Meeting of the Federal Open Market Committee on March 19–20, 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, March 19, 2019, at 10:00 a.m. and continued on Wednesday, March 20, 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

Thomas A. Connors, Rochelle M. Edge, Eric M. Engen, Christopher J. Waller, William Wascher, and Beth Anne Wilson, Associate Economists

Simon Potter, Manager, System Open Market Account

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

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

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

Daniel M. Covitz, Deputy Director, Division of Research and Statistics, Board of Governors; 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

Antulio N. Bomfim, 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 John M. Roberts, Special Advisers to the Board, Office of Board Members, Board of Governors

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

Shaghil Ahmed, Senior Associate Director, Division of International Finance, Board of Governors; Joshua Gallin and David E. Lebow, Senior Associate Directors, Division of Research and Statistics, Board of Governors

Edward Nelson, Senior Adviser, Division of Monetary Affairs, Board of Governors; Jeremy B. Rudd, Senior Adviser, Division of Research and Statistics, Board of Governors

Marnie Gillis DeBoer[1] and David López-Salido, Associate Directors, Division of Monetary Affairs, Board of Governors

Jeffrey D. Walker,[1] Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Andrew Figura, Assistant Director, Division of Research and Statistics, Board of Governors; Laura Lipscomb,[1] Zeynep Senyuz,[1] and Rebecca Zarutskie, Assistant Directors, Division of Monetary Affairs, Board of Governors

Michele Cavallo,[1] Section Chief, Division of Monetary Affairs, Board of Governors

Penelope A. Beattie,[2] Assistant to the Secretary, Office of the Secretary, Board of Governors

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

[1] Attended through the discussion of developments in financial markets and open market operations.
[2] Attended Tuesday's session only.

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

Martin Bodenstein, Marcel A. Priebsch, and Bernd Schlusche,[1] Principal Economists, Division of Monetary Affairs, Board of Governors

Mary-Frances Styczynski,[1] Lead Financial Institution and Policy Analyst, Division of Monetary Affairs, Board of Governors

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

Gregory L. Stefani, First Vice President, Federal Reserve Bank of Cleveland

David Altig, Kartik B. Athreya, Michael Dotsey, Glenn D. Rudebusch, Ellis W. Tallman, and Joseph S. Tracy, Executive Vice Presidents, Federal Reserve Banks of Atlanta, Richmond, Philadelphia, San Francisco, Cleveland, and Dallas, respectively

Antoine Martin,[1] Julie Ann Remache,[1] and Mark L.J. Wright, Senior Vice Presidents, Federal Reserve Banks of New York, New York, and Minneapolis, respectively

Roc Armenter,[1] Kathryn B. Chen,[1] Hesna Genay, Jonathan P. McCarthy, and Patricia Zobel,[1] Vice Presidents, Federal Reserve Banks of Philadelphia, New York, Chicago, New York, and New York, respectively

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

Daniel Cooper, Senior Economist and Policy Advisor, Federal Reserve Bank of Boston

Ellen Correia Golay,[1] Markets Officer, Federal Reserve Bank of New York

A. Lee Smith, Senior Economist, Federal Reserve Bank of Kansas City

Transcript of the Federal Open Market Committee Meeting on March 19–20, 2019

March 19 Session

CHAIR POWELL. Good morning, everyone. 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.

As you know, we've got a full agenda for this meeting. So we're starting early, in order to ensure that we have ample time for a full discussion on each of the topics on the agenda.

Before we start, I'd like to welcome Stacey Tevlin to the table in her new capacity as director of Research and Statistics. We're delighted to have you here, Stacey, and we promise not to hold the projected weak first quarter against you. [Laughter] Please join me in welcoming Stacey. [Applause]

I'd also like to take a moment to recognize Tom Connors. As many of you know, Tom has announced that, after only 41 years here at the Board, he'll be retiring, and this will be his 132nd and last FOMC meeting. Tom began his career at the Board in 1977 as an economist. He focused on developing countries and substantially augmented his experience while seconded at the USED's office at the IMF from 1982 to 1983. He would go on to become chief of the Emerging Markets Economies Section and has been a deputy director of the International Finance Division since 2008.

In his time at the Board, Tom has been a key part of the Federal Reserve's responses to international economic crises in Latin America, Asia, and elsewhere. He has also played a critical role in the management and culture of the International Finance Division as well as in providing support to Board members at international meetings all over the world. His vast experience in economics, knowledge of Fed history, and spontaneous dry wit have made him both an ideal traveling companion and a highly effective ambassador of the Fed at innumerable international gatherings. We're grateful for all of Tom's contributions and wish him the best in his well-deserved retirement. Tom. [Applause]

With that, let's turn to our first agenda item, the update to the Balance Sheet Normalization Principles and Plans. Before we begin that discussion, I just wanted to note that there has been quite a bit of attention lately on the possibility that the FOMC might soon choose to implement some form of repo facility. The ideas that have been floated are very interesting, and, of course, we've had some previous staff work and discussion on the subject. But there are many important and complicated issues associated with a facility like this. I've asked the staff to do some more work on this topic so that we can have a full discussion of this issue at an upcoming meeting or two.

My sense is that some of the press reports on the topic have gotten more than a little bit ahead of themselves at this point. So, for now, I suggest that, in our public statements, it might be appropriate to be fairly noncommittal. And just note that this is a very interesting subject that we will be discussing, along with many other issues associated with the long-run operating framework. With that, let me turn the floor over to Zeynep to provide a review of the options for completing the normalization of the size of the balance sheet. Zeynep.

MS. SENYUZ.[1] Thank you, Mr. Chairman.

> I will refer to your first exhibit, which draws on the memo titled "Options for Ending Balance Sheet Runoff." This memo describes two options for stopping balance sheet runoff at the end of September 2019 and a proposed reinvestment strategy for principal payments received from securities holdings. Lorie will cover in her briefing the second memo you received, which discussed details of the

[1] The materials used by Ms. Senyuz are appended to this transcript (appendix 1).

operational plan to transition to an ample reserves regime. My briefing will focus on the materials directly related to the communications proposal in front of you.

In the January FOMC meeting, you discussed options to end balance sheet runoff later this year in order to provide the public with greater clarity about the evolution of the SOMA portfolio. The memo that you received provides two possibilities for doing so. Under the "no taper" option, Treasury security redemptions would continue, subject to the current $30 billion per month cap until September and then end. Under the "taper" option, the Treasury cap would be reduced to $20 billion in April and then to $10 billion in July before Treasury security redemptions end entirely at the end of September.

Under the no-taper plan, by the time balance sheet runoff stops at the end of September, reserve balances are projected to reach $1.2 trillion, with a SOMA size of about $3.5 trillion. According to our standard models, there is essentially no economic difference between the no-taper and taper options. Tapering redemptions would leave the Federal Reserve's balance sheet a little larger for a while. But this would have a negligible effect on the term premium and the macroeconomy. Moreover, in the long run, these two options have no implications for the level of reserve balances or the size of the portfolio—which are ultimately determined by demand for Federal Reserve liabilities.

The decision between the no-taper and taper options would thus depend on other criteria. A plan to taper the Treasury cap before ending Treasury redemptions altogether would be consistent with most of the previous changes in balance sheet policy. Such a plan could be communicated as further supporting a smooth approach to transitioning to the ample-reserves regime and might provide reassurance to market participants that balance sheet normalization will not put at risk the attainment of the macroeconomic objectives of monetary policy. On the other hand, the no-taper plan could be viewed as a simple strategy that would allow a slightly faster transition to the desired long-run level of reserves.

The most recent survey of primary dealers and market participants provided some information on market views regarding the timing of the end of the balance sheet runoff. In a new question, respondents were asked about their expected timing of an announcement to stop reducing the Federal Reserve's asset holdings. Most respondents expected an announcement at the conclusion of this FOMC meeting. However, responses were more dispersed in terms of the timing of the initial implementation of such a plan. Most respondents expected the implementation to start during the third quarter of this year. But expectations of the remaining respondents were roughly evenly divided between the second and fourth quarters of this year.

