OFR should look into how we can use IRS data to better capture risks in highly leveraged loans not covered by data tracked through SEC filings and other sources.

My second observation is that monetary policy buffers here and in other developed economies are diminishing quickly. In the United States, both short-term and long-term rates are much closer to zero than they were going into the previous recession. The shrinkage in monetary policy's buffer—a topic of our framework discussion—obviously limits our capacity to offset the next economic downturn. But it also has implications for regulatory and financial stability policy. With monetary policy less able to offset adverse shocks, regulatory and financial stability buffers should ideally increase. However, the very high payout ratios of banks and the potential proposal to no longer require the prefunding of dividends and share buybacks in the stress-test evaluations risk reducing regulatory buffers. This is compounded if we replace solvency capital with countercyclical capital buffers, which are intended to be removed during recessions to allow banks to absorb losses and make reductions in bank credit availability lower than would otherwise occur.

We should be building our regulatory buffers, and these potential regulatory changes that encourage higher payout ratios and substitute solvency capital for countercyclical capital—which, if anything, reduce regulatory buffers—make me much less inclined to continue to reduce monetary policy buffers. Although I would prefer to have regulatory policy address these fragilities, deregulation may force the need to preserve more of our monetary policy buffers so that they are available to offset eventual adverse economic or financial shocks. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. I think the Board's *Financial Stability Report* is a very important addition to the Federal Reserve's communications. At the framework conference at the Chicago Fed, Anil Kashyap of the University of Chicago and Caspar Siegert of the Bank of England, who are both affiliated with the United Kingdom's Financial Stability Committee, presented a paper that points to this report as an indication that the Federal Reserve takes financial stability risks seriously and has a framework for monitoring these risks. And I think that recognition reflects positively on the report and the System. I want to thank Governor Brainard for all of her efforts to successfully add this report to our suite of communications, and I want to thank the staff for continuing to monitor financial stability.

So, according to the report, financial stability risks remain moderate, but the accumulation of risks in various areas suggests risks are rising. When you read the report, in all the places you can just add up those risks, and they seem to be rising, at least in my view. The report continues to indicate that high levels of corporate debt, leveraged lending, and elevated commercial real estate valuations pose some risks to the outlook. Equity prices relative to earnings and corporate bond prices are high by historical standards, and capitalization rates on commercial real estate are near their 2007 lows. The most rapid increases in debt are at the riskiest firms. Leveraged loan demand remains high, and credit standards remain weak. About half of investment-grade debt outstanding is rated in the lowest category, which is an all-time high.

While the Senior Loan Officer Opinion Survey does not show a loosening in lending terms, anecdotal reports are accumulating that credit standards on some bank lending have eased considerably, with extended maturities and low rates. There has been a slight deterioration in credit quality, although overall loan losses remain low at this point. The spike in repo rates in

September suggests that money market dynamics have changed and aren't fully understood. This might be true in other markets as well. Liquidity in the U.S. Treasury securities market and the equity futures market has deteriorated. Market participants report that they view the equity futures market as more fragile now. Market participants also express concerns about the high growth in leveraged loans, private credit, and triple-B-rated bonds. In their view, a downturn could lead to larger losses and test new business models and investment strategies, such as exchange-traded funds.

As the staff points out, currently the banking system is well capitalized, but several large banks are planning to reduce their voluntary buffers, and this is troubling. Given the risks around the outlook, banks should be building capital, not reducing it. Indeed, a lesson coming out of our "tabletop" financial stability exercises is that to work, macrofinancial policies need to be initiated at early signs of risk. The countercyclical capital buffers should have already been initiated to help ensure banks are in a position to maintain their lending through any downturn.

The Europeans are currently dealing with some of the costs of not taking steps earlier to rebuild capital in their banking system. In particular, concerns about the health of their banking system put some limits on the effectiveness of their monetary policy actions. I think this is a lesson for us. While we are simplifying our capital and liquidity rules here, we shouldn't lose sight of the importance of having regulations in place to help ensure the structural resiliency of our banking system throughout the business and financial cycles. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. I want to focus on two things that were in the report and one thing that was not in the report. First, let me start with one of the things in the report. Market contacts appear to have fully internalized the idea that our funds rate policy space is more limited than in the past and that we may be unable to offset fully the effects of future downturns. And this makes my second observation, also mentioned by President Rosengren and President Mester, even more concerning.

The report noted that several large banks are reducing the size of their voluntary capital buffers in favor of maintaining dividend payouts. This behavior contrasts with that of many nonfinancial firms I talked to that are currently hoarding cash and getting ready in preparation for a possible period of heightened volatility and slower growth. At this point in the cycle, with worries about limited monetary policy space and, frankly, fiscal policy space, any movement toward smaller capital buffers could be unduly risky.

My final observation is something that's not in the report. As thorough as the *Financial Stability Report* and the QS are, they are overlooking currently important and emerging risks related to climate. Central banks and financial regulators around the world have increased their focus on the micro and macroprudential implications of climate change–related risks, and the System's staff are actively studying and discussing these issues, especially in San Francisco, New York, Dallas, and here at the Board. The conversations include individuals in economic research, supervision, and community development.

Climate change can affect both financial shocks and vulnerabilities. In California, the recent wildfires, power blackouts, and PG&E bankruptcy are the most recent examples of how climate change can disrupt economic and financial activity. The balance sheets of a wide range of firms will also face new vulnerabilities from adverse climate trends, such as higher sea levels, and from the transition risk associated with replacing and pricing of carbon-related assets. These transition risks may be closer than we think, as demonstrated by ongoing litigation about the climate change risks faced by Exxon. This means that it will be important for us to develop the capacity to evaluate climate-related financial stability risks. I hope to see a QS box, perhaps, on climate risk before long and eventually to see climate risks included as part of our routine financial stability and monitoring process. Thank you.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chair. Looking at the current situation, looking at the presentation we've just had from the staff, I would conclude that financial vulnerabilities are moderate. It certainly looks like the premiums that investors are demanding to buy a range of financial assets are roughly in line with what they have been over the course of their history.

Commercial real estate has been an area of focus—it's been an area of focus for some time. The rise and fall of WeWork added some spice to that story, and we heard it first from President Rosengren. But although that's still playing out, CRE prices have held up, capitalization rates are low, and the spreads of capitalization rates to Treasury yields are close to the usual levels. Funding risk seems contained. Household debt has grown in line with GDP. So if there's something to focus on, and obviously many people are focused on this, it's the expansion of business debt that has slowed down recently. But nonetheless, you still have a record share of corporate bonds that are rated triple-B, the lowest investment grade. And, as Andreas pointed out, measured by debt-to-assets or debt-to-GDP, balance sheet debt is high, particularly for riskier firms.

Now, obviously, debt service loads are not particularly high, and it would seem that the tenor of all the other conversations we're having is that debt service loads are not going to get particularly high anytime soon. But we should also note that our best information is for the very largest firms. In their recent financial stability report, our friends up the street at the IMF highlighted risks to small and medium-sized businesses, some of which have lots of debt and less funding to cover payments. I would take that, however, with a grain of salt. Tracking smaller firms is fraught with data challenges. The IMF calculations require some Herculean assumptions that probably stretch credulity. But, all in all, it's fair to say that business-sector vulnerabilities have been growing through the expansion, and that could amplify a future downturn—just the sheer quantity of debt.

You're starting to see some cracks begin to show through. Triple-C-rated debt, the absolute junkiest of the junk, has seen some higher defaults and wider spreads in recent months. Other cracks other than in business debt could appear. Credit performance of households should be better for this level of the unemployment rate, and at this point in the business cycle there's some evidence of increased delinquencies in the most vulnerable households.

The key to all of this, however, is whether the debt holders, when they lose money in the downturn—as they will because that's what happens in a downturn—will fail to lend more or whether they will fail altogether. If they fail to lend more, credit tightens and that weakens the economy further; if they fail altogether, then you have an unstable financial system.

At the Financial Stability Board, we've been pulling together a report that looks at leveraged lending developments from a global perspective, particularly looking to see where the exposures are globally to leveraged lending and whether we have a better sense of who it is that might lend less or who it is that might fail altogether depending on how much they hold and what tranche of exposures they hold. The data challenges associated with that are large, but the joint work across various agencies globally seems broadly in line with previous Fed findings. I expect that we're going to publish that work later this year, which will allow us to, again, get a more complete and I hope a more granular picture of these exposures.

More generally, whether you get a fail-to-lend-more or a fail-altogether scenario depends on the existence of a resilient financial system, and fortunately we have one of those. The results from the latest stress tests suggest that banks are well capitalized and can weather a significant downturn. Our stress tests give us a very detailed look at the large banks' exposures to commercial real estate, to other business debt, including leveraged loans. There are certain to be some big losses if the cycle turns, but we are not here to prevent banks from losing money on risky investments—only to ensure that they can absorb the losses. And their current capital levels certainly ensure that they can, which we test under severe levels of stress. So, again, I'm grateful for the presentation on financial stability and, all in all, I think that it should give us comfort as to the financial stability situation of the financial industry currently.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. I think the *Financial Stability Report* is an excellent report, and I agree with what President Mester said about its usefulness. I would flag for Andreas one thing that I'm hearing increasingly about from contacts to the point where it's worth raising, and it has to do with this issue of liquidity mismatches. Maybe you're hearing similar things. Contacts I talk to have been giving me unsolicited analyses—of, particularly, triple-B credits and double-B credits—that assert that the rating agencies are systematically now overrating credits. And they send me presentations showing that debt to EBITDA—not coverages, but debt to EBITDA—are much higher, by historical standards for the same level of rating. And then the second thing they're showing me is the EBITDA estimate at the time of rating versus the actual. And they're struck by how wide the misses are—how much they're getting these estimates wrong.

These are very sophisticated market participants. One of them was quoted in the newspaper this morning about backing away from the corporate debt market. And what they're saying increasingly is, they're gearing up and increasing their dry powder in anticipation that there will be a certain number of triple-B bonds that are going to get downgraded to double-B bonds.

We went back and did a little work on this. Obviously, the triple-B market is many multiples the size of the single-B market. And their assertion is, it's going to take two or three of these credits getting downgraded. And oh, by the way, probably the most likely candidates are in the energy sector, if the price of oil dips below 50. And what they believe is going to happen in preparing for it is, you're going to get an immediate widening in double-B credit spreads and single-B credit spreads because there's just not enough capacity to take a couple of these downgrades. You're going to have widening of spreads.

The good news is, as I mentioned earlier today, it's not that this won't stabilize. There will be money. There are plenty of pools of money that have been forming to take advantage of this. The issue is, where we find the equilibrium, the spreads will be much wider than where we've had them. And the issue will be, back to your coverages chart, when these companies need to refinance, the coverages in that scenario are not going to look very good. And, in fact, it will make this corporate sector look a lot more leveraged than it does right now.

Some of these people are actively hoping for this scenario, because they're preparing for it. But I think they're warning you've got a bigger corporate debt issue than you may realize. And it emanates, they believe, from overrating by the rating agencies. And I mention it because we've got this issue of daily liquidity being offered by mutual funds. They think that's going to be stressed again in this scenario. You're going to have a mismatch, and it's going to be apparent. You're going to have a widening of spreads. It's going to tighten conditions broadly, because these funds will sell what's liquid, and they won't be able to sell others. You'll have a gapping out. We are seeing, as Governor Quarles said—and I think this is healthy, actually—some of the marginal credits already widening. And this may be part of the reason why, but these firms are gearing up for this.

As I mentioned, for those who didn't see the story, there was one firm, which struck me today, notably saying they're backing away from the corporate debt market. So I think this corporate leverage issue, which has a lot to do with rates along the curve—and, again, it's not that there won't be liquidity, it's just going to be at wider rates. And I think we're increasingly, in my team, just preparing and thinking through what will happen to the economy as we're slowing. This, to us, is a good explanation of why slowing global growth may seem innocuous to the United States, until you start looking at a couple of industries like energy and you realize it could actually be the proximate cause of this gapping out. So we're continuing to watch it carefully, particularly in connection with the energy industry. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. The preamble to the *Financial Stability Report* reminds us that promoting financial stability is a key element in meeting our dual mandate. It also describes actions taken by the Federal Reserve to promote the resilience of the financial system, including its supervision and regulation of financial institutions.

While the current report concludes the financial system appears resilient, it calls for caution and continued monitoring, especially around rising domestic, global, and geopolitical economic threats to the U.S. financial system, which are occurring at a time when risky asset prices are elevated and corporate indebtedness is "red hot," as I believe it was referred to.

Against this backdrop, the FOMC is lowering interest rates, while large U.S. banks are lowering capital levels. Indeed, the report notes that many banks have announced regulatory capital targets 1 to 2 percentage points lower than their current levels, effectively lowering resilience.

If the FOMC is to maintain its flexibility to adjust monetary policy, it must rely on Federal Reserve supervision and regulation, as well as other banking authorities, to maintain or strengthen capital in our largest banks to promote financial stability in the event of a shock. This is especially critical as low interest rates persist and encourage risk-taking in borrowing, the expansion lengthens, and downside risks remain prominent with limited monetary policy space. Thank you.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. Let me join others in saying how valuable I find the *Financial Stability Report* and commend the staff. Let me touch on three areas of financial risk. One is from a traditional vulnerabilities lens, and two are forward looking.

The third *Financial Stability Report* continues to highlight the combination of very low credit spreads and high levels of indebtedness among risky, nonfinancial corporates as the area of greatest vulnerability. The IMF *Global Financial Stability Report* also highlights high debt among risky corporates as the greatest vulnerability globally, and this is similar to the concerns that have been raised by President Kaplan. While valuation pressures remain elevated for a variety of asset classes, it's especially true for commercial real estate and for risky corporate debt, where low spreads and strong risk appetite appear to be out of line with fundamentals.

Corporate debt is at or near a historical peak, whether measured relative to nominal GDP or the book value of assets. And whereas previously mostly higher-earning firms with relatively low leverage were taking on additional debt, as the cycle has extended, it's the firms that have high leverage, high interest expense, and low earnings and cash holdings that have increased their debt the most.

Credit quality has deteriorated within the investment-grade segment, and the share of bonds rated at the lowest investment-grade level has reached record levels. Widespread downgrades of these bonds to speculative-grade ratings could induce rapid selling. This concern is higher than in the past, as bond mutual funds now hold a much larger share of the market, and the redemption behavior of investors in these funds is unclear.

The *Financial Stability Report* highlights public debt, whereas the IMF *Global Financial Stability Report* augments that analysis with the growth in private debt, which compounds the magnitude of imbalances. Both reports highlight the substantial growth in leveraged lending, along with a notable deterioration in underwriting standards. Net issuance of leveraged loans to risky borrowers grew to historic highs last year. Recently, we've seen that the shift in the interest rate environment has led high-yield issuance to pick up relative to those leveraged loans. A large share of those loans are packaged in CLOs. To date, the default rate has been relatively low, and corporate credit conditions have been favorable. But if spreads rise sharply or economic conditions deteriorate, we could see downgrades, refinancing challenges, rising delinquencies, and losses. We've already seen substantial outflows from the loan funds that had been growing rapidly.

Looking ahead, the low-for-long rate environment to which we have transitioned over the past year is likely to exacerbate these imbalances. If rates remain low for a long period as market participants are currently projecting, this would raise additional challenges. That kind of environment tends to increase financial vulnerabilities and lower resilience. In particular, low interest rates create higher incentives for a firm to increase indebtedness. They also reduce banks' profitability and make it more difficult to reinforce capital buffers, as we saw in the presentation. A low-for-long environment can also reduce the solvency of some nonbank financial institutions, including pension funds and insurance companies, as some of these institutions have substantial fixed future liabilities, which they may struggle to meet when interest rates are persistently low.

Both historical experience and economic research point to the risk that excesses in corporate debt markets could amplify any adverse shocks to the economy. Overindebted businesses may face payment strains when earnings fall unexpectedly, and they typically respond by pulling back disproportionately on both investment and employment, and that kind of behavior then amplifies volatility by reducing investors' demand for risky assets.

Recognizing the feedback loop between financial imbalances and the macroeconomy, it would be valuable to have macroprudential buffers to temper this cycle. Banks should have been reinforcing their buffers countercyclically by retaining some portion of their earnings when profits were high. Instead, common equity Tier 1 capital has come down by about 1 percent over the past two years at our large banks, and this will be the third year in a row that payouts are projected to exceed earnings, as Presidents Rosengren, Mester, and George pointed out.

It is interesting that the research by Don Kohn and Nellie Liang highlighted the dividend prefunding requirements in the stress tests as the most important element of the stress test with regard to preserving countercyclical resilience.