Once balance sheet runoff comes to an end, the Committee will need a plan for reinvesting MBS principal payments, at least in the interim, until decisions are reached on the longer-run composition of the SOMA portfolio. Consistent with your previously announced plan to hold "primarily Treasury securities" in the longer run, you may wish to reinvest MBS principal paydowns below the monthly $20 billion cap in Treasury securities. These purchases would take place in the secondary market. Allocating these purchases across different Treasury security types and maturity ranges in proportion to the outstanding Treasury "universe" would avoid having them concentrated in any one sector. Under this plan, the Federal Reserve would begin to build some holdings of relatively short-term Treasury securities, though at a relatively slow pace.

The approach of allocating Treasury purchases across the maturity spectrum may be perceived as neutral and not as sending a signal about the long-run portfolio design. As noted in the revised statement of Balance Sheet Normalization Principles and Plans, you could indicate that this initial reinvestment decision is temporary and that the subject of reinvestment policy would be revisited in connection with the Committee's deliberations on the long-run asset composition.

Market views about the likely choices of reinvestment plans at this stage appear to be fairly dispersed. Some market participants have noted that they expect purchases to be concentrated in bills, reflecting the fact that the SOMA portfolio's weighted-average maturity exceeds that of the outstanding stock of Treasury securities. Others have suggested that the Committee would spread reinvestments across a range of maturities. On balance, our sense is that market reaction to the proposed interim reinvestment strategy on MBS principal payments will likely be muted.

The draft Balance Sheet Normalization Principles and Plans proposes to leave the $20 billion monthly cap on MBS redemptions in place. In the unlikely event that principal payments on agency securities exceed the cap, the amount above the cap would be reinvested in agency MBS. Although MBS paydowns are unlikely to exceed this cap after this year, retaining the cap may continue to support the smooth functioning of the MBS market by limiting the pace at which the MBS holdings could decline if prepayments accelerated in response to a sizable drop in long-term rates.

The FOMC's plan for ending balance sheet runoff and reinvesting MBS principal payments can be communicated through the Balance Sheet Normalization Principles and Plans as indicated in the draft attached to your exhibit. As the Committee has previously discussed, the level of reserve balances at the conclusion of balance sheet runoff will likely be somewhat above the level consistent with the efficient and effective implementation of monetary policy. The document suggests that the Committee would maintain the size of the balance sheet "roughly constant" for a time, in order to allow a very gradual continued decline in the average level of reserves. This very gradual decline would help to minimize any risks of a significant pickup in interest rate volatility as reserves move to lower levels after September. Once the Committee judges that it has reached the appropriate level of reserves, the Desk would conduct periodic open market operations necessary to accommodate the trend growth of nonreserve liabilities and maintain an appropriate level of reserves in the system.

Thank you. This concludes my prepared remarks. I would be happy to take any questions.

CHAIR POWELL. Thanks, Zeynep. Questions for Zeynep? President Mester.

MS. MESTER. Thank you. Last time, when we were talking about December versus September, we decided December was dicey just because of the volatility.

MS. SENYUZ. Right.

MS. MESTER. Now, the debt ceiling is going to come into effect in the fall. In your memo, it's reported that the Congressional Budget Office (CBO) has it in September. Does that add any complication to thinking about September as the right time?

MS. SENYUZ. According to some of the analysis we did, the debt limit will not cause any issues of concern. If the debt-limit issue is resolved earlier and the Treasury starts building up the Treasury General Account (TGA) relatively quickly, as it did in the previous episodes, that would increase TGA balances and would drain reserves. And we will see fluctuations in TGA balances in the coming months. Actually, reserves will reach new lows around May—they will come down to about $1.4 trillion, so I guess we will be able to analyze this period before we reach the end of the summer. But the TGA balances coming down would add to reserves. So, in that sense, it wouldn't create any complications.

One risk, in terms of implementation, would be increased TGA balances that would drain reserves. But even under that scenario, we expect that reserve balances will be close to our projected baseline path under the current estimates. Of course, if reserve demand appears to be stronger than expected, then we may see some pressures, ultimately, in the money markets. But we don't expect this to be the case, on the basis of our simulations.

CHAIR POWELL. President George.

MS. GEORGE. My question relates to reinvestment of the principal payments. Up until now, as reinvestments have taken place, we have not been explicit in the normalization principles about directing the Desk to reinvest. I take it that the nature of what we're doing here makes you think that saying that explicitly, even on an interim basis, is an important signal now versus the Committee allowing the Desk to do that. And I'm curious what dynamics you anticipate. Is it because of the end that we need to put that in there? Because my concern is, as we get to the point of making a longer-run decision, we will now have made a "soft" commitment here about how that will look, but that may be overstating the case here.

MS. SENYUZ. Right. And we are hoping that it will be clear from the Normalization Principles and Plans that we will retain the flexibility to change this plan, and this is just an interim plan that applies to the MBS reinvestments. And in the case of Treasury securities, we will continue to roll them over at auction. But—

MS. GEORGE. And if we were silent on that in this document, I think the markets would react.

MS. LOGAN. I think, President George, the question you may be asking is, if it's important for the market to understand what the choice is. I'm interpreting your question to be, "Do we have a view about whether it should be in that document or in a Desk statement?" I think, from the market's perspective, as long as it's communicated, that's the key issue.

MR. POTTER. So it doesn't matter in which one you say it.

MS. LOGAN. No.

CHAIR POWELL. President Kaplan.

MR. KAPLAN. Just to follow up on President George's question: Assuming that in the not-too-distant future we decide to make an announcement that we're going to shorten maturities, does being this explicit make it harder? That's, I think, the question.

MS. LOGAN. No, I don't think so. I think the language that is being discussed provides the flexibility to make the longer-term decision. Regardless, you do need to communicate in some form, either through that document or through a Desk statement, to the market about how we're going to do those reinvestments starting in October. I think that's the key issue. I think the form of that communication is perhaps less—

MR. KAPLAN. And the reason you don't want to signal shorter now is you feel like that's a debate we're going to need to have, and that we're not ready to make that judgment.

CHAIR POWELL. Correct. But if there is any opportunity to do this, I will make sure to emphasize that this is not a settled question and that this is a resting place. I personally have sympathy for a shorter duration balance sheet. We just haven't really had the deep discussion about that yet.

MS. GEORGE. Yes, and the neutral part of this interim plan I'm agreeing with. It just struck me as a difference between giving the Desk instructions through a Desk statement, or the Desk expressing their intent, and us embodying it. It felt more like a policy statement of our own. So that was the question, really: How important is it that we make that statement in this plan versus leaving it there? But I'd prefer to have the folks that interact with the—

VICE CHAIR WILLIAMS. I think the challenge here is that we are so far away from any neutral composition of our portfolio that it probably is actually helpful to say, "This is a policy decision. This is the step we're taking," thereby making it clear that we're making that decision, as opposed to putting it behind the scenes.

MS. GEORGE. So I was just trying to not disturb what I think is understood today and not highlight it.

VICE CHAIR WILLIAMS. Yes.

MS. BRAINARD. I think I would defer to Lorie on how market participants will perceive it. But my sense is that we do need to have a policy about this, and this is the first step on having that. So for us to suggest that it's simply a technical issue that the Desk would deal with is, I think, not an appropriate way to handle it.

CHAIR POWELL. Further questions or comments? [No response] Okay. Thank you. Seeing none, let me start off with some comments myself. First, thanks to the staff for another helpful round of memos and presentations. This will be the fourth consecutive meeting at which the Committee has made progress on our balance sheet normalization plans. In January, we formalized our choice of a long-run operating framework. Today we're in a position to make a few additional decisions relating to the final stages of normalizing asset holdings and reserves. We will tackle remaining longer-run questions in upcoming meetings. With that in mind, I'll touch on a couple of issues regarding the normalization plan that's up for consideration.

The proposed plan reflects key aspects of the so-called Harker plan, although known by Pat as the Armenter plan. It calls for asset runoff to end on September 30. After that date, if we deem it appropriate, we may hold the size of the balance sheet constant for a while. If we do that, reserves would decline very gradually, reflecting the normal increase in other liabilities, especially currency. Once we determine that reserves have reached a minimum level consistent with our chosen implementation framework, the balance sheet would again be allowed to grow, reflecting the growth in our reserve and nonreserve liabilities.