If the past three recessions are any guide, financial imbalances rather than price inflation are likely to pose the greatest risks to the expansion. It's therefore key to achieving our monetary policy goals that the financial system remain resilient and that regulators resist the complacency that history suggests tends to accompany a strong economy.

I will now turn briefly to the nontraditional risks out over the horizon. One risk that bears watching regards the emergence of stablecoins at global scale. Stablecoins aspire to achieve the functions of traditional money without relying on confidence in an issuer such as a central bank to stand behind the money. Indeed, for some potential stablecoins, users may have no rights with respect to the underlying assets overall.

We've already seen the growth of massive payments networks on existing digital platforms, such as Alibaba and WeChat, and the issuance of stablecoins on a smaller scale, such as Tether, Gemini, and Paxos. What sets Facebook's Libra project apart is the combination of an active user network representing more than one-third of the global population with the issuance of private digital currency opaquely tied to a basket of sovereign currencies.

Given substantial network externalities, large-scale migration into a new stablecoin network such as Libra for purposes of payments may prove to be the leading edge of a broader migration that encompasses the other functions of money. Not only isn't it clear what, if any, consumer protections will be in place with Libra or what recourse consumers will have, but also it's not even clear how much price risk consumers might face, as they don't appear to have rights to the underlying assets.

In that kind of environment, any deterioration in confidence could trigger a loss of confidence resulting in a classic run, especially in view of the lack of clarity about the management of reserves and the rights and responsibilities of the various market participants in the open network. The potential for runs and spillovers could be amplified by ambiguity surrounding the ability of official authorities to provide backstop liquidity and to collaborate across borders. As we seek to understand these risks, we're intensifying our work on a number of fronts: cooperating across borders with other regulators, implementing our real-time retail payments system, and increasing our research on digital currency, among others.

Finally, I want to echo President Daly's call for our financial stability agenda to encompass consideration of risks associated with severe weather, stranded assets, and other possible implications of climate change. Already, private-sector entities in a variety of sectors are assessing the risks to valuation in core business lines from the changing climate. We should be encouraging internal research and building on private-sector risk assessments and learning from international efforts, such as the United Kingdom's macroprudential climate stress test, the Financial Stability Board, and the Network for Greening the Financial System, to make sure we have the appropriate tools and assessment methodologies in place. Thank you.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. My comments piggyback on those of Presidents Rosengren, Mester, and Kaplan, Governor Brainard, and others, and, in fact, our recurring discussions of the enormous growth in riskier, nonfinancial corporate debt. My main point is that structural changes in the provision of liquidity in the corporate debt market create a vulnerability that may further amplify the effects of a negative shock and financial conditions in the overall economy. Bouts of illiquidity in segments of equity and bond markets, which have been mentioned—and they're all mentioned specifically in the *Financial Stability Report*—as well as the recent volatility in the repo market highlight the important but too often overlooked role of institutions' market structure in the provision of liquidity in financial markets.

Because liquidity tends to go missing just when it's most needed, we have been focused on how structural changes in markets affect the provision of liquidity. A bank's role in intermediating corporate debt has moved away from market-making, whereby they took risky assets onto their balance sheet to facilitate customer trades. Banks now act primarily as agents—a type of intermediation that leaves this market more vulnerable to risks of fire sales and losses of market confidence. And the shift has occurred at a time when risky debt has grown significantly and yields are at historical lows. The work done by my staff highlights the record-high share of corporate debt rated the lowest investment-grade ratings, something that's already been mentioned a few times. And, of course, that makes it vulnerable to fire sales in the face of deterioration in corporate profits.

While banks' direct exposure to corporate bonds is low, the potential for liquidity suddenly vanishing in risky debt markets in the face of a credit event is concerning. As we think about the risk to the system from elevated nonfinancial business leverage, sharp deterioration in market liquidity of corporate debt is an amplification mechanism that we should incorporate in our assessment of this risk. Thank you.

CHAIR POWELL. Thank you. Thanks for a good round of comments. And let's enter the homestretch now, with our economic go-round, beginning with President Mester.

MS. MESTER. Thank you, Mr. Chair. There's not been much change in the Fourth District economic conditions since our previous meeting. Economic activity is still expanding at a modest pace. The Cleveland Fed staff's diffusion index of business conditions moved up to 9 in October from near-zero readings in July and September. Softness continues to be concentrated in the manufacturing and freight sectors, reflecting tariffs, trade policy, and softer foreign demand. There's little evidence that this softness has spilled over to other parts of the Fourth District economy.

We continue to see some difference between actual activity and concerns about the economy. Contacts tell us that activity in their firms is still good, and they expect future business conditions to remain healthy. Despite this, many contacts expressed some concerns about the outlook for the overall economy. I've heard many express a version of, "We are talking ourselves into a recession."

Now, one way to reconcile this is that their modal forecast remains sound, but they see downside risks to the outlook. Some firms are taking precautionary measures. Contacts from both larger and smaller financial institutions reported that more of their business customers are taking a wait-and-see approach to some of their capital spending decisions. Some firms are also building up cash reserves in order to be better positioned should the economy slow more than expected.

Despite the caution, District labor market conditions remain strong. The unemployment rate edged up to 4.2 percent in September, but it's still well below the Cleveland staff's estimate of its longer-run normal level. Year-over-year growth in payroll employment in the District has remained near ½ percent over the past few months, in line with the Cleveland staff's estimate of its longer-run trend. The expected benchmark revisions will make this a tad slower but still in line with trend growth.

Contacts in a wide variety of sectors continue to report that it's hard to find and retain workers to meet current demand. Some manufacturers reported that despite softer activity, they're going to try to retain workers because it's been so difficult to fill vacancies. Wage pressures remain elevated, but there may be limits. An owner of a small manufacturing firm experiencing significant turnover for skilled and unskilled workers has raised wages but is reluctant to continue to do so because he feels that the productivity of the available worker pool doesn't justify the higher cost.

Price pressures at District firms remain moderate. Several retailers headquartered in the District are concerned about their profitability in light of the tariffs on apparel and footwear that took effect on September 1. Most plan to absorb this cost increase in the near term, but one retailer was selectively increasing prices of some goods in response to new tariffs.

Regarding the national economy, incoming data over the intermeeting period were mixed but did not change my outlook for the economy or my view of the risks to the outlook. Output growth is slowing in the second half of the year after an above-trend pace in the first half. I expect growth to be about trend for the year as a whole.

The business sector remains soft. Equipment spending, manufacturing activity, and exports have all weakened considerably this year, but they have not weakened to the same extent as observed in the 2014 to 2016 period. Of course, they may not have stabilized yet either. One of my focuses has been whether there are signs that the softness in the business sector is spilling over to the consumer sector and labor markets. The good news is that, so far, there are few signs of broader weakness. The consumer side of the economy continues to do well. Although consumer spending has moderated from its strong second-quarter pace, it remains solid, and the underlying fundamentals supporting it are sound. Personal income growth has been between 4½ and 5 percent this year, household debt levels have risen with income and are not excessive, and consumer confidence remains at a high level.

While business spending and sentiment have deteriorated this year amid concerns about tariff and trade policy and risks to the outlook, this has yet to affect hiring. Labor market conditions remain strong. In September, the unemployment rate fell to 3½ percent, the lowest level of the expansion. Job growth was expected to slow this year, and we've seen that—last year's pace was 223,000 jobs per month, and this year's pace has been about 160,000 per month.

Now, the benchmark revisions to be released next February will take both of these levels down, but even with the revisions, current estimates suggest that job growth will still have been above trend. I do think we should begin to communicate the message that the coming revisions will show that job growth was slower than originally reported. We don't want it to look like we were surprised by the revisions. And we also don't want the message to get lost that labor markets remain solid, even with the expected revisions. That's not to say we shouldn't continue to monitor labor market conditions. The Board staff's ADP measure shows a more substantial slowdown in private-sector job growth, and while job openings remain at a very high level, they have moved down since January. So we'll need to keep an eye on indicators to assess whether a sharper deceleration in labor markets is developing or whether job growth is slowing toward trend.

This slowdown to a more sustainable pace of job growth as workers become scarce is not a bad thing. If labor market conditions remain overly tight for some time, there can be unintended consequences apart from any effect on inflation. For example, several members of our business advisory council have mentioned that their ability to innovate has been lessened because so much of their time is spent on recruiting, and less innovation could negatively affect future growth. Other firms tell us that because workers are so hard to find, they are speeding up their efforts to automate more of their operations. In the long run, such automation can make production more efficient and raise the potential growth rate of the economy. However, in the short to medium run, workers without the necessary skills to operate in a highly automated production process may be left behind unless they have access to affordable training programs.

Incoming data are consistent with inflation gradually firming to our 2 percent goal. Although total PCE inflation continues to be weighed down by declines in energy prices early in the year, core PCE inflation has been rising and reached 1.8 percent in August. Other measures of the underlying inflation trend are closer to our goal. The Dallas Fed's trimmed mean PCE inflation measure has been stable at 2 percent. The Cleveland Fed's Center for Inflation Research produces several inflation measures, and all have been moving up. Median PCE inflation was 2.7 percent in August, and median CPI inflation moved up to 3 percent in September. Both of these are at expansion highs. The trimmed-mean CPI measure was 2.3 percent in September, and the cyclical component of core PCE inflation constructed using finely disaggregated data is running at about 3 percent, its highest level of the post-crisis period.

Now, forecasts of inflation gradually returning to 2 percent are dependent on long-run inflation expectations remaining stable. Recent readings have been mixed. The long-horizon inflation forecasts from Blue Chip and Consensus Economics were unchanged in October. The Cleveland Fed's five-year, five-year-forward measure of expectations, which combines market and survey data, was unchanged from September to October but down slightly from its level in the previous few months. Readings of longer-run household expectations from the Michigan and New York Fed surveys edged down since our previous meeting. So far, the softer readings are in line with the typical variation of these measures, and if our 2 percent inflation objective is credible and well understood by the public, it shouldn't be that surprising to find these measures gradually converging down to 2 percent.

I recently participated in an inflation conference at the Brookings Institution. Michael Weber of the University of Chicago presented his research showing that consumers' daily shopping experience is the most critical determinant of their inflation expectations. Goods purchased frequently matter more, and differences in reported inflation expectations across individuals largely reflect what price changes each is experiencing and has experienced given their different shopping bundles.

These results seem consistent with some of the reactions we collected from participants at our *Fed Listens* event. They were quite surprised, perhaps even dismayed, that the Fed was concerned about inflation being too low because, in their view, inflation was high and prices were increasing for the things they needed to purchase. As one participant told me, "It costs a lot more to be poor these days."

On balance, I view incoming information on the economy as consistent with my modal forecast of output growth slowing toward trend, which I estimate at 2 percent; a strong labor market, with the unemployment rate remaining below 4 percent; and inflation gradually rising to 2 percent. I think we'll avoid a more serious turndown in the economy similar to the 2014–16 period, when the economy proved resilient with the slowdown in global demand, a decline in oil prices, and appreciation of the dollar, which caused the drop-off in investment and manufacturing activity.

The nature of the downside risks this time is different, however, and they're not insignificant. These risks include new tariffs and uncertainty over trade policy; slower growth abroad, including China; Brexit developments; and tensions in the Middle East and Hong Kong. So we're going to need to keep assessing whether the effects of adverse shifts in business sentiment and uncertainty over the outlook are expanding, causing firms not only to reduce capital spending, but also to pull back on hiring, which then causes consumer sentiment and spending to weaken and unemployment to rise, with inflation staying below our target because of weak aggregate demand.

These risks are one consideration in determining the appropriate path of monetary policy, but there are other considerations as well. Financial institutions seem sound at this time. But capital levels have fallen over time, and our macroprudential tools are limited. Levels of corporate debt, especially at less creditworthy borrowers, remain high. Commercial real estate valuations are elevated. And there are reports of very easy credit terms on some types of lending.

We have relatively less insight into risks that may be building up outside the banking sector, and interest rates have been very low worldwide for an extended period of time, which may be encouraging reach for yield. We need to be careful not to feed this type of risk-taking, which could lead to a more severe downturn should downside risks be realized.

Now, in our framework discussion, Vice Chair Williams misinterpreted my comment. I said we should remain humble about the magnitude of the effects of our tools. I did not say that we should be timid in using them when appropriate. In fact, if there's evidence of a material change in the outlook, we will have to act—and act decisively. But, until then, my preferred policy strategy is to continue to monitor economic and financial conditions and not make further adjustments in our policy rate merely on heightened risk. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. Before I present my outlook remarks, I would like to attend briefly to a matter carried over from our first session this morning. Now, unlike my good friend and colleague Governor Quarles, I do not have this hanging above my bed, but it is hanging over me. [Laughter] In our first panel this morning, we discussed as one of the framework topics negative interest rates, and by my count 16 of the 17 of us weighed in on that topic. Because I began I did not, so let me be clear. Among us, I'm probably the most negative on negative interest rates [laughter] or in the lower quartile. So when the minutes of this meeting are written and in five years when the transcripts appear, I think it's unanimous on that. So just to get that out of the way.

I turn now to the outlook remarks. We're awaiting the Q3 GDP release tomorrow morning, although some of us will get it earlier than that, but the U.S. economy appears to be in a good place, with historically low unemployment and inflation near but projected to rise up toward out 2 percent objective. Real wages are rising in line with productivity, labor force participation is up, and hours worked are increasing. The labor market is robust, but there is no evidence that rising wages are a source of cost-push pressure on price inflation. Indeed, if anything, the revised national income data show a noteworthy—and, to me, welcome—increase in labor share of national income in recent years. Indeed, by my calculation, it's back to the levels previously reached a dozen years ago. And this reveals that as in previous cycles, wage increases absorbed by margin compression are noninflationary.

Of course, income shares have to add to one, and, thus, the revised data also show that the share of profits in national income has declined. This is relevant because as the staff reminds us, profit expectations are an important driver of business investment, and the decline in profit expectations is one reason why they project a weak trajectory for business investment.

Underlying inflation appears to be running at the 1.8 percent rate estimated by the staff. Tariffs and some favorable transitory year-over-year effects may push core PCE inflation above 2 percent next winter. But, once these level effects pass through, the staff projects core inflation to fall below 2 percent next year and to remain there throughout our forecast horizon.

As I have commented here and in some recent interviews, the aggregate household sector in the United States is in the best shape that I can remember in my professional career. The saving rate is robust. Leverage is modest. Financial obligation ratios are favorable. The U.S. consumer is projected by the staff to continue to be the main, and perhaps only, engine of growth besides the housing sector. That said, the staff projects that real GDP growth will slow to 1.6 percent in the second half of the year, roughly in line with their estimate of trend, but below my estimate of trend, due to weakness in business investment and exports. And for the first time, I believe, in six or seven quarters, residential investment is rebounding and will be making a positive contribution to growth.

So this is some of the good news in the projection, and my baseline outlook for the economy is similar to the staff's, but my concern is not about the baseline but the balance of risks. And as I've indicated since the June SEP, I do see the balance of risks for inflation and real GDP growth tilted somewhat to the downside. And here my thinking is actually in alignment with many of the Committee. I asked a research assistant to go back through the SEPs since 2012 to construct a simple time-series diffusion index. In each of our SEPs we're asked the question, "Is the risk to your GDP outlook weighted to the upside, balanced, or to the downside?" So you can simply construct a diffusion index, which is the difference between the number of us who say "weighted to the upside" minus "weighted to the downside." In the September SEP, the reading on the GDP balance of risk was minus 12, which was close to the lowest, really, it's been since 2012, and the inflation diffusion balance of risk was at minus 5. And so looking at the balance of risk, I think the Committee judges—and I think President Mester also just mentioned this—the balance of risks are skewed to the downside.

In my remaining time I will focus my remarks on the downside risks to the inflation outlook. Again, as we've commented and I've commented in previous meetings, the staff's forecast is for PCE inflation on a core basis to return to 1.8 percent. The staff does see cyclical upward pressure on inflation because unemployment is below their estimate of the natural rate, but that's offset with other factors, including a stronger dollar. And, of course, a potential risk to that outlook is that, if the natural rate of unemployment is actually lower than we think, there will be less cyclical upward pressure on inflation. And that is a downside risk and one that I'm potentially concerned about.

I would like to draw attention to a box in the Tealbook on pages 20 and 21, which summarizes some excellent staff work to construct what they call a "common inflation expectations index." And essentially what they do is they use a statistical model to extract a common factor in 21 different measures of inflation expectations. And so the advantage of the statistical approach is that it does not rely on our instincts or our priors to tilt us in one way or the other. For example, I cite the Michigan survey a lot, which shows lower inflation expectations than some others.

Now, what this statistical model shows on the box on pages 20 and 21 is that if you extract this common factor, it has been drifting down over the past four or five years. It's at the lowest level that it has been. That being said, it's not a significant or large drift, but certainly if you thought the factor was consistent with stable inflation expectations at a 2 percent level 12 years ago, it's somewhat lower than that level now. So I think it's something that we should keep track of, and I applaud their efforts to include that.

And then finally—and I'll conclude on this, Mr. Chair—I do note that staff estimates of expected inflation from the TIPS market, which strip out the term premium, which strip out liquidity effects, have been sagging noticeably since the summer. For most of the year, the fluctuation in breakevens in the staff model were attributed to term and liquidity premiums, but more recently they are attributing most of the decline to a decline in expected inflation. And, indeed, if you take the read, it's basically consistent with expected inflation on PCE at 1.7 percent. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. I'd like to start by noting that, by my count, 7 of today's 10 presenters are women. In my short time as part of this Committee, this is a record, and it wouldn't surprise me if this is actually an all-time record for the FOMC. I talk regularly about diversity—in economics, in finance, and at the Fed. I know my colleagues do as well. And outside the Fed, many are scrutinizing us on this dimension closely. Though there is certainly more to do on the diversity front, it is gratifying to see progress here, and I hope we continue to make strides regarding increasing diversity at all levels of our institution.

CHAIR POWELL. Here, here.

MR. BOSTIC. My outlook from the previous meeting remains intact. I still see the incoming data as largely confirming that the economy is currently achieving—and will likely continue to achieve—our dual mandate. But as much of the recent debate has been largely around the balance of risks about the economic outlook, I'd like to explain how I synthesize the disparity between some of the apparently stark downside risks to the outlook and my relatively sanguine view of the effect of these risks to date.

We all have access to the same economic data, and we analyze these data through more or less the same sets of macroforecasting models. In addition, we can all easily identify the current areas of weakness in the economy—namely, business investment and the ongoing softness in the manufacturing sector. If this was all the evidence I had to go on, well, I'd be more concerned about the future stability of the economy. But it's not. We've gathered input from hundreds of contacts to our regional economic information network, held multiple advisory councils, and have rigorously gathered and analyzed data on firm behavior and expectations through our surveys. These data—and, yes, I view them as such—offer an additional lens into the economic picture and yield rich, and often more nuanced, takes on the issues about the outlook. And through these firm-level insights, I have been unable to detect any signal that what we're seeing in the standard macroeconomic data is a leading edge of a significant downturn.

Over the past, well, several meetings now, the evidence continues to suggest that the uncertainties and downside risks buffeting the economy have yet to fundamentally alter business activity or firms' collective outlook. And we have doggedly pushed our contacts in an effort to find cracks in their collective optimism to no avail.

Regarding the effect of tariffs and trade tensions, the feedback that I receive and the survey evidence that my staff analyzes suggest that it is largely a nonissue for a majority of firms. For those firms in the industrial sector or those highly dependent on international activity, the effect is a bit more intense but still relatively moderate. And I also hear anecdotes describing adjustments to supply chains and alternative methods of tariff mitigation that highlight significant offsets that model-based estimates are not likely to capture. For example, one of my directors that oversees supply chain management for a global auto manufacturer outlined a low-cost supply reconfiguration practice, under which they are able to swap country-of-origin locations with sister manufacturer locations as a tariff workaround.

On the weakness in investment spending, I have pushed my contacts and directors hard to more deeply understand the reasons for the slowdown relative to 2018. The feedback I get does not suggest the clear one-for-one relationship between uncertainty and delayed investment. Rather, there is a mix between a pull forward of capital spending from the tax reform, an inability to find qualified labor to adequately staff expansionary capital projects, and, indeed, some risk-off behavior at the margin. Yet when pressed, my contacts almost to a person suggest that if all the uncertainties buffeting their outlook dissipated tomorrow, that still wouldn't change their behavior regarding capital spending.

A factor that weighs heavily in my thinking about the outlook is that most firms reported that consumer confidence and spending, especially discretionary spending, remain strong. Importantly, business leaders are paying close attention to any signal that consumer sentiment and spending appetite may shift, and there are no indications of that thus far. And they, like President Mester, do worry that we are talking ourselves into a recession.

I'll leave you with this. In our board meeting last week, we attempted to gauge the level of concern our directors have with the current outlook by developing a readiness meter similar to the military's DEFCON system. We call this system "Business Activity Condition Levels," which shortens to "B-A-CON," or just "BACON" for short. [Laughter]

BACON levels range from 1, for "All clear," to 5, for "Conditions are heading into the tank." Echoing the sentiment and evidence gathered from our various efforts to gauge the business community, the overwhelming sentiment from my directors was a BACON level of 2. For a small minority of responses, concern had reached a BACON level of 3, indicating cautious optimism. None of my directors indicated BACON levels of 4 or 5, which would be consistent with taking active steps to mitigate risk in the face of deteriorating business conditions. So until I see angst in the business community rise to a more palpable level or start to see signs of flagging consumer behavior, I'm holding to my previous forecast. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. So, I'm from Philly—I'm going to have to come up with "SCRAPPLE." [Laughter]

So I found myself in general agreement with the staff forecast, although I am a bit more optimistic that inflation will return to target in 2021. That said, the low readings in market-based measures of longer-run expected inflation do continue to concern. The view that the economy is likely to experience trend-like growth is supported by data in the Third District as well as from my conversations with many of our contacts. Unemployment in the District is near historically low levels, although employment growth has noticeably moderated. The private labor force participation rate has ticked up, and we are seeing particularly strong growth in mining and construction—much stronger than what's happening nationally.

Like the nation, economic growth in the region is consumption led and driven by solid economic fundamentals. However, other sectors of the economy are not showing much growth. Our nonmanufacturing survey declined noticeably in October, but the details paint a somewhat more positive picture. Both new orders and sales appear healthy, and firms remain optimistic. Also, there is no evidence of price pressures, with 77 percent of firms reporting no change in the prices they charge.

A recent conversation with the CEO of a very large gas and convenience store chain was particularly reassuring. He mentioned that almost a year before the previous recession, he saw shifts in the composition of purchases that indicated weakening consumer demand. He is currently not seeing any of those shifts, but he has me on speed dial in case that changes.

Based on our business outlook survey, manufacturing in our region continues to outperform the nation. Although the current activity index has fallen below its nonrecessionary average, the details of the report are significantly more upbeat. If one were to use the subindexes to construct an index similar to the ISM index, that index would be solidly in expansionary territory. Current employment remains strong, and plans for future employment and capital expenditures remain strong as well.

As I mentioned in our previous meeting, the divergence in our survey from others is probably due to the feature that manufacturers in our region are relatively less exposed to trade shocks, particularly trade shocks with China. Information from a diversified manufacturing firm in our District indicates that production of consumer goods is holding up very well. For example, demand for organic pet food remains strong. It is a great time to be a dog. [Laughter] However, he characterized other areas of this sector as “soft” and “cautious.” But plans for new activity remain reasonably healthy. The caution is expressing itself in a reluctance to build inventory, and, as a result, he’s seeing in his business much more spot buying. People aren’t willing to make the long-term bet right now, but they are continuing to buy.

There have also been cutbacks in variable expenses and some workforce reductions, but no one seems to be pushing the panic button right now. Weakness continues in residential real estate, and the decline in mortgage rates has yet to have any noticeable effect on our housing market. As well, construction spending remains flat.

So, to summarize, the District’s economy is growing modestly, with growth almost entirely driven by the consumer, which is in line with what we’re seeing nationally. The most recent data indicate that the recovery will continue to expand, and my forecast continues to project trend-like growth and a return of inflation to target. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. Since our previous meeting, incoming data have been mixed. On the positive side, consumer spending and sentiment have held up fairly well. This is really not surprising, given lower interest rates and continued gains in household income.

Even so, I'm starting to hear hints of slower spending ahead, and I guess this is the importance of having diversity of geography, because I'm really hearing something quite different from what we just heard.

One contact at a national online payments processor reported very recent softness in activity, especially among small businesses, so we'll have to see how this nets out and affects retail sales across the country.

On the very negative side are manufacturing and investment, which continue to be held back by slowing foreign demand, higher tariffs, and trade uncertainty, and the fallout from these headwinds continues to spread, at least in the 12th District.

Several contacts reported on a recent sharp slowdown in overseas sales and leasing of heavy equipment—cranes, to be exact—which is now spilling over into various supporting industries not just related to the cranes themselves, but all of the people who manufacture the parts for those cranes.

Weak growth and pessimism resulting from trade tensions are also starting to materially affect or alter business planning. My contacts in business services noted that their clients with a global presence have started to cancel discretionary investment spending. They had just been delaying and delaying, hoping for an end to the trade disputes. For them, the Rubicon on trade has now been crossed. Even if current trade disputes were resolved tomorrow, they would take time to pause to reevaluate the resiliency of their global supply chains before making additional investments.

The outlook for output growth abroad also remains troubling. The Tealbook has revised down projected real GDP growth for this year and next, and such revisions, as we talked about a moment ago, are now common—they have occurred in the past 9 out of 10 Tealbooks. I worry that future downside revisions are ahead. China is the newest reason for concern. Their latest published real GDP growth came in weaker than expected, but, as I mentioned in July, even these weaker numbers may be too high.

In view of worries about the reliability of Chinese statistics, my colleagues Mark Spiegel and John Fernald developed an alternative index of cyclical activity in China. And while we're talking about BACON, they call theirs the China Cat, which, if you're a Grateful Dead fan, you'll appreciate. [Laughter] This index, which relies on a range of more verifiable indicators, shows a much more pronounced slowdown since 2017, and, based on this work, I see the possibility of a larger-than-expected deceleration in China as a sizable downside risk for the global economic outlook.

Now, against all of these crosscurrents buffeting the economy, the labor market has held up fairly well, with job growth still coming in a bit above its underlying trend. But what should we be aiming for in the labor market? On this question, I found the staff memo on unemployment benchmarks very useful. It helped clarify the difference between two important barometers of labor market health: the long-run natural rate of unemployment and the stable-price level of unemployment.

In San Francisco, we estimate and use both measures. We've noticed that deviations between these two measures are common, although they've been more pronounced in this cycle. We've mentioned this before, but this recent cyclical divergence is due to a variety of factors, including greater-than-usual recruiting intensity and the relaxation of hiring standards, which firms once judged to be something they couldn't cross but now feel are much more malleable than they used to. This has served to reduce the stable-price level of unemployment, putting it notably below the long-run average unemployment rate that exists when there are no cyclical pressures.

As I noted before, allowing the labor market to move beyond the long-run level of unemployment to this lower, stable-price level of unemployment has many advantages. As my coauthors and I found in our *Brookings Papers* article, historically disadvantaged groups, including women, African Americans, Hispanics, and those with less than a college degree, see disproportionate gains in key labor market outcomes when we are in these high-pressured states when you go to the short-term level. This benefits individuals and families, of course, but it also has longer-term benefits for the economy in the form of greater human capital accumulation.

Now, still, as the memos noted and we've discussed in previous meetings, there could be unintended consequences in the labor market. A "hot" labor market could be drawing in workers whose long-run earnings potential is better served by continuing in school, but this is easy to investigate, so we turn to the data. The data show that the most significant increases in labor force participation since 2015 have been among workers aged 25 to 54, who are usually past the school accumulation age. The evidence also shows that only a very modest part of the increase has come among those of typical school age, between 16 and 24. Even more reassuring on this front is that school enrollment rates for young people aged 16 to 24 have not materially changed over this period, suggesting that investments in schooling have not declined. Taken together, the staff memo on unemployment benchmarks and ongoing research about the benefits and costs of running a very strong labor market reaffirm my view that the best way to find full employment is experientially, by seeing it in the wage and price data.

Regarding inflation, recent news has only reinforced my concerns. Since our previous meeting, the Tealbook has again revised down inflation, with PCE inflation now projected to be only 1.4 percent this year. This would make 2019 the eighth consecutive year in which we have come up short on our inflation target.

As I've noted at our previous meeting, such consistent one-sided misses have the potential to erode inflation expectations and reduce monetary policy space. I will speak more about this tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. The pace of U.S. economic activity continues to be consistent with what was generally expected earlier this year. Despite concerns about the global manufacturing slowdown turning into a broader-based stagnation, the current 2.1 percent Tealbook forecast for real GDP at the end of this year is identical to the March median SEP, and the unemployment rate is now running below the March projections.

By and large, economic developments to date reflect conditions in place before our actions, so I take the continued strength to reflect the sound fundamentals expected back in March. To be sure, since the spring, the relative sources of strength have shifted somewhat. Trade tensions and geopolitical risks have affected manufacturing, trade, and business investment. But at least, so far, these negative developments have been offset by strength in the household sector, thus leaving the overall pace of growth of the economy in line with expectations.

The cumulative easing of monetary policy undertaken in the second half of this year will start affecting real outcomes more meaningfully. A stable outlook next year and beyond, with a lower path of the federal funds rate, would imply that monetary policy is now calibrated to offset headwinds that were not apparent earlier in the spring. As already mentioned, headwinds at this point are in the forecast but not quite in current outcomes.

The outlook in several foreign countries is being revised down on the heels of weak incoming data, but the effect of such revisions on the U.S. real GDP outlook is small.

Business spending is forward looking, and there could be some signal in the recent pullback. Still, current earning reports and guidance have not led to noticeable declines in broad stock market indexes. In fact, quite the opposite. Moreover, it is now possible to make a case for a stronger consumption outlook, reflecting the unusual confluence of a high savings rate in the face of significant increases in household wealth. Households may now have the capacity and desire to funnel less of their income to savings.

The policy easing so far could also be a form of insurance against adverse outcomes. In this respect, I believe the downside risks at this meeting have diminished somewhat since September.

While the phase-one tariff agreement with China is not yet signed, it does appear that a pause from increasing tariffs is quite likely. A pause is certainly not a rollback, but it is more positive than what we expected at our September meeting.

The likelihood of a hard Brexit was palpable at the September meeting. Though still uncertain, a hard Brexit seems less likely now. In addition, the attacks on Saudi oil production and the Iranian tanker could have generated a sharp increase in oil prices. And even though geopolitical risks from the Middle East remain elevated, the increase in oil production from fracking has made the economy much less susceptible to shocks. While none of these risks are eliminated, they do seem less elevated.

Furthermore, to the extent that risks about the outlook are based on readings from the yield curve, I would note that work by my staff indicates that adding the stance of monetary policy to equations that use the slope of the yield curve to estimate recession probabilities significantly reduces current estimates of the likelihood of a recession in the next 12 months or so.

While, by many measures, the downside risks to the outlook seem to have moderated, the financial risks that arise from very low rates were front and center in a roundtable discussion I had with private equity firms last week. Each firm highlighted the fact that "reaching for yield" behavior was causing clients to allocate more funds to their firms. Although they viewed the pricing as extremely "rich," they felt it was most appropriate for them to remain fully invested. They reported that in the tech space, their investments had leverage of seven times EBITDA, and they emphasized weave adjustments. Many other deals have leverage of more than six times EBITDA.

The private equity managers seem confident that, in a recession scenario, private equity firms would weather the turbulence, given that they have funds locked up for fixed periods and can make additional capital calls on investors already under contract. They did not discuss the potential loss to the firms they finance, especially spillovers that could occur in terms of job losses if they were forced to engage in radical restructurings.

In my meetings with commercial real estate professionals, their biggest concerns were tied to very tight labor markets. From construction workers to property managers, they reported significant increases in salaries, which were causing costs to rise. While capitalization rates were seen as unusually low, they, too, emphasized the point that foreign investors, in particular, were flush with cash and looking to invest in CRE, despite the very "rich" pricing.

The sustainability of the recovery is not paramount to firms with funds on hand looking to obtain yield. But sustainability is, of course, paramount to us. Lower rates now run the risk of a deeper and longer recession in the future—a topic that I will return to tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. The U.S. economy continues to slow down from its 2018 growth rate. Last year at this time, real GDP growth measured on a year-over-year basis exceeded 3 percent. When 2019:Q3 growth is released soon, it's possible that the year-over-year growth rate will have slowed down to below 2 percent. The main risk is that this slowdown continues or accelerates in the quarters ahead. My hope is that we are witnessing a bottoming-out in Q3, with more-rapid growth materializing in Q4 and the first half of next year, but at this point, we cannot be sure.

Some of the main downside risks, which may be related to each other, include magnified global trade policy uncertainty, slower growth in the global economy, contraction in U.S. and global manufacturing, slowing U.S. business investment, and an inverted yield curve as measured by the 10-year Treasury yield-federal funds rate spread, which suggests that monetary policy may be too restrictive for the current environment.