Now, I do support the proposed taper option, which would taper roll-off in April before stopping entirely at the end of September. This taper would be in line with our standard practice of moving gradually and predictably as reflected in the 2014 QE3 taper as well as the very gradual taper of the caps at the outset of the balance sheet normalization in 2017.

As with the 2017 taper, there is no deep or strong reason to do this taper. This taper would not materially affect, as Zeynep indicated, where we end up. I think, however, the tapering provides a little bit of cheap insurance against unforeseen turbulence that could accompany a more abrupt plan. I see this taper as adding a dose of caution, minimizing risks to our dual-mandate goals.

The taper might, I suppose, be seen as the Committee validating concerns over quantitative tightening, or QT. And, like most of you—I suspect perhaps all of you—I don't subscribe to the QT theory that our normalization plan should have played a major role in a selloff late last year. And I have said that publicly on a couple of occasions. I thought our discussion at the previous meeting covered this issue pretty well, as reported in the minutes. And I hesitate to bring reason to bear on a theory that I find pretty implausible, but the modest total quantities involved in the taper would be trivial even from a QT perspective. So, if asked, I would explain that this taper is in line with our usual prudent approach of moving gradually and predictably and leave it at that.

The plan before us today also calls for monthly MBS paydowns below $20 billion to be initially invested in Treasury securities across a range of maturities to roughly match the maturity composition of Treasury securities outstanding. The "initially" is meant to convey the message that today's decision is an interim one that does not prejudge anything about our future debate regarding the ultimate maturity composition of the balance sheet.

As I mentioned a moment ago and as I mentioned at a previous meeting, I am attracted to the idea of getting to a shorter maturity balance sheet over time, and I look forward to spirited discussions of this and other longer-term topics in upcoming FOMC meetings. Thank you. That's what I have, and we'll go now to President Harker.

MR. HARKER. Thank you, Mr. Chair. I have comments also on the second memo, and I think some others do as well. Do you want to hold those off, or do you want to do the second memo first?

CHAIR POWELL. Well, I think we're going to hear a presentation on the second memo as part of the Desk briefing. I, too, have comments on that memo, which I held off giving. So I would suggest that we do it that way, if that is all right.

MR. HARKER. Okay. Then that's what we'll do. Once again, I also want to add my thanks to everyone who has worked on the memo and this work. It is a great analysis, and I really appreciate it.

Before moving on to specifics, I want to emphasize that our communications have striven to make clear that the normalization process is not related to the stance of monetary policy. It is now simply balance sheet management rather than balance sheet policy, concerning primarily how the Desk will operate in order to maintain an ample supply of reserves and effective interest rate control—emphasizing interest rate control.

It should not be much of a surprise that I support the plan to end the balance sheet runoff in September. We will remove most of the uncertainty left in the public mind regarding asset redemptions, so it's hoped that the balance sheet gets a little bit less attention from now on—and we hope a lot less attention from now on.

The gradual reduction of reserve balances due to currency growth will allow the Committee to probe a bit further the limits of the ample-reserves regime, and the knowledge obtained should help in refining the Desk estimates of the demand for reserves.

Regarding the "taper or no taper" decision, I generally favor not tapering and keeping things as simple as possible, although I do understand the reasons given by the Chair and others and some of our past history with respect to tapers. To me, tapering does add an additional small element of complexity and will likely bring unnecessary attention to the normalization process. Because the stopping date has been conservatively chosen and will be communicated well ahead of time, there does not appear to be any corresponding additional benefit of tapering beyond the possible need to avoid a potential tantrum, a possibility that I believe is low-probability, but nonzero. So, again, I don't have strong feelings on this, but I generally lean toward "simple."

With respect to the reinvestment of MBS redemptions, I would prefer to direct the proceeds to Treasury bills. While we have yet to decide on our longer-run plans for the composition of the SOMA portfolio, it is clear that we need to shorten the maturity structure and rebuild our holding of Treasury bills.

As with the supply of reserves, while we were uncertain of the eventual level, we were confident that the direction was down. Analogously, while no final decision on SOMA composition has been made, we know that the eventual portfolio will have a shorter maturity structure than the current one. Generally, I would just reinvest in bills.

But, overall, I support the statement. And I will have more comments on the second memo later. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Clarida.

MR. CLARIDA. Thank you, Mr. Chair. Following the decision at the January meeting to continue with an ample reserves framework, I support a decision today to adopt the balance sheet normalization principles and plans as drafted, including the bracketed language on the proposed taper option.

A decision to conclude the reduction in the security holdings of the SOMA account by September 30 of this year will likely result in reserve balances that remain somewhat above the level consistent with a prudent buffer on top of the underlying demand for reserves in a post-crisis high quality liquid asset (HQLA) world. If so, as the statement indicates, there would, under this plan, be a period of time after September 2019 in which the balance sheet size would remain unchanged, but reserve balances would continue to shrink amid trend growth in currency and in other nonreserve liabilities.

I think it is important for us to communicate that this is a plan, but that, if we decide in September that reserves are at that time at the level necessary to implement monetary policy, we are prepared, as the statement now clearly indicates, to begin in October to increase our holdings to keep pace with growth of our liabilities.

In recognizing this possibility, it will be incumbent on us that we soon begin to be briefed on it and to then reach a decision on our reinvestment strategy once the balance sheet begins to expand again. As I see it, there are three possible choices: go short, go market, or go long duration. There are pluses and minuses associated with each, and the decision that we reach will be consequential for market term premiums today, as well as the amount of policy space we have in the future.

At some point in the next year or so under this plan, the balance sheet will begin again to expand, and there has already been commentary in the financial media that this will constitute QE4. Of course, we know this is not the case, as it is the norm for central bank balance sheets to grow in tandem with nominal income and with money demand. But how we communicate this will depend on the ultimate decision we make about reinvestment.

As I indicated in January, I believe that, by eliminating the remaining uncertainty about the destination and pace for balance sheet normalization, we do address one concern with the watching-paint-dry approach, which is that, until today, we have never indicated when the paint would stop drying. Our models tell us that the "dry paint date" should not matter, but I have come to accept that uncertainty about our plans can contribute to a tightening of financial conditions. And if we can resolve this uncertainty in a way that is consistent with our goals, then we should do so. This decision today does that—and now frees us to make the important decisions on reinvestment in coming meetings. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. My thinking on balance sheet normalization has been governed by a few general principles. First, our primary goal should be to maintain good control of the policy rate and effective transmission of it to other money market rates. A second goal should be a parsimonious operating framework that accommodates swings in Federal Reserve liabilities without necessitating frequent large open market operations or risking spikes in the funds rate. And, third, we should aim for simplicity and clarity to the greatest extent possible to separate technical issues associated with balance sheet normalization from communications about the stance of monetary policy.

Those principles lead me to favor announcing now our plans for ending the asset redemption process and declaring normalization complete. As I've said previously, I favor ending asset redemptions when reserves reach around $1.2 trillion. This corresponds well with what we have learned from our surveys regarding banks' comfortable level of reserves and allows for a healthy cushion on top of that to avoid unnecessary volatility.

In the spirit of simplicity and clarity, I would, on balance, favor ending redemptions in September, rather than tapering them. While I was a strong proponent of gradual, predictable increases in asset redemptions in 2017, I don't see that logic as applicable today. Tapering was appropriate as we were withdrawing balance sheet accommodation in 2017 and slowing purchases in 2014 when these actions were seen as removing accommodation.

Tomorrow, we will be announcing the early end of asset redemptions, the end of what some have termed "quantitative tightening," which should be viewed as somewhat accommodative by market participants who had originally anticipated that process ending next year. Since that time, they have moved their estimates, and, most recently, a majority of market participants surveyed expect that end to come in the third or fourth quarters of this year.

The second argument one might advance for a taper is an insurance policy against a deterioration in the economy. I would argue that, if the economy were to take a sharp turn for the worse in the period between our announcement in March and the scheduled end of redemptions in September, there would be a compelling case for us simply ending redemptions at the same time as we cut rates. And I would see that as the proper course of action.

All of that said, I am very comfortable with tapering if that's the preferred course of the Chair. I don't see it as having a material effect on the economy or the stance of monetary policy, and I see it as implying only modest effects on the complexity of our communications.

That same inclination toward simplicity leads me to see little value in holding the balance sheet flat for an indefinite period in order to achieve a relatively modest marginal reduction in reserves. As the staff points out, it is likely that the period of probing would only last a few months, and the effect on the average level of reserves would only be about $50 billion. If instead we allow the flat balance sheet to run much beyond that, I would worry that it would reintroduce the complications and risks associated with a program of active probing for the minimum level of reserves before the kink in the demand curve that we are trying to avoid.

To help guide public perceptions of when probing is likely to end, the staff has proposed publishing a new measure, which we are going to hear more about—the minimum operating level. As the staff explains, this measure is inherently uncertain and would need to be monitored carefully and periodically revised. I appreciate all of the work that has gone into that.

I can’t help but wonder if this additional machinery would be somewhat less focal if the balance sheet were allowed to grow in line with average growth in the demand for Federal Reserve liabilities starting a couple months after normalization ends. For instance, the Committee could announce that regular balance sheet growth would commence in December, and, at that time, it would reflect staff estimates of the demand for various liabilities. And for reserves, about which very little is known, the growth rate could initially be set at some easily explained pace, such as nominal GDP. But I am very comfortable with the proposed approach if that is the preferred course.

Perhaps the most critical issue, which requires careful consideration before too long, is to develop a plan for the desired composition of the balance sheet in the long run and what that implies for the maturities of our purchases once they resume. Like others, I favor moving eventually to a portfolio of Treasury securities only. That's without any MBS holdings remaining. But it's important to do so in a way that continues to avoid market disruptions.

I favor the approach in the statement that would have us replace maturing MBS with Treasury securities across a range of maturities to roughly match the composition of Treasury securities outstanding. I think that approach can be easily executed and explained as neutral while leaving us important flexibility to make a future determination on the long-run composition with substantial analysis and deliberation.

In the portion of our portfolio in Treasury securities, we currently hold no Treasury bills, and our portfolio has a much longer weighted-average maturity than the current stock of Treasury securities outstanding in the market or than our pre-crisis portfolio. When we begin once again purchasing Treasury securities, we will need to decide what maturities to purchase. Given how far out of step we are from these common benchmarks, it makes sense to weight those purchases more heavily toward the short end. But we are going to have to recognize that this would require a very sizable shift, and it would likely need to take place over a very long time period in order to avoid market disruption. Any effort to shift toward shorter-duration securities will inevitably be interpreted as tightening in the shorter term, and we need to be extremely mindful of that. It will need to be carefully weighed and very carefully communicated. I would want to have substantial analysis in hand and substantial deliberation before deciding precisely how to move toward a shorter weighted-average maturity.

Finally, with regard to the debt ceiling that I think President Mester raised earlier, it is worth noting that the endgame of our balance sheet normalization may coincide with the swings in reserves associated with the approach and hopeful resolution of the debt ceiling. Depending on how those negotiations develop and the Treasury's strategy for managing its own balance sheet as well as exogenous factors associated with tax receipts: for instance, the level of reserves prevailing at the time we end our balance sheet drawdown could be very different from normal levels.

The staff has looked at this very carefully, and they have concluded it should be manageable, as the runway for the use of extraordinary measures is typically one in which the Treasury's account declines to a low ebb, and, therefore, reserves are elevated. Still, the level of reserves may well be distorted just at the time we're transitioning, and we're going to want to keep a very close watch on those developments. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. I support the balance sheet plans, and I appreciate the changes made to this draft statement to make clear that our reinvestment plans could change at a later date. As I mentioned at the previous meeting, I think it is very important that we aim for a portfolio size and composition that allows us to use our balance sheet effectively to stimulate the economy, in view of the probability of hitting the effective lower bound in the future.

We currently hold no Treasury bills. My preference would be to hold a significant share of our balance sheet in Treasury bills. This portfolio composition would give us the flexibility to offset adverse shocks in the future by replacing our holdings of Treasury bills with longer-term Treasuries, putting downward pressure on longer-term rates without altering the size of our balance sheet. In fact, I would be supportive of reinvesting the principal payments received from MBS holdings into Treasury bills now, rather than across all maturities. But we can certainly wait to have a fuller discussion of asset allocation at future meetings.

In terms of the bracketed bullet, which would taper the cap on Treasury security redemptions on April 1, my mild preference would be to taper. It gives us more time to evaluate the appropriate size of reserve buffers during a calendar period when the Treasury's balances with us and the public's currency holdings may be volatile.

The memos did a nice job of discussing the tradeoff between potential rate volatility and the benefits of lower reserve balances. My own view is that we should be more risk averse about potential rate volatility than in the memo. I would prefer that we begin growing our balance sheet commensurate with growth in nonreserve liabilities, thus maintaining a larger reserves buffer starting in September.

Reducing the reserve buffer to minimal levels has no real economic benefit and a very modest window-dressing benefit at the risk of potential spikes in short-term interest rates. To me, it seems that the possible costs entailed in keeping a minimal reserve balance outweigh the modest benefits of keeping the buffer small. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. Let me also say a word of appreciation for the staff for their continued work on this issue. Given their analysis, I feel comfortable with a minimum level of reserves slightly above $1 trillion to ensure we operate on the flat portion of the demand curve. Although there is some uncertainty regarding how banks' demand for reserves will evolve over time, this minimum operating level incorporates a sizable buffer to maintain monetary policy control. I'm also in favor of communicating this proposed level to market participants before Treasury security reinvestments end, in order to help ensure a smooth transition. Of course, after learning more over time, we may adapt the level of reserves to changing circumstances.

Now, regarding the revised normalization principles, while I am broadly supportive, I am uncomfortable with a few implementation and communication details. I am in favor of tapering our redemptions as we approach the upward slope in reserve demand. However, as I noted previously, communicating our balance sheet plan and rationale well in advance is essential, and in our previous meeting, in stopping Treasury security redemptions the September option was preferred in part, at least in my case, because June seemed too early from an effective communications standpoint.

Proposing to taper even sooner—in April, which is less than two weeks away—was very surprising to me and maybe surprising to markets as well. On this point, I was also a little surprised that we didn't get background memos that went through the cost and benefits and the tradeoffs of different tapering dates. I personally would have found those useful to the discussion of how to think through this.

Now, though I understand that starting the taper immediately has potential benefits, it's not without some risk. A hasty move, which it could be interpreted as a decision to end redemptions contrasts with our style, which the Chair has just mentioned is gradual and predictable or gradual and deliberate—a steady hand at the tiller of all of this. And we have not telegraphed an April start date for the taper through the minutes or speeches as would typically be the case. As a result, we risk surprising the markets and the public and being misinterpreted. This is particularly a worry of mine given the recent choppy data, because it could be viewed as a policy shift rather than just trying to keep things in the background. I think this would be indicative of more concerns about the economy than I am actually hearing, although I am anxious to hear what people have to say on that front later.

On the balance sheet, the level of reserves and reinvestment are all supposed to be operational background details—I think we lovingly call them "plumbing"—and should not send signals about the stance of monetary policy. That is the goal we've set out for ourselves. So if we do choose to go in April, I think it's going to be very important to convey that we are not sending any such signal about the economy. It is just the matter of making it easier to transition. I will say that, for these reasons, I would prefer to go in June—to taper, but start in June and then cease redemptions in September. Otherwise, I would probably go for just ceasing redemptions in September.

We could still do this if we started in June, we would just have to adjust the amount, but we could still end in September just as we had planned. And if we did that, we could, in my mind, avoid unnecessary confusion or the risk of speculation about worries or concerns we might have about the economy.

Finally, like others, I feel concerned about the maturity of our portfolio. Currently, the weighted-average maturity of the SOMA Treasury securities portfolio is over 90 months, almost two years longer than that of the outstanding Treasury debt. So reinvesting the proceeds from agency securities in Treasury securities to roughly match the maturity composition of Treasury securities outstanding as proposed in the normalization statement, while neutral in one way, adds to the imbalance in another way.

So I would prefer, much like President Rosengren suggested, switching to shorter-term maturities right away. If we do this—I know we haven't decided on this, and I would like to see that discussion go forward—it's only going to change the stocks slightly, and it does start putting us back in a place where, when we do have the discussion, the transition won't be as difficult.