Let me comment on a few of these issues. On global trade policy uncertainty, I maintain that this will be very difficult to resolve any time soon. Despite announcements of partial agreements and so forth, I think this is a long-term issue. I think we have opened up Pandora's box on global trade policy.

One measure of the uncertainty around this issue is the Baker-Bloom-Davis index, which remains elevated and, I expect, will be elevated for some time to come. In my opinion, businesses will simply have to live with increased trade policy uncertainty. And for purposes of monetary policy, I do not think that we should assume this is going to go away. I think we should assume that it is here to stay over the forecast horizon.

We also have slowing global growth. It now appears that most major economies will grow more slowly this year than would have been expected earlier this year or at this time last year. I rate this as a downside surprise. I think the slowing global real GDP growth, combined with the trade policy uncertainty, is chilling global investment and could feed on itself.

Manufacturing looks like it's in contraction. Global PMI for manufacturing is below 50. U.S. PMI for manufacturing is below 50. U.S. business investment was growing at about 5 percent during 2017, 2018, and it has now slowed to about 1 percent.

On the yield curve inversion, I think there has been some improvement during the intermeeting period. I think there might be some more improvement if we make a policy move at this meeting. Still, as of right now, the 10-year Treasury yield is below the federal funds rate. The 2 year–10 year spread has never quite inverted on a sustained basis. I take that as a good sign. I think that the 10-year was trading lower, but the 2-year rate incorporated some of the future moves of this Committee ahead of time and was never quite below the 10-year rate, so you had a slightly positive slope to that particular measure of the yield curve. That gives me some hope that we have moved rapidly enough to reduce the downside risk suggested, or the various signals suggested, by this particular measure of yield curve inversion. Inversion has been a source of elevated recession risk, which, I think, has been affecting the business outlook and business expectations during 2019. I think it would behoove this Committee to take this risk off the table if we can.

In addition to these risks on the real side of the economy, I think we have the muted inflation problem. Inflation expectations, based on market-based measures, seem to me to be exceptionally low. Five-year TIPS break even at about 1.56, which seems crazy low to me. That's a CPI-based measure. If you subtract 30 basis points from that, it means markets are expecting only about 1¼ percent inflation over the next five years. I think that should be a major concern for the Committee. Staff estimates taken at face value suggest the FOMC will not attain its inflation target over the forecast horizon.

We have been cognizant of these risks as a committee. We have taken action during 2019. There has been a major turnaround in U.S. monetary policy. This turnaround has been much bigger than the movements in the funds rate alone would suggest. At this time last year, we were projecting the policy rate was higher, and we were projecting further increases in the policy rate. That was reflected in the two-year rate.

Since that time, we pulled back on those expectations during the January–February time frame. We started to reduce the policy rate during the summer, and looked poised to continue through that process at this meeting. The two-year has come down about 130 basis points over that period, so, in my mind, that is quite a big move as these things go. Much of this was not an actual policy move but a change in the monetary policy outlook, so that's something like forward guidance off the effective lower bound, as others have mentioned earlier today. In my opinion, this is beginning to have a positive effect on some aspects of the economy, and I expect it will continue to do so into 2020. I regard that as a positive development.

In conclusion, I think we have a slowing economy with some downside risk. I think insurance has been a sensible response to this situation. We've made important, and large, changes to monetary policy over the last year, but now it may be time to allow these changes to feed through the economy over the next six months or so and then reassess at that point. Even if incoming data are weaker than expected, we can argue that we already made preemptive rate reductions in anticipation of that possibility. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. I remain comfortable with where things stand relative to our mandated objectives despite continued uncertainty. The labor market is still strong, with very low unemployment and low initial jobless claims. With the labor market this tight, I continue to hear stories of the misallocation of capital I discussed last time. Perhaps the ultimate example I heard is Goodwill. That's the organization, not the balance sheet item [laughter], which I now understand is considering investing in automation because, even for this employer of last resort, labor is becoming too scarce and too expensive.

Inflation is still firming. The first quarter weakness indeed seems to have been transitory. Currently, the shortfall in 12-month inflation is well within any range we might choose to specify for our inflation target, and new work by my staff shows that the small current shortfall in core reflects a few large price shocks as opposed to broad-based weakness. Their calculation is similar to a trimmed mean, but rather than use raw price changes to exclude items, they use price changes that are unusual relative to the past trend. They find that less than 10 percent of expenditures, ordered by absolute size of price shocks, account for more than the entire shortfall of core inflation. I take comfort from the shortfall being explained by a few idiosyncratic shocks rather than being widespread. I am disappointed that manufacturing and investment remain soft, but I am pleased that residential is picking up and auto sales are reasonably high.

Like many of you, given recent data, I am watching consumer spending closely. What I see so far is broadly reassuring. Consumer sentiment is still near cyclical highs. The Richmond services survey rebounded in October, and contacts are reporting that their consumer businesses remain sound.

The uncertainties we have discussed remain, although I agree with President Rosengren: They are, if anything, a bit down. The noise in China has abated. The Saudi refinery bombing didn't lead to escalation. There's a plan for an orderly Brexit. Markets are calmer. That said, other uncertainties continue to weigh on the economy. We have talked a lot about trade, but I also hear from my contacts frequently about regulatory and tax uncertainty in an unstable political environment.

President Bullard mentioned the Baker-Bloom-Davis economic policy uncertainty index. It measures much of this, reached an all-time high in August, and remains elevated. The soon-to-be Atlanta-Richmond-Duke CFO Survey reports that economic uncertainty and government policies are two of CFOs' three biggest concerns. Moreover, there is a general sense of malaise about how these various uncertainties will be resolved—a negative skew, if you will—created by the lingering hangover from 2009 and seeming political hopelessness in an era of news ubiquity.

This uncertainty affects consumer and business decisions. I'm influenced by the 2018 work of Nick Bloom and coauthors. As they argue, uncertainties expand the range of inaction, whether it be investment or hiring. I might even add pricing. I think we see that weakness in recent data whenever uncertainty has spiked, and this rings true from my professional experience as well.

As Bloom and coauthors also say, uncertainty limits the effectiveness of stimulus. They've showed this with wage subsidies. We've seen it on the fiscal side; as government spending increases and tax cuts spurred first-half 2018 growth in investment, the trade noise threw water on the fire. This same logic suggests that these uncertainties limit the effectiveness of our rate moves. Any effect of lower rates on business investment is overwhelmed by the hurdle caused by increased uncertainty. That's what our contacts say.

While interest-sensitive household spending is holding up, we're not seeing the upside that we might have hoped for in response to the lowering of our expected policy rate path. We see that financial markets aren't being moved day to day by our choices either, but instead by the daily back-and-forth on trade. As I will come back to tomorrow, we might consider whether, given this limitation, now is the right time for extra accommodation. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. I just want to echo President Bostic's comments on the importance of diversity of all types to the quality of our work across the System and acknowledge that it's a work in progress.

Since our previous meeting, key downside risks have diminished, while financial conditions and the outlook are little changed, on net. The most notable change since the September meeting is that two important risks have diminished. First, the trade truce between the United States and China has bolstered sentiment and appears to reduce the risk that significant additional tariffs could hit consumer goods at a delicate time.

Second, the tail risk of a no-deal Brexit has declined significantly, diminishing a risk that has been hanging over the United Kingdom and the euro area for the past year. I don't think we should understate that. It would be worth thinking about what this meeting would be like if, in fact, the risk of a no-deal Brexit were still hanging over our considerations the day before that was supposed to take place.

Reflecting these developments, the most notable change in financial markets since our September meeting has been a steepening in the yield curve. Similarly, almost every recession indicator that we track for the U.S. economy has declined during the intermeeting period, with some probabilities coming down as much as 10 percentage points.

Beyond this, my modal outlook remains broadly similar to September. Recent data suggest economic activity has continued to expand at a moderate pace, though more slowly than in the first half. The U.S. consumer remains the bulwark undergirding continued U.S. real GDP growth at or above trend in an environment in which foreign economies are growing more slowly. By contrast, business investment, exports, and manufacturing production continue to point to weakness.

In looking ahead, the key question is whether the deceleration we have seen reflects a stabilization to a near-potential pace with some bumps or, rather, the beginning of a more pronounced deterioration in the outlook. I will be paying close attention to the extent to which the ongoing weakness in manufacturing might be spilling over into services and whether the softness in business investment might start weighing on hiring.

The September report suggests that conditions in the labor market have continued to improve overall, though more slowly than earlier in the year. Excluding temporary hires for the decennial census, total payroll has increased at an average of 150,000 per month in the third quarter after rising at a pace of about 165,000 in the first half.

Even adjusting for the staff's expected downward revisions to payroll gains based on the BLS's preliminary benchmark estimates, job gains in the third quarter remain above the breakeven range. This is consistent with the broader picture, with the unemployment rate moving down further to a 50-year low, while the labor force participation rate held up at a relatively strong level.

Looking at the decline in the job openings rate in recent months suggests that labor demand has cooled some but to a level that remains strong. Meanwhile, and importantly, layoff indicators, including weekly initial claims, have remained at very low levels.

While we might see recent strike activity as evidence that bargaining power is finally improving cyclically after a long period of extreme weakness, this does not square with recent data, suggesting wage growth is plateauing near 3 percent.

On the spending side, the incoming data are mixed. On the one hand, the latest information on consumer spending remains solid despite some slowing in retail sales from a very strong pace in earlier months. Surveys show that consumers still feel good about jobs and incomes, although sentiment has been somewhat more volatile of late.

In the housing sector, conditions seem to have turned the corner and now point to positive growth in the second half. Autos and other consumer durables also show signs of a pickup supported by lower borrowing rates. By contrast, business investment and exports continue to point to modest declines in the second half, while manufacturing suggests that activity will likely move about sideways. Net of transitory factors, including the GM strike, my modal outlook is for GDP to grow at a near potential pace in the second half.

Internationally, the outlook hasn't changed materially since we last met. Growth in China slowed to a weak 5½ percent in the third quarter, but some of this reflects temporary factors. In the euro area, manufacturing output declined further, and services activity has also turned down, raising concerns that manufacturing weakness might be spreading, but the unemployment rate has continued to decline, nominal wage growth has been trending up, and monetary policy has turned more accommodative—which should support domestic demand.

As for inflation, incoming data have been about in line with my expectations, on net, and consistent with our earlier assessment that much of the outsized weakness earlier in the year was transitory. Nonetheless, inflation remains below our 2 percent objective, as it has for a very long time, and a variety of measures suggest underlying trend inflation also remains below target. Against this backdrop, the latest readings on long-run inflation expectations in both of the consumer surveys have been on the soft side.

To conclude: Although the bulk of evidence points to an economy that's stabilizing at a near-trend pace, because we are at a fragile juncture, I'll be looking for signs that might suggest a more significant slowing. The balance of risks is still tilted to the downside, but it has improved.

Against the backdrop of muted inflation, I have supported taking out insurance against these downside risks previously, which has helped support the modal outlook.

After tomorrow's move, I hope we will have some time in the months ahead to assess how policy is flowing through to activity and financial conditions and whether we are seeing stabilization consistent with a flat path or deterioration that might warrant further accommodation. Thank you.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chair. Messages received from my contacts were very similar to what I reported at the September meeting. Consumer-facing businesses continue to report strong sales. No cracks are showing here.

One upbeat report was from the CEO of a major airline who, as President Mester worried, earlier had been concerned that we were talking ourselves into a recession. He now says bookings for domestic and business travel are showing no signs of slowing. International demand continues to hold up as well.

In contrast, manufacturing continues to be held back by trade policy uncertainty and a weak global outlook. At least in the United States, the picture does not appear to be getting worse, but it is getting worse in Europe. The best we heard was that the rate of decline in manufacturing had stabilized. It's still headed down, though.

Of course, in my District, the GM strike left an imprint on manufacturing throughout the auto supply chain. And, reportedly, some GM plants that produced high-demand vehicles were at full capacity before the strike, so it might take some time to make up all of the lost output if they can do it at all.

More generally, I continue to hear that employers are ramping up training, and that individuals previously on the fringes are able to find jobs and more firmly cement their attachment to the labor force. This clearly has positive spillovers for their families and for their communities. These were important themes at our *Fed Listens* meeting held recently in Chicago. Still, despite all of the signs of a tight labor market, I'm not hearing about any pickup in wage growth, nor did I hear anything new about inflation. No one is talking about price pressures.

I'll turn now to the national outlook. My forecast of real GDP growth is essentially the same as the previous round and is broadly in line with the Tealbook. So is my path for the unemployment rate, though our Chicago Fed assumption for the natural rate is lower than the Tealbook's.

For inflation conditional on a clearly accommodative path for monetary policy, I have core inflation moving up to target in 2021 and overshooting by two-tenths in 2022. This overshooting is by design. It is aimed specifically at boosting inflation expectations to be symmetric around 2 percent and thus sustainably deliver on our inflation goal. This has been my forecast narrative for some time.

What about risks? This round my staff did an exercise to consider what plausible shocks could move us away from our baseline forecast. Not surprisingly, it was a lot easier for them to think about downside risks than upside ones. Still, the shocks they identified ended up generating only modestly lower growth. Of course, aggregation isn't straightforward, and the exercise didn't try to account for correlation among the shocks. Still, I was reminded that it is very difficult to forecast a downturn. We have seen it time and again in Tealbook alternative scenarios. To generate a recession, you generally have to pile together shocks and throw in a big negative reaction in financial markets.

Today, crunching the incoming data leaves us with a baseline forecast of growth near potential. This is a positive outcome for a mature expansion, and the likelihood of achieving it seems fairly good. Indeed, most recession-probability models currently are generating less-than-overwhelming risks of a downturn. But, then, there are many things that we can't model very well, like that list of potential downside surprises my staff came up with or the sense of fragility in business sentiment, and there is the still-palpable risk that some agglomeration of shocks, together with a shift in confidence, could produce a recession.

I will say that President Rosengren led a strong tour of the September risks at our FOMC meeting and argued well that they are lower now. That said, I still favor having a risk-management buffer in place as insurance to support the expansion. Of course, determining the right size of that buffer is hard and includes a lot of judgment. The same goes for deciding on the appropriate way to communicate this strategy.

We face some tough balancing acts. I guess if I go any further I'll go into monetary policy, so I'll stop there. [Laughter] Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. Consistent with the national economy, Texas growth continues to moderate, although the unemployment rate remains at a historically low 3.4 percent. Our business surveys indicate that manufacturing activity in Texas is slowing, and business investment continues to be weak. As President Barkin talked about, a lot of this, though, could be attributed to "uncertainty," and I'll just go through some of the items that we're talking to contacts about.

Number one, estimates of world trade growth are the slowest since 2009, and, consistent with that, estimates of global growth are the slowest since 2009. Most of our contacts were very relieved about the little mini agreement between the United States and China, and they are glad that it happened, and they're hopeful it will get done, and it's welcome. The part that they're more concerned about is, they're hearing from contacts in the government that it is likely that the strategy will not take off the existing tariffs. So although the last 5 percent isn't going on, there's no prospect that the existing tariffs are coming off, and they get the sense that these may actually be on for years. They also get the sense that tariffs and, to some extent, sanctions are now a feature of government policy, and so trade uncertainty for them is still relatively high. They also cite that the economy has now expanded for 123 consecutive months, the longest on record. That is in the spirit of talking yourself into a downturn. That is on people's minds.

The other thing is, we've been hearing about labor shortages for a long time in our District. The thing I'm hearing more about from firms is the inability to find engineers, and, for us, this is a big deal along the Gulf, where there's big building in petrochemicals and refiners.

We hear it from high-tech companies, which now have a big presence in our state. What that's causing people to do is also hold off on investment, because they need engineers. When we ask them what the problem is, they mention that they're competing with other states, like California. Also, Texas is probably not producing enough engineers. And then the immigration issue: A number of the engineers they used to get came through immigration, and they don't have that source right now. These are some of the factors that are being cited.

Despite all of that, our forecast for the U.S. economy is very similar to the Tealbook's, which would be 1.5, 1.6 percent real GDP growth for the second half of this year. We continue to expect consumption to remain solid and to be a solid contributor in the second half to GDP growth.

There was a little concern about PCE growth being weak in August and retail sales being weaker, and we'll just continue to watch that, but it still makes sense to me and to us that the consumer should be in good shape because of the consumer balance sheets as well as a tight job market.