I'll conclude by saying that these issues really are saying something about the stance of policy. They both say something currently, because we've gotten more duration than we might want, but it doesn't allow us as much room either. So even if we make this choice today to do it as it's suggested, I think pulling the discussion of the composition of our portfolio forward is a really helpful thing. I'd like to have a lot of deliberations, like many have said, and doing that earlier rather than later would be my preference. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. I generally support the balance sheet normalization plan of stopping redemptions at the end of September, holding the asset size of the SOMA portfolio constant for a while, and then allowing reserves to gradually fall further as currency and other nonreserve liabilities rise.

Now, whether or not to begin tapering redemptions in April before ending them in September was a close call for me. On the one hand, as the Chair said, tapering is somewhat akin to how we ended purchases and how we began normalizing by raising the redemption path. And it's possible that tapering would buy some insurance against a strong adverse reaction in the markets that could result in some volatility, while it would not have a material effect on the actual implementation of the plan. On the other hand, tapering would come as a surprise to the markets, especially as it would begin so soon—next month. It might be viewed—I agree with President Daly—as a response to weak economic data. So it's not clear to me at all that an announcement of tapering would actually damp volatility. It might increase it.

Moreover, some market participants did start blaming the Federal Reserve's so-called quantitative tightening for the volatility seen in December, and I think that the Chair and others did a very good job of explaining why we didn't believe that to be the case. And then, as volatility abated, there has been less discussion of the Fed's influence. If we now indicate a taper is needed, contrary to market expectations, I think it would bring this issue up again, and it might be viewed as a reversal and validation of the view that quantitative tightening was a factor in the earlier market volatility.

In the end, balancing the pros and cons, I would prefer that we not taper and proceed as the market is expecting. Of course, this would not preclude us changing plans, if necessary, as we indicated in January's announcement about the balance sheet.

I support reinvesting principal payments received from agency debt and agency MBS below the $20 billion cap into Treasury securities, which is consistent with our transitioning the SOMA portfolio to holding primarily Treasury securities. I would have preferred that we also invest any redemptions of agency MBS above the cap into Treasury securities as well. But since the cap is unlikely to be binding, this is not a major issue.

Now, after today's announcement, the Committee will have two more implementation decisions to make. First, what should be the longer-run composition of the SOMA portfolio? We're not deciding on this today, and I'm glad that this was clarified in the statement compared with the first draft. So I can support initially reinvesting the MBS redemptions into Treasury securities to match the maturity composition of Treasury securities outstanding, but I would like the Committee to have a fuller discussion of the tradeoffs between a balance sheet composition that matches the maturity structure versus one that skews toward shorter-term Treasuries. Skewing more toward Treasury bills in normal times would preserve our ability to lengthen the maturity structure as a way to add accommodation during more severe economic downturns, as President Rosengren pointed out. Estimates suggest that this tool did have at least a limited effect when we used it during the previous downturn. And given that our tools to add accommodation at the zero lower bound are already quite limited, we should think about the pros and cons of effectively taking this tool off the table by our choice of balance sheet composition.

The second important decision we'll face is when to allow the balance sheet to begin growing again, along with currency and other nonreserve liabilities. So this is a decision about the level of reserves consistent with the minimum level needed for efficient and effective policy implementation within the abundant-reserves framework. The Desk's current plan is to begin growing the balance sheet either later this year or early next year when reserves have fallen to $1.2 trillion and to announce this level in advance.

Now, at our previous meeting, the minimum operating level we discussed was $1 trillion. The fact that the minimum is now increased with an additional buffer is a good illustration of the tension between the desire to hold no more securities than necessary for efficient and effective policy implementation and a desire to limit volatility in short-term Treasury rates. An abundance of caution suggests that the latter consideration will likely dominate—which means our estimates of the minimum will be revised up. But we're telling the public that we intend to hold the smallest balance sheet possible, consistent with efficient and effective policy implementation. So we need to continue to explore what that level is. I'd like to see further analysis and discussion before agreeing to and announcing $1.2 trillion as the initial minimum. In particular, I'd like us to explore ways to limit volatility and ensure interest rate control other than holding a higher minimum.

So I agree with the Chair that it's worth discussing a standing repo facility, as President Bullard and as the staff have discussed at previous meetings. In addition to helping put a ceiling on the federal funds rate, demand for these repos would give us a signal about whether reserve scarcity is building up in the market without having to endure interest rate spikes.

It's also worth exploring tiering the interest rate we pay on reserves to pay lower rates on higher reserve levels, which would give banks an incentive to better manage their demand for reserves. I believe that the initial minimum operating level of reserves we announce will set the bar and will be difficult to revise down even if we convey the message that we will regularly evaluate and potentially adjust this minimum.

Again, before committing to $1.2 trillion as the initial minimum, I'd like to see some further analysis of these and perhaps other alternatives for maintaining interest rate control, and I support the Chair's call for that discussion. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I support the balance sheet normalization principles and plans as proposed. I also support adding the bracketed language reducing the cap on monthly redemptions.

I have just a few remarks. On state contingency, I see the Committee as making a decision today to end the balance sheet runoff according to the plan as outlined. This leaves relatively little to decide later this year and, therefore, makes the issue of state contingency moot. I think this statement reflects good decisionmaking practice on the part of the Committee: Go ahead and make the decision when the available evidence suggests going ahead.

On tapering, I like it because this is the way the Committee has behaved at times in the past, so it is consistent in that sense, and also because it makes it clear that a process is being set in motion to stop runoff in September. The decision is being made today.

On the size of the balance sheet, this is a commitment to a larger balance sheet than many had envisioned at earlier points in deliberations on this issue. I continue to think that this decision does carry some political risk, as IOER is paid to large banking institutions as well as to foreign banking institutions. I think that political risk potentially cuts across party lines. Arguments that the IOER received by banks passes through to consumers, however appealing theoretically, are likely to ring hollow in a political debate. Loss of the ability to pay IOER would be a serious matter as it would likely upset the operating framework for the Fed.

Taking this into consideration and cognizant of the opening comments by Chair Powell and also the comments by President Mester, the Committee, over the medium term, may want to consider opening a repo facility to complement the RRP facility. This may reduce reliance on reserves, depending on the details of such a facility and how it would work. It would also move the Fed toward an international standard in central banking. Again, this is a medium-term issue, but I think an important one that should remain under active consideration. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. In previous discussions of this topic, I have expressed a preference for smaller reserve balances than envisioned in the current approach, primarily for reasons of “optics” and political risk. I have to say, however, that I’ve been struck, particularly in your recent hearings, by how little balance sheet size seems to matter these days. That’s good.

And I think to keep the balance sheet out of the conversation, we are best served by taking as simple, as speedy, and as a direct approach to ending the runoff as possible. Prolonging the process with multiple tapers makes this more complicated and longer lasting than it needs to be, and I think for little benefit. The faster we tie a bow around this, the better.

Like many folks, I don't think that tapering the end of redemptions is necessary. The difference in reserve balances in September between the taper and the no-taper options is small, and simply announcing that we will end redemptions in September at a level of reserves well above minimum should give markets plenty of comfort. But also, like others, I don't feel strongly about this.

Upon reflection, I also no longer believe we should invest much effort in probing how low we can take reserves after we end redemptions. Our expressed intent is to have a considerable buffer over our current estimate of minimum operating level of reserves, which itself has a buffer over estimated demand. Relative to these multiple buffers, the amount of additional reserves runoff seems trivial. It risks giving the impression that we are operating with more precision than we really are, and we may find volatility that we have said we don't want.

When we are ready to be more specific about the level of reserves around which we will operate, I would make it simple and avoid false precision, by rounding our minimum operating level of reserves to a trillion while trying to operate in the neighborhood of $1.2 trillion. Without tapering the redemption caps, we'll be approximately there in September, and we'll essentially be able to declare an end to normalization of the size of the balance sheet. That said, I am still open to ideas, like those mentioned by President Mester, to reduce the balance sheet further. I just think we can do those in the background.

With regard to balance sheet composition, my long-term preference is to reinvest in Treasuries only and to weight our purchases to the short end. This, of course, gives us greater policy space to extend maturity if needed at the lower bound. Given our overweight to the long end today, I see no reason not to start a rebalancing now. Thank you.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. I support the balance sheet plans and the statement. I am glad we're making this decision at this meeting. I will just make three points.