I would note, as many have said, that the Dallas trimmed-mean inflation rate continues to run around 2 percent, but we do take note about the recent University of Michigan expected inflation rate falling to 2.2 percent, which is historically low. And we also noted the rise in the share of people expecting zero or negative inflation rates at the five-year horizon, and we're trying to figure out what to make of it. But I would tell you, we are continuing to watch that. That was notable to us.

Now, back to energy. Though we've got broad-based growth in the state, energy is declining, and I guess in President Bostic's lingo, this would be BACON 5 [laughter], and nobody is making any bones about that. U.S. net production growth was about 1.8 million barrels last year. We expect it to be about 800,000 barrels net in 2019, and next year we think it will be below 500,000 barrels net growth. Now, some of that is the rapid decline in shale production, but some of it is just—there's not cap-ex being spent on drilling, and as I've said to you before, people are just completing existing wells. We think the number of oil rigs in the United States has fallen nearly 20 percent since December 2018, and this industry is a good example of weak global growth affecting the price of the commodity. There would be a big difference in activity if the price was $60 versus $45 to $50.

We talked in our previous meeting about the effect of the Saudi attack, and we said then there wasn't great transparency on "how," but the Saudis have assured the world that they will somehow make up for the 5.7 million barrels, and it appears that they have somehow made up for the 5.7 million barrels. They haven't been that transparent. How much has come from reserves? How much has come from restoring damage done? Ironically, the price today is a bit lower than before that attack. I had said after that, we thought there might be a $3 to $5 premium in the global price of oil. It doesn't appear to have happened.

Returning to issues I mentioned earlier about credit risk. If you look at notable triple-Bs, they could get downgraded to double-B. Some of the leading candidates are probably in the energy sector. We're watching this carefully. When we do look at the analysis, mainly done by third parties, the margin of error is pretty low. At $60, they're not going to get downgraded, and at $45 to $50, it looks to us like some of these credits will get downgraded, and these are sizable. I won't mention individual names, but we're watching some individual names. These are sizable names. We'll see what happens.

Anyhow, in summary, we're hopeful that we're going to grow at potential, but we're recognizing it's like flying a plane where not all of the engines are working. We've got solid consumption growth, a bit of improvement in residential investment—likely helped by a substantial decline in the long-term interest rates, and obviously mortgage rates—but we're not getting any support from business investment or exports or manufacturing.

And though households continue to view the economy favorably, we're watching for whether some of this weakness will seep into other parts of the economy. We're hopeful that we will be able to manage through this, but we're continuing to monitor this carefully. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Mr. Chair. My baseline outlook for the domestic economy has not changed since the September meeting. Output growth still looks to be a little slower but still solid for 2019—not as strong as last year, but still positive. It's possible and probably likely that real GDP growth will slow a little further next year, but my forecast is that it will remain near its long-run trend rate.

On the labor market side, I expect employment to remain healthy, but with the pace of payroll growth slowing for the rest of this year and into next, yet still at a pace able to accommodate new entrants into the labor force without putting upward pressure on the unemployment rate. The current national unemployment rate of 3½ percent is extremely low, and my expectation is that it will hold steady or even decline over the next year. Many factors lead me to this view, but in particular, I just don't see that the interaction between wages and unemployment is functioning in a way that in the past would indicate the bottom of the unemployment rate.

While there have been a few indications that growth in labor demand and hiring have cooled, I continue to hear from business contacts that they're expanding efforts to attract new hires by loosening pre-employment requirements, like mandatory drug testing, offering signing bonuses, and flexible schedules. I have also heard from several firms that are creating in-house training programs in an effort to respond to the shortage of skilled workers. This is especially true for the community bankers that I've met with over the past several months.

But I'd also like to note that this labor picture is very different across the country. In my recent travels and conversations, I've heard from some who do not see the low national unemployment rate as representative of their own local or regional experience. And I'm concerned that there are still areas of the country—many rural and pocketed urban areas—where in which a sizable share of the population still feels left behind in the economic progress we've made since the recession.

To shift to inflation, the limited incoming data we've received since the September meeting have been roughly in line with my expectations, and I see merit to the staff predictions that year-over-year changes will rise above 2 percent for a bit and then settle down slightly below that level by the middle of next year. In my view, several downside risks to the economic outlook have eased since the September meeting. Most importantly, trade tensions have eased and even improved somewhat in recent weeks, and the likelihood of a no-deal Brexit has eased considerably. Even with these recent positive developments, the outlook for trade both here and abroad remains uncertain. In particular, concerns about slowing in foreign activity persist.

It's possible that weak U.S. business investment data reflect the softening in global demand and that trade uncertainty is hindering activity in the nonfinancial business sector.

Exports have been weak so far this year, and U.S. manufacturing output has been declining, influenced, I'm sure, by the GM strike and ongoing concerns about Boeing.

Data on business confidence and new orders for capital goods are signaling further weakness through the end of this year.

In a shift to the ag sector, corn and soybean harvests are well under way, with varying projections on yields due to earlier wet conditions. Commodity prices have increased slightly on the strength of expectations of China's committed purchases of soybeans, with many farmers holding onto harvested crops in storage in search of higher prices on this news. It may be several more weeks before yields are confirmed, but expectations are lower than in previous years.

On the positive side, the deterioration infarm financials seems to have slowed—they're still not improving, but also not significantly worsening. For many producers, USDA's supplemental payments have bridged this year's shortfall gap, enabling many to meet financial payments and other operating expenses. However, we are continuing to see Chapter 12 bankruptcies trend higher, with the largest numbers in states with small and midsized dairies and a notable increase, though modest, in states concentrated in corn and soybean production.

To shift to the consumer side, the national data continue to suggest that households are faring generally well. Consumer spending growth has stepped down from the elevated pace we observed in the second quarter, but the data on retail sales and new motor vehicle sales suggest spending has been rising at a pace well above 2 percent. Additionally, recent readings on consumer sentiment rebounded from the sharp drop that we saw in August.

With all of this in mind, I continue to be optimistic that the U.S. economy is fairly well positioned to withstand the economic headwinds coming from softening demand from abroad. I see the latest developments as consistent with my expectation that economic growth would ease this year but would also remain healthy. I would note, however, that this outcome has been achieved with the support of a lower policy rate, and while the downside risks to my outlook for

U.S. economic performance have eased somewhat since September, they have remained prominent. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. The 10th District economy continues to expand, and labor markets remain historically tight. Most areas within our region with higher year-over-year employment growth have also seen increases in labor force participation. This has coincided with steady growth in real personal income in the District, which has supported continued growth in consumer spending.

Outside energy and agriculture, capital expenditures have continued to expand, but expectations of future spending have moved lower. District contacts, who indicated they delayed expenditures, reported that the primary reasons were tied to lower expectations of future demand as well as general uncertainty, especially around trade policy.

Manufacturing activity continues to contract but almost entirely in durable manufacturing, especially among contacts who report direct exposure from the trade war with China.

Our energy contacts expect oil prices to be range-bound between \$50 and \$60 per barrel over the next year, with less credit availability. This outlook suggests that oil and gas activity in our region will likely remain muted in the near term. Consistent with this outlook, we're beginning to hear about layoffs at some District energy companies.

Finally, as Governor Bowman just noted, the fall harvest is under way, and the corn and soybean prices have firmed recently because of expectations of lower yields and some optimism surrounding the negotiations related to U.S. ag exports to China. Most of our District contacts, however, have noted that there has been very little improvement in farm-sector profitability from one year ago and generally expect conditions to remain weak in the coming months.

For the national economy, my outlook calls for moderate growth, with ongoing weakness in some segments of the economy. Although downside risks have not worsened since our previous meeting and may have gotten somewhat better, they remain prominent in my forecast, and I'm closely monitoring incoming data to assess whether the economy is slowing more than expected.

Moderate growth in household spending continues to be the primary driver of overall growth in the economy. While consumer confidence has fluctuated amid trade uncertainty, measures of consumer sentiment have generally remained near their post-recession highs. Solid consumer momentum supported by a strong labor market provides the underpinnings of my outlook of continued strength in consumption. That could change, of course, if confidence falters. Several District bankers reported that even as customers were taking advantage of refinancing mortgages, some were also paying off lines of credit in anticipation, they noted, of a downturn in the economy. Likewise, some bankers noted that commercial deposits were growing over the past few months as businesses were positioning for potential buying opportunities in the event of a downturn.

Residential investment has rebounded as households respond to lower mortgage rates, and the recent positive readings on single-family new home starts and permits point to a positive contribution from real estate investment to economic growth in coming quarters.

As labor markets have tightened, the pace of payroll growth has decelerated over the past year. Private nonfarm payroll growth has increased by an average of 119,000 jobs per month over the past three months, roughly half the average monthly increase in the fourth quarter of

2018. While some deceleration in payroll growth is to be expected in a tight labor market, signs of moderation in labor demand are evident. And measures of nominal wage growth, including average hourly earnings and the ECI, show that wage pressures have moderated over the past six months. This deceleration in employment growth remains roughly in line with my modal outlook for the medium term, but I'll be watching closely for signs of waning labor demand, especially in the service-providing sector.

The manufacturing sector remains under pressure amid a variety of headwinds. Near-term issues related to the Boeing 737 Max grounding and the GM auto strike have weighed heavily on the manufacturing sector. Even excluding transportation though, year-over-year growth of durable goods orders has decelerated sharply since July of last year, reflecting negative effects due to a strong dollar, tariffs, and a slowing global economy.

The weakness in manufacturing is likely to weigh on business investment for some time. With weak global growth, my outlook calls for inflation to remain low and stable. Inflation expectations have softened as both survey and market measures are at or near all-time lows. And while the usual relationship between oil price and inflation expectations partially explains the recent decline, inflation swap rates for five-year, five-year-forward contracts are near all-time lows in both the euro area and the United States, suggesting global factors may be at work in driving the synchronized decline of long-run inflation expectations. My modal outlook calls for real GDP growth to stabilize near its trend rate, heading into next year. But risks to the outlook for real activity and inflation remain tilted to the downside.

Fears of a disorderly Brexit and an escalation in U.S. trade tensions have certainly eased, but heightened levels of uncertainty seem likely to persist. I will be watching the data and listening carefully to our business contacts for signs that these risks either materialize or sufficiently affect business and consumer confidence so as to negatively affect my modal outlook. Thank you.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chair. By my assessment, the domestic economy remains in a good spot, in the phrase of a wise man, and if this were an SEP round, I would be unlikely to change my forecast.

I do expect growth in the economy to slow somewhat through the rest of this year but then to grow at a reasonably healthy pace over the next few years. That said, I acknowledge there have been some discouraging signs in the recent data. And risks to the outlook, although they have diminished since our previous meeting, are to the downside, as the economists say. I mean that in a good way.

On the positive side, the labor market remains strong, pending Friday's release. Labor force participation has stayed higher than might be expected. The employment-to-population ratio has climbed to its highest point in a decade. Job growth has slowed somewhat this year, but in view of the tightness in the labor market and the laws of mathematics, that's not terribly surprising.

It's also encouraging that inflation has increased a notch. Inflation, as assessed by some perfectly reasonable measures, is solidly at our target, and even core PCE inflation is now running at 1.7 percent, which is not far from our objective and not a level that I find at all concerning, especially keeping in mind the point that President Mester made at the outset of this round about the cost of being poor.

Less encouraging has been the continued weakness in manufacturing, investment and exports. Developments at Boeing and GM are certainly playing a role, but the weakness in manufacturing seems to be fairly widespread. The box in the Tealbook, I think, makes a compelling case that recent tariff hikes, both by increasing manufacturing input costs and by curtailing access to foreign markets, have played an important role in the current weakness of manufacturing.

In addition to the higher tariffs, the increased uncertainty regarding global trade policy has likely weighed on investment. It's been noted that there seems to be some progress in the U.S.–China trade talks, but we are hardly out of the woods, and with the possibility of tariffs on European autos before the end of the year, trade policy developments could continue to disrupt the outlook for some time. I agree with President Bullard on that point.

One final point. Coming out of the IMF–World Bank meetings two weeks ago, it was striking how synchronized the global growth story is. It seems as though almost every economy of whatever size or whatever level of development is experiencing a combination of sluggish real GDP growth, a strong or even record-setting labor market, and inflation below its targets.

Similarly, investment is slumping everywhere, as is manufacturing. With such commonality, it's likely that some of the current malaise must reflect a shared global factor. Trade tensions are an obvious culprit. Uncertainty about the future of the global trading system must be playing a role, but perhaps the story is broader than that.

Narratives are important in driving business activity, especially investment, and economic activity more broadly as well. Up until the crisis, we had two decades of relatively strong global growth, with a fundamental economic narrative of increased globalization spearheaded by China's rapid integration into the global economy. With China slowing largely for organic reasons and the prospect of globalization shifting into reverse, the question is: Are we lacking a compelling economic narrative to drive growth? Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. I'll start with the local economy. Growth in the Ninth District is characterized as slight. Surveys indicate that most firms plan to continue hiring somewhat but also expect wage growth to slow somewhat. Most firms are expecting nonwage input costs to rise only slowly. Consumer spending looks mixed, manufacturing is weakening, and, as others noted, agriculture continues to struggle.

I'll now turn to the national economy. To start with, more than 10 years into the expansion, inflation remains below target. Reaching 2 percent seems as elusive as ever. Since our September meeting, survey measures of inflation expectations have declined further. Both the Michigan and the New York Fed surveys are now at record lows.

Now, probabilities based on option prices that the Minneapolis Fed calculates indicate a risk of inflation below 1 percent of 28 percent, compared with only a 2 percent risk of inflation exceeding 3 percent. That's a pretty substantial downside risk.

The Tealbook forecasts core PCE at 1.7 percent for 2019 and 1.8 percent over the rest of the forecast horizon, and this forecast is predicated on no recession. Obviously, inflation will fall even further below target if we end up back at the effective lower bound. And while this is happening, nominal wage growth has slowed and is now below 3 percent. Given labor productivity growth of around 1.8 percent, this appears to be well below the level required to put upward pressure on price inflation.

For the real economy, there have been more signs since our September meeting that the U.S. economy is slowing. We're not in a recession—and I hope we will avoid one—but we have hit a soft patch. Consumption growth has held up reasonably well. Retail sales fell in September, but I hope that was just a blip.

The latest data releases point to ongoing weak business investment. Durable goods orders are down 5.4 percent over the past 12 months. Some of that's Boeing and GM, but not all of it. PMI for manufacturing is at its lowest level since the Great Recession at 47.8, indicating a contraction. New export orders are only at 41.

Residential investment, in contrast, looks positive. The turnaround in housing starts, as we discussed earlier, coincides with our "pivot" toward more accommodative monetary policy. That's a good thing. It's reassuring that stimulus is showing up exactly where we would expect it.

The notable step-down in payroll growth starting in the beginning of 2019, I think, is meaningful. I don't take much comfort from the fact that jobs are growing with the replacement rate. I mean, they should be growing faster than the replacement rate or than population growth. The ADP data suggest that the true decline might be even sharper. And it's notable that job openings in the JOLTS turned down around the same time. Declining overtime hours also suggest that the labor market is softening.

Are we out of slack? I don't think so. It's hard to reconcile the slowing job growth with slowing wage growth. I think, more likely, the economy is just slowing, and we're not running out of workers.

To turn to the global economy: Risks to the outlook due to weak global real growth are high and rising. The global economy is slowing. The Tealbook has revised down its foreign economic outlook yet again. There's been weak real growth in all of our major trading partners, and the OECD composite leading indicators continue to decline. It's currently at the lowest levels in this expansion.

Finally, I'll just mention the yield curve. The yield curve inversion looks a little better now, on account of the changing path at the front end due to monetary policy. That's good news, but I don't take much comfort from the overall rate environment. I agree with President Bullard—the fact that the 10-year Treasury yield is still a little bit below the federal funds rate, to me, suggests monetary policy is pretty close to neutral or maybe slightly contractionary. I think if we cut rates tomorrow, that'll be a positive step, which will help. But I think we should be providing some accommodation to the economy. Thank you.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. We've seen some tentative encouraging signs on U.S.–China trade and on Brexit. And the latest developments in the nation's capital suggest that the clouds may be lifting. I am, of course, speaking of the World Series. [Laughter]

Although the Nationals have never played in a World Series before, the Washington Senators did play in two, back in 1924 and 1933. Careful historical and econometric analysis reveals that when the Washington team won the series, the following year, the economy grew around 2½ percent. That's based on Christy Romer's very careful study. That's a good number that would, I think, be an improvement, actually, on the Tealbook forecast. However, when the Senators lost, the economy soared a staggering 10.8 percent in the following year. And this is one source of uncertainty that will be resolved very soon—probably tonight. [Laughter] Ouch. [Laughter] I knew this would not go over well.