One, I would be open to a decision without the taper, but I can live and be supportive of the taper. The only comment that I would make, which has been reinforced by others here, is we just need to be able to explain to the market that the taper is not related to the stance of monetary policy. With that caveat, I can support the taper.

Two, I do believe that, in the not-too-distant future, we should have the debate about the maturities of our holdings of Treasury securities. I would prefer, as others have said, to see the maturity of our Treasury security investments shortened because I think we will want to have the capacity to lengthen it in the event of a downturn. So I hope in our explanations we just emphasize that that decision is yet to come.

And, three, as President Mester and Bullard referred, I would advocate the exploration of a repo facility, because I think it might be useful if we need to make adjustments in the future. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I support the revised balance sheet normalization principles and plans. Since there is little economic difference between the tapering and no tapering options, I don't have strong feelings about one over the other. It is certainly the case that the tapering offers a bit of insurance, and it should make the transition easier, so I'm fine with the tapering option.

I agree with the plan on MBS holdings. I also support the revision to the statement that noted the MBS reinvestment plan would be revisited, along with our deliberations over the longer-run composition of the SOMA portfolio. Some financial market commentators have a tendency to leap to conclusions about our future actions from these interim reports, so it's worthwhile reminding them that we have work to do on this issue, and we're not locking into a particular choice now. We don't want our interim actions to be misinterpreted and needlessly constrain our long-run plans.

I also think we should soon put out similar interim plans for the minimum operating level of reserves. We will be briefed on the minimum operating level of reserves soon. My thinking is that perhaps in May we can give markets an idea of what we think the initial target level will be, with the caveat that this value may change as we gain experience operating with somewhat lower reserves. The more information we can provide in advance, the smoother the transition is likely to go. I am also okay with a larger buffer and less probing, but I guess we're going to find out about this pretty soon.

On the longer-run composition of the SOMA portfolio, I look forward to more briefings on what the implications are. I agree with Governor Brainard's comments about the need for that. And this does look like it's going to be a long process to get to a significantly lower average maturity, so we probably can't make too many mistakes early on anyway. But I do worry that there could be costs of moving dramatically to a lower-duration balance sheet, and we should have significant conversations about that.

Finally, I have a comment about the collection of documents that we have put out there. The January statement, which I am reminded had two bullets—one of them is encapsulated within the long-run principles document here, but then there is another one about how we preferred the funds rate over balance sheet stuff, which kind of looks like it might be an orphan at some point. I just wonder if we could make sure we memorialize that appropriately in some comprehensive document. That's a detail, but it might be useful. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chairman. I support the release of further details on our balance sheet normalization plans at this meeting. And after reflection and listening to the discussion here, I fully support tapering the pace of our runoff starting in April.

On the balance sheet taper, first let us stipulate that the concerns regarding our earlier balance sheet policy are wrong—in some cases mistaken, in some cases cynically calculated. I have tried to pay open-minded and close attention to the best arguments of those who panicked in December, and they just don't hold water.

To use the analogy I have already used with some of you, they're the moral equivalent of ancient tribes who see a solar eclipse and believe that a dragon is swallowing the sun. The priests in the temple should, of course, try to explain what's actually happening, but if the people will not be persuaded and are going to continue to riot, at some point the priests' responsibility for public safety will require them to stop explaining that there is no dragon and start explaining how they are going to slay it. [Laughter]

I view that as what we are doing with the evolution of our balance sheet policy, and I view it as entirely neat and right, notwithstanding that I would prefer a smaller balance sheet and that I believe the concerns about its shrinking to be, to use a technical legal term, nuts. We don't exist to calm markets that are acting irrationally, but market disruptions can easily have effects on the real economy. And, where we have the ability to alleviate those effects without damage to our operational framework or ability to achieve our dual mandate, I can certainly support our doing so.

That's the framework through which I view the taper. I do have some concerns. The taper doesn't appear to be widely expected by the market. I imagine at face value the taper will be taken as a dovish signal. That makes me a little uncomfortable, given my economic and monetary policy outlook—more later—but not so uncomfortable that I can't appreciate the value of keeping with our practice of gradual and deliberate transitions, reference to which I think should easily explain the action to those who might not have been expecting it. They are expecting the cessation of the balance sheet shrinking, and this can easily be explained as the necessary concomitant of that, given how the FOMC generally acts. I can also appreciate the insurance value of easing into the next stage of our normalization plans.

Should there be some event between now and September that further panics the market tribe, it will have been a helpful signal to explain that we have not simply allowed the dragon to keep eating, but have already drawn our swords and are in battle. And, as Zeynep explained in her presentation, the substantive difference is virtually immaterial, which is not surprising, since, substantively, this whole taffy pull doesn't matter anyway.

I am also fine with retaining the caps on the MBS roll-off. Those caps are unlikely to bind except in the most extreme of circumstances, at which time we may be glad they're in place. I also support at least initially reinvesting the continued roll-off of MBS into Treasury securities in such a way as to match the existing maturity composition of the Treasury securities market. But like many who have already spoken, I do think this is an issue that involves further thought and discussion, and I support flagging in the release that we plan on revisiting this issue. Certainly, there are tradeoffs that we have to consider between going short and maximizing our ability to influence long-term rates within the constraints of a capped balance sheet set against matching the maturity structure of existing securities and minimizing our distorting influence on markets.

There is one part of the statement that makes me a little uncomfortable for a couple of reasons. In the second-to-last bullet, we state that the Committee currently anticipates that it will likely hold the size of the SOMA portfolio roughly constant for a time. My first area of discomfort relates to communications. My understanding—which I assume probably everyone around this table other than me has understood for some time, but that I only understood relatively recently—is that this time could be only a few months. I worry a little that the public might be confused if we announce that the portfolio will be constant for a time, only to start growing the balance sheet again a few months after we stop running it down. Maybe we should say "hold the size of the SOMA portfolio roughly constant for a bit" just to give a heads-up on how short of a period of time that might be. My more fundamental discomfort is with the idea that we will begin growing the balance sheet again so quickly after ending the roll-off.

I admire the staff's efforts to calculate and characterize the minimum operating level of reserves, but the results are almost entirely reliant on survey data based on the hypothetical reactions of the respondents. As I've said before, I do think that the banks—just like us—are learning about their underlying demand for reserves over time, and that we should expect this demand to shift and change as incentives change. My strong expectation is that if those shifts exist, they will be downward.

I found it notable that, in the February Senior Financial Officer Survey, those banks that frequently breached their previously reported lowest comfortable level of reserve balances in the time since the September survey also subsequently revised down their estimates for their comfort level. Apparently, experience had taught them how to get comfortable.

So the conundrum here is balancing the desire to provide information to the public soon on where we might end up versus holding the level of the balance sheet constant for a bit longer to learn about how reserve demand evolves. And the benefit, to me, of holding the balance sheet constant for as long as possible is that it will continue to shrink as a percentage of GDP, which is what really matters.

I wonder in the operating framework that we are talking about, where we have set \$1 trillion—\$1.2 trillion?, wherever we set it—as the minimum level of reserves, how much will we be able to learn about that underlying reserve demand by keeping the level of balances sufficiently high to rule out even the possibility of scarcity? Even if we did determine that the minimum operating level could be lower, from a communications and policy standpoint, how difficult is it going to be to lower it? Again, maybe the answer is simply to keep it at the current level for a long enough time that we "grow into our pants" with respect to the size of this balance sheet.

That brings us to the issue that a few people—President Bullard, President Mester, others—have already mentioned of creating a standing repo facility. I see many attractive aspects of such a facility, and for me, particularly, it could possibly create the ability to hold the balance sheet constant for a longer period of time, allowing it to shrink as a percentage of GDP.

But reserve demand isn't directly observable, so such a facility could decrease reserve holdings only to the degree that we allowed it to do so. By setting an administered rate as a ceiling, such a facility could also lower some of the costs in exploring a smaller balance sheet. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. Overall, I support the revised Balance Sheet Normalization Principles and Plans, along with the taper in the runoff of Treasury securities, although I was intrigued by President Daly's option of thinking about the market reaction by starting that in June and ending in September. So I would support that, too.