Okay. Despite these developments, policy and geopolitical uncertainty are unlikely to vanish anytime soon. The already weak global growth outlook deteriorated further over the intermeeting period. We continue to see discouraging signs in many economies—Germany, Japan, Brazil, Mexico, and China. And, as seen in the Tealbook forecast, a record of downward revisions to the global outlook for 2019 is now spilling into 2020, reflecting persistent headwinds dragging down the global economy—and Beth Anne's hopes to get into college. [Laughter]

The global growth slowdown has already taken a toll on domestic growth. Actually, I am reminded that, back in the day, these essays didn't matter at all for when I got into college, and this is one of the advantages of being older. I now expect U.S. GDP growth to be slightly below potential in the second half of the year. Consumption growth, though still solid, has shown signs of moderating; investment is stuck in the doldrums; and the manufacturing contraction has continued to deepen.

Although the labor market remains strong, job growth has clearly shifted down a gear or two. In this regard, I really appreciated the memo on unemployment rate benchmarks, as I think this is very helpful as we think more carefully about our assessments of the cyclical position of the economy relative to our maximum-employment and price-stability mandates and, actually, will also help us as we think about the long-run goals and strategy document.

On the inflation side, despite some signs of firming, inflation remains low, and there are no signs pointing to a sustained return to 2 percent soon. Furthermore, several measures of inflation expectations remain low. The analysis presented in the Tealbook box on an index of common inflation expectations, something that Governor Clarida commented on, as well as recent related work by my staff, shows that inflation expectations declined significantly since 2012. And I do not take much comfort from the fact that the common inflation expectations factor appears to have stopped falling. Instead, I would have hoped that we would now be making progress reversing the past declines.

A number of hypotheses have been proposed that try to explain the pattern of persistently low inflation and inflation expectations despite historically low unemployment. One candidate explanation centers on changes in market power in both labor and product markets. And, according to this narrative, rising concentration has generated an increase in firms' market power in labor and goods markets, contributing to a decline in the labor share and, potentially, a flattening of the Phillips curve.

Now, my staff has put all of these claims about trends and market concentration under the microscope. Their research shows that market concentration has actually declined in labor markets and remained broadly stable in product markets, contradicting some of these potential explanations for the behavior of inflation. Underlying this analysis is the recognition that firms compete for labor mostly in local markets, not national markets. This is based on the empirical observation that most moves are local, occurring within the same county, and most jobs are filled by workers who reside in the same state. The annual interstate migration rate for job-related reasons is less than 1 percent.

Specifically, my staff used commuting zones that partition geographic space—maximizing the observed commuting flows within areas and minimizing flows across areas—to define local labor markets. Using the census data, they find that even though employment concentration has risen nationally from 1976 to 2014, concentration in local labor markets declined over that period. For product markets, their analysis shows that once you account for a rising number of foreign importers—so, competition from foreign producers—product market concentration in manufacturing has been stable over the past few decades. So this research tells us that we need to look beyond labor market concentration to understand stubbornly low inflation that we've seen in the past several years.

Now, there are other hypotheses that also require careful evaluation like this. But these results suggest applying caution in embracing so-called structural explanations for persistently low inflation. Instead, I remain drawn to the explanation that Milton Friedman provided more than 50 years ago, and that is: "Inflation is always and everywhere a monetary phenomenon." So instead of blaming forces outside the purview of monetary policy for low inflation, we should look at what we ourselves control. In a world of global low *r** and the lower bound, inflation and inflation expectations will inexorably become anchored at too low a level unless we can consistently act to offset this downward bias. Of course, to my mind, this is the crux of the framework review. Thank you.

CHAIR POWELL. Thank you. And thanks, everyone, for your comments. The data have been mixed and the risk picture has evolved since the September meeting, but the baseline outlook for the economy remains a broadly favorable one, albeit with elevated risks to the downside. Thanks to the consumer, the overall economy has proved resilient over the course of the year despite significant crosscurrents, downside risks, and see-sawing financial markets often driven by trade developments. I attribute that resilience in some part to the adjustments to policy that we've made over the course of the year.

While the outlook remains favorable, both the slowing in activity and the downside risks continue to call for caution and careful monitoring. Real GDP has slowed significantly since last year and is growing at about trend, or 2 percent, for the year, although it's worth noting that growth was 2½ percent in the first half and is expected to be 1½ percent in the second half.

Household spending continues at a solid pace, propelled by a strong job market and solid consumer confidence. More signs are emerging that lower interest rates are supporting consumer demand.

Business investment, manufacturing, and exports remain weak, restrained by the synchronized global slowdown and trade uncertainty. A major risk is that the weakness in manufacturing, investment, and exports will begin to undermine household confidence and spending, the engine that has been driving the expansion.

With the unemployment rate at 3½ percent and prime-age labor force participation having risen, the labor market is in a strong position. The unemployment rate has declined, and the household survey has been strong—stronger than the establishment survey. Payroll jobs have slowed from about 190,000 jobs per month in 2018 to slightly above breakeven at 135,000 so far this year, in both cases after adjusting for expected revisions. Job openings have declined, and some survey measures of labor market tightness have moved down as well. Growth in several measures of wages and benefits has slowed this year, suggesting less labor market tightness. Household confidence remains very positive, if a bit off its recent highs.

The staff now expects core PCE inflation at 1.7 percent for the year. Inflation expectations from household surveys are low, and some surveys have moved lower. Breakevens remain low. There is a risk that inflation will fail to reach, let alone move symmetrically around, 2 percent during this long cycle. The concern is not simply that inflation expectations may be anchored a few tenths below 2 percent, it is also that disinflationary pressures are evident around the world, and we should not assume that we are exempt. When the next downturn comes, we do not want to see our inflation expectations sliding down inexorably, as they did in Japan and are now doing in Europe.

The risks are asymmetric to the downside and have called for policy that supports the expansion and provides upward thrust to demand and thus inflation. I see the reductions we've made to our policy rate as being very much in that spirit. It also means that our review should forthrightly address the problem of anchoring expectations at 2 percent.

Regarding downside risks, global growth forecasts have been broadly marked down again since the September meeting, including those of many private forecasters, the staff, and the IMF. The overall tone at the IMF–World Bank meetings a couple of weeks ago was indeed quite striking, and it is a synchronized global slowdown, albeit one that doesn't yet amount to a global recession. Nonetheless, it bears close watching.

On a brighter note, the geopolitical risk picture is showing some tentative signs of improving. The Saudi attack seems to have not had significant effects on the oil market. The possible phase-one trade agreement with China, if it is signed as planned, could be the beginning of a broad reduction in trade tensions, which could allow business confidence to recover and support activity over time—or not. We will learn more in coming weeks. What one reads is that the Chinese position is that they want all tariffs off in exchange for this deal. So there's plenty of risk if this deal doesn't get done. We'll see. Brexit developments do seem to have materially lowered the likelihood of a disruptive no-deal exit, and other risk situations continue, including Hong Kong and renewed turmoil in the Middle East.

Anyway, turning to policy, I see it as appropriate to make a 25 basis point cut at this meeting while signaling that we view the current stance of monetary policy as likely to remain appropriate as long as the economy performs broadly in line with our expectations. Of course, if developments emerge that call our outlook into question or raise downside risks, we would respond appropriately. Monetary policy is not on a preset course.

With this cut, I feel that policy would be in a good position. If things do take a turn for the worse, it will not be because we are behind the curve. If things continue about as we expect, the adjustments we've made through the year will be part of the reason for that favorable performance. As I mentioned, I also see the cuts as appropriate to support our 2 percent inflation goal. It seems to me unlikely that we will find a reason to regret these adjustments.

If our policy decision tomorrow goes as seems likely, I plan to say in the press conference that the stance of monetary policy is in a good place that is designed to help keep the U.S. economy strong in the face of global developments and to provide some insurance against ongoing risks; that our stance is likely to remain appropriate as long as incoming information about the economy remains broadly consistent with our outlook of moderate economic growth, a strong labor market, and inflation near our symmetric 2 percent objective; and that if developments emerge that call our outlook into question or raise risks to the outlook, we will respond accordingly—again, policy is not on a preset course.

So, thank you, and I'll look forward to hearing folks' views on those issues tomorrow. Now I would really like to go ahead with Thomas and finish this tonight. These are precious minutes for me tomorrow, so I'd rather not have it spill over. Take it over, Thomas.

MR. LAUBACH.[7] Thank you, Mr. Chairman. I salute Stacey's courage regarding the color choice in her charts. An earlier draft of my briefing contained a reference to the plummeting probability of an 11th District World Series victory. Alas, that has turned around. [Laughter]

In addition to determining whether to change the stance of monetary policy at this meeting, a key question for the Committee is how to communicate with the public regarding the likely path of monetary policy in the near term. In particular, the alternatives presented in the Tealbook differ in how they convey the likelihood of future rate cuts. In considering this issue, it may be useful to take a step back to review the magnitude of cumulative policy accommodation that will be in train after this meeting and its likely effects on the real economy and inflation.

The upper-left panel presents one measure of the magnitude of policy accommodation that the Committee has delivered compared with your own projections as of roughly one year ago. The black line plots the midpoint of the target range for the federal funds rate over the past two years. The blue crosses show the

[7] The materials used by Mr. Laubach are appended to this transcript (appendix 7).

SEP median values for the federal funds rate as of last September, and the orange circles show the SEP medians of just last month. The magnitude of the reduction in the median path is substantial: on the order of 150 basis points by the end of 2020.

The panel to the right shows that financial market quotes have reflected a similar reduction in expectations regarding the path of monetary policy. The black line again plots the actual funds rate path, and the dotted blue line depicts a straight read of market expectations measured using OIS quotes dating to last September, while the solid blue line shows current expectations from OIS quotes. As usual, because the market-based measures likely embed negative term premiums, the figure also presents a model-based adjustment that purges the term premium components from OIS quotes, shown in red. Irrespective of whether they are adjusted for term premiums, market-based expectations have shifted down by roughly the same magnitude as the SEP medians.

The critical question is to what degree the shift in the actual and expected path for the federal funds rate over the past year appears to be fostering your goals with respect to employment and inflation despite weaker global growth prospects and notable disinflationary forces. As noted by many of you in the previous go-round, there are some indications that the easing has already generated a response of real activity, particularly in components of aggregate demand thought to be relatively sensitive to movements in interest rates. For example, the middle-left panel shows single-family housing starts and permits. As noted in the Tealbook, the rise of these indicators in recent months suggests that the decline in mortgage rates over the past year is finally showing up in stronger residential construction activity. Household spending more broadly, although slowing, still appears to be rising at a healthy clip, buoyed by continued solid job gains and income growth.

That said, business fixed investment continues to decelerate, and weak growth abroad, as well as trade developments, continues to be a drag on manufacturing activity. Moreover, the middle-right panel illustrates that private forecasters continue to see the risk of recession as sizable. The bars show results given in the Survey of Professional Forecasters regarding the probability of negative real GDP growth during each of the subsequent four quarters. The survey-based probabilities have edged up at each horizon on net.

I'll now turn to the outlook for the other leg of the dual mandate. The lower-left panel highlights that market-based measures of longer-term inflation compensation, the black line, have fallen noticeably over the past year. These raw figures on inflation compensation are likely depressed by negative risk premiums. The red and green lines show the estimates of expected inflation from two different variations of a term structure model that the staff uses to purge inflation compensation of risk premiums. Alas, both of these measures also suggest that long-term inflation expectations have eroded this year and account for the bulk of the decline in inflation compensation. Of note, these expectations are of CPI inflation 5 to 10 years into the future; the corresponding expectations regarding PCE inflation are presumably at least ¼ percentage point lower. Somewhat in contrast, most survey-based measures of long-run inflation expectations, such as those from the Survey of Professional Forecasters—depicted by the blue line—have generally declined by a smaller amount.

With respect to your decision for tomorrow, the three alternative policy statements draw divergent conclusions from the evidence I just discussed and other information for the appropriate action today and the likely subsequent course of monetary policy.

As outlined in the lower-right panel, alternative B suggests that, after another reduction in the target range for the federal funds rate, the economy is likely to continue operating at a high level of resource utilization, which in turn will, over time, lift inflation to 2 percent. The removal of the "act as appropriate" language will likely be understood by the public as conveying a diminished likelihood of additional near-term reductions in the target range. That said, alternative B continues to note remaining uncertainties about the economic outlook, and it reaffirms the Committee's commitment to monitoring the implications of incoming information for the attainment of your objectives.

Alternative C also removes the "act as appropriate" language but does not reduce the target range at this meeting. By dropping the references to global developments and muted inflation pressures, alternative C conveys reduced concern about downside risks to the outlook and greater confidence that maintaining the current stance of monetary policy is sufficient to achieve 2 percent inflation on a sustained basis.

In contrast, alternative A does not express as much confidence in the eventual return of inflation to 2 percent as the other alternatives, instead emphasizing that inflation has run persistently below 2 percent. It conveys the view that more accommodation beyond the rate reduction at this meeting may be required to achieve inflation outcomes symmetric around the 2 percent objective. Consequently, alternative A maintains the "act as appropriate" language, thereby signaling a greater openness to additional reductions in the target range for the federal funds rate.

Thank you, Chair Powell. That completes my prepared remarks. The September statement and the draft alternatives and implementation notes are shown on pages 2 to 9 of the handout. I will be happy to take any questions.

CHAIR POWELL. Thank you. Questions for Thomas? [No response] The strategy is working. [Laughter] If there are no questions, then we will adjourn to the elegant West Court Café, and we'll reconvene tomorrow morning at 9:00 a.m. Thank you very much.

[Meeting recessed]

October 30 Session

CHAIR POWELL. Good morning, everyone. Why don't we start with an update from Stacey on the overnight economic news.

MS. TEVLIN.[8] Sure. You should have a handout that says "Material for Gross Domestic Product Update." Real GDP growth came in just a little bit stronger than we'd expected. It was 0.2 percentage point higher than we had in the Tealbook, which is what's indicated here—1.9 percent instead of 1.7 percent. And you may recall that, as of yesterday, we thought it was 1.6 percent—so, not a big surprise from that, either.

Personal consumption expenditure growth came in a little bit stronger than we expected. We had a little bit weaker BFI compared with the Tealbook, although we already knew about that yesterday. So, overall, PDFP came in pretty close to what we expected—maybe a little bit stronger—and we got a little bit more government spending, equally spread between federal and state and local. And then, it's not on here, but net exports were also just a little bit stronger as well—so, really a pretty close hit, and we're very relieved about that.

Then, just at the bottom, you can see that core PCE price inflation came in at 2.2 percent in the third quarter. That's a quarterly growth rate at an annual rate. We won't have the 12-month change until tomorrow, but the fact that that came in exactly as expected gives us some comfort. That's all I have.

CHAIR POWELL. Great. Thanks. Questions for Stacey? [No response] Okay. Great. Seeing none, why don't we turn to the policy go-round, and we'll start with Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. I support alternative B as written and the policy decision to lower the funds rate target range by 25 basis points. I note that in this

[8] The materials used by Ms. Tevlin are appended to this transcript (appendix 8).

statement, we continue to acknowledge that "measures of inflation compensation remain low." While true, they remain low at levels last seen in 2016 and are down 50 basis points in the past 12 months.

As mentioned yesterday, the staff model attributes about half of this decline to a fall in expected inflation. The statement continues to say that "survey-based measures . . . are little changed." While technically correct, the language does obscure the fact that prominent survey measures such as the Michigan survey are at all-time low levels. As the staff work on the inflation expectations index confirms, the common factor in 21 different indicators of inflation expectations is at an all-time low level, which indicates to me that if these measures were consistent with expected inflation of 2 percent a dozen years ago, they are less likely to be consistent with that now.

As we learned just now, the U.S. consumer remains the engine of growth for the U.S. economy, but the slowdown in global growth and trade, as well as pervasive global disinflationary pressures, has affected the trajectory for the U.S. economy. And I, for one, am pleased that this Committee has eased policy by 50 basis points since June and do support another 25 basis point adjustment today. Although there are many factors that influence the slope of the U.S. yield curve—and I believe that global factors have been an important contributor to this—I do take some signal from an inverted curve, and I, for one, sleep better at night when the curve is not inverted, as I believe it would still be had we not adjusted policy in July and September.