Two observations about the proposed approach for the balance sheet—one related to the language in this revised plan, and the other to the more operational aspects of judging reserve demand. In addition to announcing the end of the balance sheet runoff, the proposed normalization plan makes explicit—in a way that our previous versions of this statement have not—that the principal payments would be targeted to match the maturity composition of outstanding Treasury securities. I understand from the memo that doing so can help manage market expectations and avoid affecting prices in the bills market. I think that makes sense in the near term, but I do worry that putting this instruction in the normalization principles could come at a cost when the Committee turns to decisionmaking on the long-run composition of our portfolio.

The cost I see is perhaps subtle, but after emphasizing to the public that the federal funds rate is our primary policy instrument, we'll introduce language here that seeks to be neutral on balance sheet effects. Not only does the language depart from past statements about our normalization principles and plans, which have not been so direct about the maturity composition of our Treasury security investments, but it also now incorporates a directive to the Desk. So, even though the language in the proposed statement indicates these instructions to the Desk will be revisited, it could limit the Committee's options and put decisions in the context of a policy action when shortening the maturity composition at some point could put more upward pressure on longer-term rates than we desire. To avoid this complication, my own preference would be to leave this language out of the revised normalization plan statement and continue to give the Desk discretion in choosing the maturity composition of our reinvestments in Treasury securities.

The second and related observation is about the size of the balance sheet. As we transition to a regime with ample but fewer reserves, we are relying heavily on the Senior Financial Officer Survey, which has become prominent in our judgment about reserve demand. That information is, of course, relevant, but it could be susceptible to prediction errors to the extent that survey respondents overstate the underlying demand for reserves. For this reason, I am interested in finding ways to guide balance sheet normalization that also rely on observed signals from money markets. Indications received from the federal funds market—including the dashboard that the Desk has been monitoring—should, in my view, inform when we halt the decline in reserves.

I appreciate the trepidation associated with potentially approaching a steep demand for reserves and how that is guiding much of the planning on normalization. However, past surveys of primary dealers suggest to me that the funds rate is likely to increase only gradually above the IOER rate as reserves decline, and I have looked at recent published research by my own staff that's consistent with this feature of reserves demand. That research finds that declines in reserves that persist over several weeks have been associated with only small increases in the funds rate relative to the IOER rate. Even after accounting for the increase in repo rates induced by the rise in Treasury bill issuance, this analysis finds evidence that a significant amount of the rise in the funds rate–IOER rate spread in recent years is due to declining reserve balances.

While this research predicts that demand for reserves will steepen at lower levels of reserves, the most recent estimate suggests we are far from this steep portion of demand. Instead, given the relatively flat slope of the demand for reserves that we've seen in recent years, current estimates predict that reserves could decline to around $1.1 trillion, with a federal funds rate–IOER rate spread that would rise only modestly to around 10 basis points. Such a rise in that spread could be accommodated by setting the IOER rate closer to the bottom of our target range. Continuing to reduce the IOER rate toward the lower limit of the range could advance multiple objectives, in my opinion, including encouraging banks to economize on their reserve holdings and limiting some of the negative "optics" regarding these payments.

This analysis suggests we may have the ability to more finely probe the limits of balance sheet reduction than are currently being considered. Should we learn during this process that demand for reserves is steeper at higher levels of reserve balances, I'm confident we have the range of tools at our disposal, including open market operations and adjustments in the IOER, which, of course, the Desk has demonstrated over the past few years. Thank you.

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Mr. Chairman. I also support ending the reduction in our asset holdings as of September. As we discussed in our previous meeting, ending asset runoff will provide helpful clarity to the market, and it will demonstrate that we have brought monetary policy back to normal after the extraordinary steps the Federal Reserve took in response to the financial crisis.

I support tapering the runoff on our asset holdings before September. Tapering is a gradual approach that will be consistent with how we have changed asset purchases in the past. Tapering would also result in a slightly higher level of reserves when the runoff ends. That could provide us a bit more time to transition smoothly into the long-run operating regime.

I do see a bit of risk that starting the taper in April, just a few weeks from now, could surprise the public. Even if in our minds, this is just a technical decision, people might think that such a sudden change means that we've sharply downgraded our economic outlook, as others have noted as well, or that we feel it's urgent to loosen the stance of policy. Therefore, if we decide to taper, it will be important to make clear that this choice is to provide a smooth transition and that we remain fundamentally optimistic about the economy.

I support announcing this plan by issuing the proposed balance sheet normalization principles and plans. I am comfortable with reinvesting MBS principal payments in Treasury securities in proportion to outstanding securities as an interim plan, while we continue to discuss the long-run composition of our portfolio. We will be continuing to move toward a portfolio of primarily Treasury securities, but we will be preserving optionality about exactly which Treasuries to hold in the long run.

I am also comfortable with retaining the $20 billion monthly cap on MBS redemptions after September. Although I continue to believe it is important to unwind our MBS holdings, the MBS cap does have the benefit of ensuring that the unwinding will be smooth and gradual. I'd also note that we can always remove the cap in the future if economic and financial developments make that the right choice. Thank you.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. I support the proposed action to end the runoff of the balance sheet in September of this year. The arguments supporting a stoppage of the reduction in the balance sheet size associated with the implementation of monetary policy are clear and valid. I'm also fine with the slow transition to the holding of Treasury securities in lieu of agency mortgage-backed securities and believe it is best to pattern our investments in Treasury securities in a way that mirrors the composition of outstanding Treasury securities. And, like others, I look forward to future deliberations on the long-run composition of the portfolio.

In terms of the taper, I'm fine with the concept and believe it can be justified for at least two reasons. First, one can appeal to the symmetry of policy, given the gradual run-up at the outset of the normalization policy, and, as the Chair noted, it can also provide insurance against the possibility of another taper tantrum.

My overriding concern regards the timing of the taper, and I believe there is a risk that the Committee will be viewed as being reactionary and overly sensitive to short-run economic and political considerations. Like President Daly, Governor Bowman, and others, I fear that the proposed April action regarding the balance sheet will be misinterpreted as the Committee executing monetary policy rather than the creation of an environment that facilitates the execution of policy as we intend.

There has already been much speculation that balance sheet discussions and anticipated moves have short-run policy motivations, with some describing them as a capitulation to the financial markets, others as an effort to blunt a global economic slowdown, and others as a response to short-term political pressures, and there may be even other arguments that my colleagues have heard. And, to this end, my preference would be for the taper to begin in June rather than April. April is just two weeks from now, and such a delay would decouple this action from any policy signals we might offer at the conclusion of this meeting.

Now, I know these speculative views are wrong, and, indeed, we have been trying to socialize the operational role of the balance sheet for some time. I have written a blog entry on the balance sheet and discussed it explicitly. However, I don't think that we should feel confident that we have fully penetrated the collective psyche and succeeded here. In Governor Quarles's world, I am not sure the dragon is dead.

We need to be very careful in our communication on this matter, being, as I have stated before, monotonously repetitious on this point. And I urge all of us to take this to heart. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. I support the balance sheet plan that we're going to announce tomorrow. I'm somewhat agnostic as to the taper or no-taper. I think, coming into this meeting, I had a slight preference for " no taper," but, as the Chair said, it doesn't seem to be economically significant, and if there are communication benefits, then I'm comfortable with it.

I think, more broadly, the plan presented by the staff has us continuing to operate essentially just as we currently are, with a very high level of reserves, ensuring that the federal funds rate lies on top of the IOER rate and is minimizing volatility. In my view, this plan puts a very high weight on minimizing volatility and little weight on our original objective of shrinking reserves to the minimum size consistent with effective implementation of policy.

The memo, as I read it, shows no cost to having a larger balance sheet, and I don't think that that's right. I read the memo as showing big reserve buffers, to make sure that we're on the flat part of the demand curve, and then conducting frequent open market operations (OMOs) to preserve those buffers. And I thought one of our goals was, as small a balance sheet as possible with little need for frequent OMOs. Now it seems like we're going to end up with a big balance sheet and still a lot of OMOs.