In regard to the way forward for monetary policy, my baseline expectation is that this cumulative 75 basis point adjustment in the policy rate should be sufficient to provide the more accommodative policy stance needed to offset the headwinds we all recognize and will maximize our chances to maintain employment and inflation at levels at or close to our dual-mandate objectives. For this reason, I do support the statement language that replaces “act as appropriate” with “continue to monitor . . . as it assess the appropriate path . . . for the federal funds rate.” And in my own public communication, I plan to make this point by saying that the economy is in a good place and I believe monetary policy is in a good place. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. I support alternative B as written. I see three reasons for providing more accommodation at this meeting and calibrating monetary policy to a somewhat accommodative stance. And I’ll say that this is not a “delta–delta” decision: It’s not “delta” data since the September meeting and “delta” policy. It’s more about the level. So here are my three reasons. The first one is inflation. For many years now, we have fallen below our 2 percent inflation goal. These failures come with costs, as we’ve discussed. Long-term inflation expectations can slip lower, risking a situation like Japan or—even more relevant and timely, I think—Europe. Moreover, without progress on inflation, getting it sustainably to 2 percent, we risk entering the next downturn with lower nominal rates, closer to the effective lower bound, and with less conventional policy space. As a result of these risks regarding inflation, I view further accommodation as essential to get inflation back to target.

Now, my second reason is, it seems likely that full employment remains more of a moving target than in previous expansions. Over the past several years, we have nearly continuously revised down our estimates of u^* as unemployment has fallen more than we expected. And the preponderance of anecdotal reports, including incoming information from *Fed Listens* events, suggest that the labor market could have even more room to run. Providing further accommodation ensures that the labor market can remain strong as we learn the true value or the true meaning of full employment.

Third, with slower global growth and falling interest rates abroad, the pressures on *r** remain to the downside. In the United States, recent evidence derived from TIPS suggests that the neutral rate might have slipped below 0.5 percent of late, lower than the most recent SEP median. As we discussed in July, our proximity to the effective lower bound argues for a risk-management approach when it comes to calibrating policy against the uncertain value of the neutral rate. The research tells us that in this environment, the stance of policy should adjust to the lower end of the range of our *r** estimates. So this also suggests additional policy accommodation.

Given these three reasons, I support a 25 basis point cut at this meeting. This reduction should help calibrate policy to a level that supports economic growth sufficiently to achieve our dual-mandate goals, given the current and projected economic conditions. And here, I am mindful, of course, of the research that says it's important to move earlier rather than later, when you face these conditions.

Looking ahead, I'm hopeful that, as Governor Clarida mentioned, the cumulative amount of policy accommodation we've put in place so far this year will be sufficient. So it makes sense to me to pause after today's move and carefully monitor economic developments. The language in alternative B appropriately conveys this message. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. I support alternative C at this meeting. The economic outcomes for inflation, unemployment, and real GDP have been quite close to what I expected six months ago. Some key risks in September have declined—notably, risks regarding tariffs and Brexit—and it is not far-fetched to see some upside to consumption prospects.

Unfortunately, the calibration of risk is somewhat of a judgment call, and so is the calibration of some potential headwinds. As a result, it is difficult to quantify just how much monetary stimulus is called for and, in particular, whether additional stimulus is needed at this meeting. If we choose to ease further today, which it looks like we will, when risks to the outlook seem to have moderated and the underlying pace of activity is still healthy, explaining to the public the criteria for pausing or pursuing further accommodation in the future could become increasingly difficult.

Additional easing beyond this meeting would seem more consistent with an expected major slowdown and less appropriate as an approach to risk management. In that regard, I appreciate the change made to the statement that makes clearer—or, at least, I hope it's interpreted that way—that we expect to pause after this meeting. I think it is important to reinforce the point in our communications that additional moves would be appropriate only if we see a meaningful, broad-based decline in the economic data, an outcome that we do not currently expect, and I don't think that's conveyed in the statement as it stands right now. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. I once again support alternative C as written. Currently, there's even less reason to lower rates than there was in September. Most economic forecasts show an economy growing at or near the trend rate, and downside risks, though still present, have diminished. Today's GDP report reinforces this view. I continue to have concerns about the lower level of market-based inflation expectations and the undershooting of our inflation target, but we do seem to be making slow headway toward our 2 percent goal.

I would prefer that we wait to see the effects of the previous rate cuts before moving further. That preference is reflected in the opinions of my board and by bankers and other contacts in the District, the vast majority of whom would like to see how things play out before another move is made.

Our primary reason for lowering rates is to take out insurance against potential downside risks. But, in my view, we continue to be vague about what conditions would imply an appropriate level of the funds rate. With both the federal funds rate and risks now lower than in September, setting policy on what appears to be a glide path to zero seems inappropriate.

And I do echo President Rosengren. I do applaud the language in alternative B in that it will at least signal a pause. So I think we should keep our powder dry, and I'm not in favor of the cut, but I am in favor of the change in the language in alternative B.

My policy position continues to favor acting aggressively if we do see meaningful weakening in the labor market or on the part of the consumer. But those conditions have not arisen, so right now, I favor leaving things where they are—leaving the rate where it is. Thanks, Mr. Chair.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. As you may recall, at our videoconference meeting earlier this month, when we discussed plans for addressing money market volatility, I had that loving feeling of being back in the majority. Unfortunately, now it's gone, gone, gone [laughter], because, based on my assessment of incoming information, my outlook, and the risks to the outlook, I support no change in the federal funds rate at this meeting.

There's been little change in the outlook since our previous meeting, and the economy continues to perform fairly well along a number of dimensions. Business spending, manufacturing activity, and exports have been weak, while consumer spending has held up well. Despite some tempering, labor market conditions remain strong, suggesting that solid income growth will continue to support consumer spending. Although real GDP growth in the second half of the year will be slower than in the first half, for the year as a whole, growth will likely be around its trend rate, as anticipated. Inflation remains below our goal but is gradually moving up, also as anticipated. Risks to the outlook are tilted to the downside—which means we should be carefully monitoring for signs that the weakness in business sentiment and spending is spilling over into labor markets and consumer spending, with the potential for a sharper-than-expected deterioration in real GDP growth.

Now, the revision of our policy expectations, the flattening of our policy rate path at the start of the year, was welcome and appropriate. But I would say that only signs of a broader weakening in the economic outlook would make me want to think it was appropriate to act and, in that case, act decisively. Until we see that, my preference is to leave the funds rate where it is and not cut again merely on elevated risk. Firms already have ample access to credit, and corporate debt levels are already quite high. In my view, the benefits of a rate cut in this environment may not exceed the costs of encouraging potentially excess risk-taking that could make any future downturn worse.

The widely held expectation of the market is that we're cutting again at this meeting, and our intermeeting communications have not deterred that view. So we're likely precluded from leaving the funds rate unchanged today.

I do fully support signaling that, barring a material change in the outlook, this is the last rate cut for a while. We've had a cumulative 75 basis point reduction in the funds rate, similar to what the Committee did in 1995. It does take some time for those cuts to work themselves through the economy, so we're pausing to allow that to occur, and we'll continue to monitor economic and financial conditions.

Now, market participants currently expect a lower funds rate path than what the Committee expects will be appropriate. Today's messaging in the statement and the Chair's press conference may better align those expectations, but it will be important to continue to monitor market expectations over the intermeeting period.

Assuming no change in the outlook, we may need to reinforce today's message in our upcoming speeches that another reduction in the funds rate is unlikely in the near term, depending on how the economy evolves, to help bring market expectations into better alignment. Otherwise, at our December meeting, we may be in the uncomfortable position of causing some potential disruption when we disappoint the markets. With elevated end-of-year pressures in financial markets already a risk, we should take care not to add to volatility and do all we can to communicate clearly our intentions.

To that end, I continue to think we should allow the statement to do more of the work and put less of the burden on the Chair at his press conference. Some of the language in the press conference remarks might have been part of our statement. If we began to better explain things in the statement, we would have more freedom to change wording from one meeting to another rather than feeling handcuffed to the code words we're using.

It's as if there's an Avogadro's constant for the statement that relates the number of words in the statement to the weight put on each word by market participants and Fed watchers.

The fewer the words in the statement, the higher is the weight put on any one word, so the harder it is for us to change a word. If we used more words to explain things, each word would carry less weight. People wouldn't expect us to constantly repeat things from one meeting to the next, because our words would be less boilerplate, and this would free us to change statement language productively from meeting to meeting without fear of sending the wrong message. Yes, I do know this is an aspirational goal, but can't a girl dream? [Laughter] Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. I support the policy action as described in alternative C. As has been the case for the past few meetings, the economy has met the goals, in my view, that we have defined as meeting our dual-mandate objectives. Consumers have remained solid, and there have been few signs of material weaknesses or excesses in risk-taking that would merit a significant change in our policy stance.

My projection expected a slowing as the economy settled into its long-run trajectory, something just under 2 percent. I have no indications that the economy will deteriorate significantly below a soft landing to this long-run rate. I would add that this is a view that is strongly held by my Sixth District directors and my business contacts across a wide spectrum. And, like President Harker, the business contacts with whom I spoke would rather wait and see what happens.

As you might expect, I think our policy action today introduces risk. I've articulated this position for a while, though, so I won't dwell on the arguments in depth here. Rather, let me speak to three bigger issues quickly. First, consistent with the views expressed by many members of the Committee, I think the ceding of policy space in an environment in which the economy is growing above its potential rate is not ideal.

Second, it's my sense that many have adopted a cynical view that the policy actions we have taken are motivated more by political expediency than rigorous analysis. And even if this is not true inside this building, I have real concern that it's carrying the day outside the building, and that we are gradually surrendering our posture of political independence.

Finally, in the grand scheme of things, communications will be the critical element of what happens today, and the press conference will be quite important. There are two dimensions I'd like to speak to. First, as I've said many times in previous meetings, it's important that we clearly and repeatedly express our view that the economy is performing at, or even above, its long-run potential, as articulated by this body. We need to be clear on this to "push back" against the possibility that negativity seeps into broader sentiment.

And, second, regarding the shift to a pause phase, I'd recommend that we just say that this is the beginning of a new pause phase and stop there. Appealing to possible "ifs," under which the pause would not hold, just introduces the possibility of questioning our resolve. In my view, this would best position us to be prepared for whatever economic and policy perturbations we must grapple with in the future. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Like my colleagues here near the map, I believe the better message is alternative C. I could imagine buying a bit more insurance at some point, but I don't believe that today is the right time to do it.

As I said yesterday, external conditions are making additional stimulus today pretty inefficient. I would compare it to trying to light damp kindling. For those of you who weren't

Boy Scouts, you create a lot of smoke, nothing ever catches fire, and you use up all of your matches. [Laughter] At a time when the lower bound is closer than we'd like, I would save our moves for times when we think they will make a bigger difference.

The real rate with respect to core inflation is currently zero. That feels to me like a simple message of accommodation, and I have a hard time getting my mind around negative real rates without a more burning need.

I also think waiting would send the right message to the markets and the public. Like many of us, I've been concerned about pressures that inevitably take us to zero. I also worry about sending a message that the economy is worse than it actually is. The data are still sound. Growth is roughly at trend. Even with the new language—which I, too, appreciate—moving now will naturally mean higher expectations for another move and muddy our message that a trend economy is fine and to be expected. And although the downside risks that we've insured against with the past two cuts are still present, they have, if anything, diminished some since our September meeting.

So I see a strong case for staying put today and saving a third cut if the data deteriorate. As an aside, understanding that this nice run of alternative C proponents is likely to end soon [laughter], I would counsel against, in this press conference, weighting uncertainty too heavily as you speak. We've put a lot of stimulus behind risk and uncertainty already, and I guess I'd prefer to put more weight on data as we go forward. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chair. I support the 25 basis point rate cut in alternative B, setting the target funds rate range at 1½ to 1¾ percent. I have strongly supported our rate cuts this year for two reasons: risk management against the downside threats to growth and to get inflation moving up with enough momentum to generate a modest overshooting of our inflation target within the forecast window.

The same basic rationale leads me to support today's decision. I admit, however, that it is a close call. Determining the appropriate risk-management buffer clearly involves more art than science. Given the apparent resiliency in the economy, our current policy stance may provide enough protection against the risk that more intense headwinds could develop. But another 25 basis point rate cut would boost our confidence that this is the case. It also would provide some more useful assurance to households and businesses that we remain highly vigilant to the potential downside risks.

Meanwhile, we really haven't seen enough improvement on the inflation front, and, in light of the asymmetric losses around the inflation forecast following our long period of undershooting, I see nothing wrong and many things right with inflation picking up faster than expected and achieving our objective sooner rather than later. Inflation and our inflation projections are simply too low. Page 34 of Tealbook A has "The Long-Term Outlook," and inflation, total and core, is forecast through 2025 to be 1.9 percent. Now, I agree that this is only one-tenth below our 2 percent objective, and I could agree with Governor Quarles when he said a few times ago, "Well, you know, 1.7 percent for a long period is stable. Does that keep me up? I wouldn't be kept up over 2.3 percent for a long period." That makes sense. But why is it always below 2 percent? I think we can do better.

Putting these together, I think we should err on the side of providing a bit more accommodation, and we should go ahead and move today.

As I look ahead, my modal expectation is that we will be able to leave rates on hold for some time as we assess developments. And, according to my baseline forecast, these developments should be favorable, with real GDP growth near its trend rate and a gradual pickup in inflation and inflation expectations.

Our message should be that monetary policy is now judiciously positioned. We've installed an adequate risk-management buffer to absorb moderate shocks, and our planned policy path to support a return to target inflation. We are being vigilant and are prepared to act aggressively if shocks accumulate into something more serious. But without going overboard, I'd also emphasize the resiliency we've seen in the economy, and that our baseline expectation is that with appropriate policy, this resilience will show through in continued growth and rising inflation. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chair. I support alternative B for today, as written. I think we continue to face downside risks in a slowing economy. Those downside risks I delineated yesterday, but they are well known around the table: the ongoing global trade war, which I see no resolution to in the near term; a slowing global economy; a weak manufacturing sector; and weak business investment in the United States.

The slowing economy has now come to 1.9 percent for the third-quarter GDP growth number, which we just got. That's very close to what most people around the table here have as trend. I actually would put the trend somewhat higher—2 to 2¼ percent. I do think productivity has been improving and will continue to improve. So you could argue that we're right at the cusp of possibly falling below trend growth. We'll see what happens.

I still have the idea that we're at the low point here, and that real GDP growth in the first half of 2020 will be stronger—2¼ percent, or maybe better than that. That would be great. That would be a great outcome. And, if that happens, then we could think about taking some of our insurance cuts back in 2020 or 2021.

We also have low inflation and inflation expectations. I'm going to echo some of President Evans's comments here and Governor Clarida's comments. A TIPS-based five-year inflation expectation adjusted to PCE inflation—my reading is, it's only 1¼ percent over the next five years. It makes me very nervous about our ability to stay off the effective lower bound, which is, I think, the critical thing for our era—to keep the United States off the effective lower bound.

It's true that actual inflation in the 1.7 to 1.8 percent range seems like it's close to our 2 percent target. I'm going to give you an argument that it's not. It's not close enough for government work. The cumulative miss since 2012 is substantial. In my view, we established a 2 percent inflation target circa 1995, and we stayed on the price-level path associated with that 2 percent inflation target from 1995 all of the way through 2012, which is when we named our 2 percent inflation target. Then we immediately moved off that price-level path and fell below. You know, we're more than 5 percent off that price-level path today. And in a lot of models and our own models that we use here, price-level targeting is close to optimal, so I think that does represent some suboptimal policy since 2012. If you wanted to get back on the price-level path, you could run a 2½ percent inflation policy for the next 10 years, and that would just get you back to that 1995–2012 path.

So I do think it's been substantial cumulatively. I think that's because some inside and outside the Committee are viewing the 2 percent inflation objective as a ceiling, not as a target that we actually want to hit. Accordingly, markets are sniffing this out, and they're assuming that we're going to miss to the low side for quite a while to come. Even our own staff has moved the longer-run inflation expectation down to 1.8 percent.

So, again, if you're trying to stay off the effective lower bound, none of this sounds very good. What I'd really like to see in the current situation, in which the expansion has been going on for a long time—we have very strong labor markets—I'd like inflation to be above 2 percent, even as high as 2½ percent, during this period. So if you think of it that way, we're missing a long ways below where we should be. If we're at 2½ percent, then, when some recession or big shock comes in the future, we'll average out to 2 percent, we'll be able to hit our 2 percent target, and that will keep inflation expectations centered where we'd like them to be.

We're not doing that now. You know, that's my assessment of the current situation. I do think that the Committee has done a lot in 2019 to react to this situation. I was saying yesterday, if you look at the two-year Treasury yields—down, maybe, on the order of 130 basis points since this time last year—that's a big change in this kind of game. And I think it will help us re-center inflation and inflation expectations back toward target. It will also help provide insurance against the downside risks on the real side of the economy that we face.

After a move today, the 10-year federal funds rate spread will correct and turn positive again. I think that's important. I do take signals, like Governor Clarida does, from the yield curve. The 10-year/2-year spread never sustainably inverted, so it's possible that whatever bear signal would be coming from the yield curve has been averted here by astute action by this Committee. I hope that's the case, and I hope the 10-year Treasury yield will trade higher—and we'll get a more healthy, upward-sloping yield curve.

I would have preferred to move somewhat more quickly over the past several meetings, but I do think we're more appropriately calibrated today than we were. So I think we can wait and see—pause, as some of you have been saying—to see how our additional accommodation is affecting the economy through long and variable lags associated with monetary policy. And I do think some of those effects are coming through in housing data and elsewhere—interest-sensitive sectors—in the economy. So I think you're very much seeing classic effects of our policy easing during 2019.

I hope we'll see more of that and that the economy will pick up a little bit, and we'll be in a good position through the end of the year and into the first half of 2020. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. I support alternative B as written. Leading up to this meeting, all things being equal, I probably would have preferred not to move today—to have turned over a few more cards and waited—with an understanding that we'd be ready to act in the future. Having said that, in light of downside risks, I can live with moving today, and I'm supportive of alternative B. As others have said, I think, for me, as I've said before, the yield curve is a bit of a reality check, and, on the margin, I think this move today will be the last step, at least for the time being, in getting the yield curve, for me, in a better position.

Having adjusted policy, though, in this meeting, I believe the policy setting is now appropriate, given my economic outlook. I believe the three moves we have made so far this year, as well as the flattening of expectations of the future federal funds rate path, have been appropriate and should be sufficient to address the economic weakness that I've been concerned about.

From here, I intend to be vigilant. But unless something significant changes in the outlook, I would not be supportive of further reductions in the policy rate, at least for the foreseeable future. At this point, I believe the Committee should be patient, allow time to unfold, and see how the economy develops over the next several months.

I am mindful of the limits of monetary policy, the risks of monetary policy trying to do too much, and, lastly, that it is not a substitute for broader economic policies that address growth in the workforce, productivity, education, skills training, and immigration. Other policies away from monetary policy are critical, and I think, at a certain point, people like me and us calling that out and expressing the limits of monetary policy is a healthy thing. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Mr. Chair. I also support alternative B as currently written. The U.S. economy is in a good place, and my outlook is little changed from the September meeting. The labor market has remained strong, and the various forward-looking indicators do not show signs of a marked deterioration in either labor demand or hiring activity. Inflation has approached, but not fully reached, our 2 percent target, and inflationary pressures appear muted, raising the question of the need to provide additional policy accommodation.

Risk factors have also lessened somewhat in recent weeks. Movement toward an orderly Brexit appears to be progressing, and trade uncertainties have eased somewhat. However, economic developments since our September meeting have been mixed, and the staff revised foreign growth downward again. Manufacturing output, both here and abroad, has shown further signs of weakening, and there are some indications that business investment in the United States may be turning down more sharply than we'd been expecting.

So, given all of the information we currently have in hand, in my view, the balance of risks and available data support making another modest downward adjustment to our policy stance. My expectation is that this, combined with the rate cuts from the past two meetings, should be sufficient to bolster confidence and support the continued economic expansion.

I support alternative B, because I prefer that we adjust the language of the statement to reflect a more balanced view of the risks to the outlook and to convey our current expectation that no further moves will be needed unless the outlook deteriorates. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. Incoming data continue to support an outlook for growth at or above potential, with record-low unemployment at 3½ percent and low and stable core inflation currently at 2.2 percent.

In the face of downside risks to the outlook, the Committee has provided significant accommodation in the form of a lower projected path since last year and reductions in the federal funds rate at our past two meetings. Taking into account the fact that monetary policy operates with a lag, I think it seems prudent to wait for more evidence that the July and September rate cuts have been insufficient before providing further accommodation.

Ignoring these lags may put at risk our dual mandate objectives and perhaps unintentionally signal an ongoing easing cycle. For example, I could anticipate that we'll continue to see sluggish manufacturing activity and capital spending in the near term as firms wrestle with how to respond to uncertainty about trade policy and global demand. If we're impatient as we wait for interest rate cuts to stimulate the economy, these persistent conditions could lead us to respond with additional rate cuts that could ultimately prove counterproductive by encouraging elevated vulnerabilities in the financial system and misallocation of resources. Consistent with alternative C, I would prefer to maintain the current federal funds rate target while waiting for clearer signs that weakness in business spending and exports is spilling over to the service sector and consumer spending.

Finally, communication about the stance of policy seems increasingly important and challenging. I support a message that, given the current outlook, we are not on a one-way path back down to the effective lower bound. However, I worry that our actions at each meeting since July will be viewed as a cyclical policy turning point, because of communications that have offered a variety of rationales for rate cuts—including insurance, risk management, mid-cycle adjustments, meeting-by-meeting decisionmaking, and data dependence.

While the uncertainty associated with weak global growth and other downside risks suggest it may be too soon to signal that policy is firmly on hold, retaining policy flexibility could be viewed as a further easing bias. This afternoon's press conference will provide the opportunity to thread that challenging communication needle. Thank you.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chair. I support alternative B as written. And despite my native sympathies for the "people of the map," I can make that statement without holding a newspaper with today's date in front of my chest, because there are some signs of weakness in the domestic data—particularly regarding investment, which I have long said is my lodestar, and manufacturing, which is what it is—and cutting rates at this meeting is appropriate to support continued growth.

In addition, despite some possible progress on trade, although I share President Bullard's skepticism, and the less likelihood of a hard Brexit, the risks to the outlook are downward. And, should we be hit by a negative shock later in the year, we will be in a better place by having cut rates today.

That said, although I'm comfortable with today's rate cut, I don't see a compelling need for further cuts unless the data turn decidedly worse or risks to the outlook increase meaningfully further, which, along with President Rosengren and a number of other speakers, I don't expect. I think the language in the statement conveys this well.

With the cuts that we put in place this year, I view the stance of policy as being very accommodative. And as the growth outlook stabilizes and inflation inches up close to target, I expect that we'll need to begin gradually removing this accommodation at a practicable date. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. My compliments to Stacey and her team on their forecast, which came in eerily close to today's GDP "print" on almost every component.

The most notable change in my view since the September meeting is that two important risks have diminished more than I anticipated. First, the trade truce between the U.S. and China has bolstered sentiment and appears to reduce the risk that significant additional tariffs could hit consumer goods. Second, the tail risk of a no-deal Brexit has declined significantly, diminishing a risk that's been hanging over a good part of the world economy for the past year. Reflecting these positive developments, we've seen a steepening of the yield curve, and almost every recession indicator that we track for the U.S. economy has declined during the intermeeting period, with some probabilities coming down as much as 10 percentage points.

Beyond this, my modal outlook remains broadly similar to that in September. This morning's data suggest that economic activity continued to expand at a slightly above-trend pace in Q3, though more slowly than in the first half of the year. Consumer spending has remained healthy, the labor market has continued to tighten, and, so far, there's little sign that the softness in trade, manufacturing, and business investment is infecting consumer spending or services.

The bulk of the evidence points to an economy that's stabilizing at a near-trend pace, but there are a couple of data points that might suggest a more significant slowing. Against the backdrop of muted inflation, I can support today's cut based on principles of risk management. I do think it's worth noting that the 75 basis points in cuts that we will have undertaken as of today are a much larger move in today's environment as compared with the analogies that are often drawn with the mid-1990s.

Based on the data today and my outlook, I don't currently see the need for additional cuts. In my view, the months ahead provide a good moment to step back and assess whether the policy easing that we've already provided might be sufficient to address risks to the outlook. As this morning's "print" confirms, already we're seeing some encouraging signs in the housing sector in response to the change in longer-term yields associated with our earlier adjustments in our policy trajectory. And, as President George noted, the full effects of the easing that's taken place are likely to take some time to show through to the data. Of course, if the data were to suggest a more significant slowing in coming months, I would certainly be prepared to act.

I would like to see our policy decisions less constrained by market expectations and more responsive to the data. Today's statement should help in restoring optionality and refocusing expectations on data. Communications will need to be extremely deliberate in order to avoid ending up in situations in which we feel constrained to validate market expectations in advance of having all of the data we need to make our decisions.

I am also concerned—in light of our "low-for-long" expected path of interest rates, with growth running close to its potential rate—about the risk of exacerbating imbalances in financial and credit markets. Experience suggests that financial market risk appetite and private-sector leverage are strongly procyclical. And we do see clear signs of that in the corporate debt market and the associated low credit spreads. Although these financial imbalances could be addressed by augmenting buffers countercyclically, in fact, we've seen payouts exceeding earnings for the largest banks and buffers falling. In that environment, monetary policy may have to do more of the work.

So, in sum, if the outlook and balance of risks stay relatively stable, I'd want to stay put and assess how the economy is responding for a couple of meetings. I don't see a case for further cuts on the basis of today's outlook—though I would be prepared to take action decisively, should the data surprise to the downside. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. I support alternative B. I believe the data clearly support a more accommodative monetary policy stance. Consider the two sides of our dual mandate. On price stability, inflation is too low. It's been too low for eight years. Inflation expectations are too low, inflation expectations are falling, and the risk-neutral probabilities suggest that a risk of lower inflation is much higher than of higher inflation.

On the employment side, the unemployment rate is low, but there are clear signs the U.S. job market is losing steam. There appears to still be slack in the labor market, and wage growth is slowing, not accelerating.

When I think about optimal monetary policy, the two sides of our dual mandate should be in tension. There should be tradeoffs. There's no tradeoff. That just tells me policy has been too tight, and we're in the "free lunch" zone between these two sides of our dual mandate. I'm always reminded—I joke to my staff about an economist who won't pick up a $20 bill because it can’t possibly exist. There have been $20 bills lying all over the U.S. economy for the past five years, and it’s for us to pick them up—not to put them in our pockets, but to put them in the pockets of the American people.

And one of the things that I think we’ve learned over the past few years is, the benefits to the country of a tightening labor market are profound. Mary talked about it yesterday. Others have talked about it—all of these groups that are finally benefiting from a tightening labor market. That’s why I think we need to err on the side of keeping the expansion going and bringing as many people back in as possible. Finally, low-wage workers are getting wage increases. I mean, the benefits are all there. So that’s why I support a more accommodative policy stance.

I talked about this yesterday. I’ll just repeat it briefly. I think we should be using forward guidance now to try to avoid getting back to the lower bound. All of the analysis that the staff has provided shows that if we get back to the ELB, our tools are limited. We’re much better off to take action now to avoid the ELB than try to deal with it once we get there.

And I would just say, I enjoyed Tom’s comments about the Boy Scouts and the matches, but I actually don’t think—I mean, people use different metaphors. They say “keeping our powder dry,” “saving our ammunition,” and “saving our matches.” I actually don’t think those are the right analogies. I think that it’s not, you fire your bullets now, and you don’t have ammunition later. I think a better analogy is, you’re driving down the highway, and you think a hill might be coming. Do you accelerate now, or do you want to keep your powder dry and not accelerate? I think you’re better off accelerating and getting up to speed, and then, if the hill emerges, you can take the hill. It’s not that if you accelerate now, then you don’t have any pedal left to push when the hill actually emerges.

So, again, I enjoyed the analogy, and many people use similar ones. I actually don't think those are the right analogies. I don't think if we cut rates now, that somehow undermines our ability to respond to a future downturn. I think it's a boost to the economy that will make it more likely that we can overcome that downturn should it emerge.

That's it. Thank you.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. I support alternative B as written, and I want to make a couple of quick comments in response to the go-round on this. First of all, there's this notion of talking our way into a recession. I actually think the statement is very carefully worded and has been for some time, and I'm sure the Chair's comments will be consistent with that. You know, we say in paragraph 1 that "the labor market remains strong … economic activity has been rising at a moderate rate. . . . unemployment rate has remained low." Paragraph 2: "… sustained expansion of economic activity, strong labor market conditions, and inflation near the Committee's symmetric 2 percent objective are the most likely outcomes ..."

So I do think that our message is one of a strong economy, an economy that's in a good place. Really, the policy narrative is one about keeping it that way, maintaining a strong economy, increasing the momentum on getting us to our symmetric 2 percent inflation goal, and managing risks. I think it's a complicated message, because we're not looking at data that are weak and saying, "Oh, look at the weak data. We're responding to that." We're actually acting in a preemptive, proactive way to address what we think of as significant risks and uncertainties regarding the outlook.

The second thing I'd like to note is, I appreciate, in the flag end of the table, the support for the change in paragraph 2 by everyone who doesn't support alternative B. But I think that this language actually does serve a good purpose here, and that is: "The Committee will continue to monitor the implications of incoming information for the economic outlook as it assesses the appropriate path ..." I think this isn't a pause, and this isn't a wait-and-see, but it will be understood, I think, by the public that this is a sign that we feel that we've gotten policy into a reasonably good place, given where the economy is and where the risks are.

So I think that this does signal that—perhaps through code language, and perhaps not as clearly as President Mester and I would like—but I think it will be understood that way. And I think the Chair will, as he already described yesterday, get the message across. So this language will, I think, be understood that way.

I'd like to go back to the policy decision. Since the start of the year, the global economic outlook has deteriorated, uncertainties have intensified, and inflation has moved below our longer-run target. Our previous two rate cuts were preemptive medicine to mitigate the spillover of these developments onto our economy and provide insurance against potential downside risks. This approach of staying ahead of the curve has served us well in helping keep the economy on track and bring inflation back toward our 2 percent symmetric goal despite considerable headwinds.

Recent data show the slowing global economy. The materialization of some of those uncertainties that have been worrying us is leaving an imprint on the economy, and, as President Bullard mentioned, we now see the economy growing at or slightly below its potential growth rate.

Despite a rebound from low readings early in the year, core inflation is likely to run below the target for some time. And I agree with—I don't think I've got everybody's name here—Governor Clarida and Presidents Evans and Bullard about concerns about inflation expectations or, at least, our measures of inflation expectations being too low and not moving in the right direction.

In terms of policy options, I view one more cut to the target range for the funds rate as appropriate to offset negative shocks and manage these risks. In my view, acting now with a relatively high hurdle for a December cut is consistent with incoming information and keeps us well positioned in terms of risk management.

Now, going back to metaphors, I agree completely with the message that President Kashkari made—that we don't want to think about keeping our powder dry, I think. The car thing kind of reminded me of *Bullitt,* with the cars flying over the hills in San Francisco [laughter], so I'm not going to continue that. I will say that I was not a Boy Scout, so when I can't light damp wood, I use lighter fluid, and that seems to work, [Laughter]

MR. BARKIN. That was an argument for for alternative A, I guess. [Laughter]

VICE CHAIR WILLIAMS. The biggest challenge—and I agree here with President Mester, Governor Brainard, and, quite honestly, pretty much everybody here—is that we need to be able to signal consistently and effectively that policy is in a relatively good place, with no presumption of further cuts, while we remain vigilant and data dependent. And I think here—really being steady and consistent in our communications, regardless. I mean, I think we're going to be tested on Friday, honestly, on the employment report. Presuming it comes out the way we expect, we think that that's likely to be heavily influenced by the GM strike. So when these kinds of data that can be noisy or give mixed signals come in, we just need to be on message and continue to do our best to manage this balance of that policy is in a good place, but at the same time we're not under some kind of a preset course. Thank you.

CHAIR POWELL. Thank you. Let me now ask Jim to make clear what the FOMC will vote on and to read the roll.

MR. CLOUSE. Thank you, Mr. Chair. 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 6 and 7 of Thomas's briefing materials.

Chair Powell	Yes
Vice Chair Williams	Yes
Governor Bowman	Yes
Governor Brainard	Yes
President Bullard	Yes
Governor Clarida	Yes
President Evans	Yes
President George	No
President Rosengren	No
Governor Quarles	Yes

CHAIR POWELL. The Board now needs to vote on interest on reserves and discount rates. We have two sets of related matters under the Board's jurisdiction: corresponding interest rates on reserves and discount rates. 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 second-to-last page of Thomas's briefing materials?

MR. CLARIDA. So moved.

CHAIR POWELL. May I have a second?

MS. BRAINARD. Second.

CHAIR 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 second-to-last page of Thomas's briefing materials?

MR. CLARIDA. So moved.

CHAIR POWELL. May I have a second?

MS. BRAINARD. Second.

CHAIR POWELL. Without objection. Thanks very much. Our final agenda item is to confirm that the next meeting will be on Tuesday and Wednesday, December 10 and 11. And that concludes this meeting. A buffet lunch will be served at 11:30. Thanks, everyone.

END OF MEETING