So I see potential benefits to a smaller level of reserves. A lower level of reserves would put upward pressure on the federal funds rate and other markets. A small differential between market rates and the IOER rate, as others have said, would help address potential concerns that we're subsidizing the banking sector. I think a smaller balance sheet could also reduce political pressure on the Fed and reduce concern that we've got a big "footprint" in capital markets. And a smaller balance sheet could create more policy space for us in the event of future lower-bound episodes.

Now, a smaller level of reserves would likely increase day-to-day volatility in the federal funds rate, but I don't see why that would necessarily be costly. We have a range that we announce around the federal funds rate. If the federal funds rate moves around a little bit within that range, I don't see why that's a huge problem. In my view, the staff's estimate of $1.2 trillion seems like it's too high. Our estimate, as Governor Quarles said, relies on surveying banks that have an incentive to report high demand to the extent that we're subsidizing reserves.

Yesterday I went to George Washington University bookstore to buy a book. My first epiphany was that they don't carry books there anymore. [Laughter] But by happenstance, they happened to have the book that I was looking for, because they had had a book signing some months earlier for this book. So I was successful in buying a book. But then, when they wanted to charge me a nickel for a bag, I opted not to take the bag. If there's actually a little bit of a spread between the IOER rate and banks' alternatives, they may actually choose alternatives instead of just giving away bags for free.

In addition, we've asked about reserve demand, given that the IOER rate is at the market rate. Again, at some higher spread they might make other decisions—I keep going back to "what was demand for reserves 15 years ago?" It's just shocking how little the demand there was when there was a big spread in price. Now we're paying them, and we shouldn't be surprised if they're saying, "We want a lot of this stuff for free."

And then, finally, one factor driving high demand is likely our own supervisory and regulatory guidance, and I think that that's something that we should take a look at. Maybe this isn't the right forum for it, but if we really are telling banks, "You should hold reserves and not T-bills," I think we need to ask ourselves, why are we doing that? Does it really make sense?

A different approach to estimating how far we can reduce reserves would be to postpone resumption of asset purchases until we see some upward pressure on the federal funds rate, volatility in the federal funds rate, or both, and to minimize risk associated with this. Like others, I'm open to exploring a temporary repo facility just to make sure that we're not taking any unnecessary risks.

The last comment I'll make is that I don't think that we should be, at this point, announcing some minimum operating level of reserves. I think that that's going to short-cut our policy deliberations on what our final destination should be, and I don't think we're ready to do that yet. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chairman. Like others, I thought that not only the memos, but also the sequence of discussions, including today's, have been very helpful and valuable. I do agree that these are important issues we are discussing, and we want to get them right, and communication is a big part of that. I support the proposed approach in all of its elements. I agree it's prudent, gradual, predictable, and—I would add another favorite Fed word—measured.

On the taper, I do think the argument is essentially one of "This is what we have done in the past." Now, I can go back in the transcripts and look at each time we've discussed variations in the taper, and I think I said myself, "I don't see the reason we're doing this or the need to do this" each and every time, because according to our models and our very analytical brains, this doesn't matter and it's irrelevant. And yet, out of prudence, out of caution, out of, I would say, good judgment, each time we've done it that way, and each time I've gone along, and each time it's actually worked, at least in the execution, very well. And I don't think the markets will react overly to the fact that we're doing what we've done in the past. It does have to be communicated well, and I think the plan to describe this is "This is just the way the Fed does things." It's a pretty powerful argument.

In terms of "Are we signaling some pessimism about the economy?"—the bigger question is going to be tomorrow, regarding the SEP and the FOMC statement. There's going to be a lot of attention about "How do we balance our message—are we positive, are we negative about the economy?" I don't think the taper will, in particular, add significantly to what is already a bit of a balancing act.

In terms of the longer-run issue of the composition of the balance sheet, I agree with—let me make sure I've got the list right—Governor Brainard, President Mester, President Evans, and many others who make the point that this is what, in my words, is a consequential decision. It is a monetary policy decision. I do want to "push back" on some of the comments that I think almost everyone made suggesting that the balance sheet decision is not a policy decision.

Now, in terms of the issue of whether to taper or not, as we talked about, this is a "rounding error" policy decision. But our decision about the composition of the balance sheet is a significant policy decision. It's one that we want to think about carefully. We want to get the best analysis, and we want to be deliberate in coming to that. That is why I strongly supported the language in our normalization statement that said, for the time being, or initially, that we'll reinvest the MBS proceeds into the broadest range of Treasury securities in line with the outstanding stock, to be as neutral and noncommittal about our plans there. I do think if we said, "Oh, we're going to put them mostly in T-bills or all T-bills," it would be a very strong signal about our intentions. And I agree with the approach of trying to be as neutral as possible. I really do like the change in the language that says outright that we will be deliberating on this issue in the future, and that we will revisit these decisions as we think about that.

The last point I'll make about this is—and we've heard it in the discussion today, which I thought was really helpful—that the answer about policies, about how the composition of our balance sheet affects policy space, is not at all as clear as people seem to think. I'll go back to President Evans's and Governor Brainard's comments—if we move to a very short-duration balance sheet in the steady state, that will cause the term premium, according to our models and the Fed view, to move up. That will move the natural rate of interest lower. That will give us less policy space on short-term interest rates and more policy space in terms of QE or Operation Twist or however you want to think about it.

It's not just a matter of saying "I want to create policy space on this side." You have to think about how balance sheet choices affect financial conditions and the underlying fundamentals as part of that. I don't come to a conclusion from that statement, because I think it is complicated. You have to think about a lot of different dimensions of this. I also don't want to rush to judgment, either making a decision or inadvertently signaling that we have a clear view on that. I think we do our best work when we have a number of further meetings, a lot of staff work that helps us think about this and with those, we can, we hope, come to a good decision. So I do agree with everybody who says, "We really want to have a very careful, thoughtful discussion of the composition of the balance sheet before we either make a decision on that or signal that."

In terms of slaying dragons, as a lifelong member of the Dungeons and Dragons Club [laughter], I am a huge advocate for slaying this dragon. I believe that we will not slay it with words. We will not slay it with convincing analysis. I think that the QT story will die when QT ends. And, in a way, that's what we're accomplishing—disregarding the fact that I don't buy into QT any more than anyone else—by adding clarity and a gradual and predictable path to the end of our balance sheet normalization. With this, I do think that this dragon, if not dead, will at least go back to sleep. Thank you, Mr. Chairman.

CHAIR POWELL. Good. Well, thank you very much—very interesting set of comments. And what I want to do is sleep on them tonight and then tomorrow morning come back with something on the principles and discuss. So thank you for great comments.

And now let's move to our second agenda item, which covers the regular topics as well as a discussion of the staff memo focused on possible operating procedures, looking at an ample-reserves regime. Simon, over to you.

MR. POTTER.[2] Thank you, Mr. Chairman. Since the previous FOMC meeting, as summarized in the top-left panel of your first exhibit, major global equity indexes have increased and credit spreads have tightened, while U.S. Treasury yields and the

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

market-implied path of the policy rate have declined. This pattern of market moves extends those observed since the turn of the year, as shown in the middle column. According to contacts, these moves were largely in response to shifts in expectations regarding Committee policy, both actual and perceived, that resulted from FOMC communications stressing patience with respect to further increases in the target range and flexibility on balance sheet policy.

Indeed, the top-right panel shows responses to a survey question in which respondents were asked to rate the factors driving risk asset prices since the start of the year. Changes in perceptions of the FOMC's reaction function, particularly regarding interest rate policy, were rated as the most important factor by a large margin. In a separate question in the March survey, respondents generally cited clear and consistent messaging regarding "patience" as contributing to effective FOMC communications. The overall rating provided by respondents generally moved back up to levels seen before the November FOMC meeting.

There has been much market discussion of what motivated the shift in Fed communications about the policy outlook. We can use the Desk's surveys to assess whether respondents believe the Fed's interest rate reaction function has changed based on hypothetical deviations in inflation and unemployment from the SEP medians. The results of this question are shown in the middle-left panel, with the upper matrix showing results from the March survey and the lower matrix showing results from the July 2018 survey, when the question was last asked. As shown in the rightmost column, the change from July to March in respondents' views of the Committee's sensitivity in setting the federal funds rate target seems to now indicate a somewhat smaller reaction to upward surprises in inflation if the unemployment rate is at or higher than the SEP median, as highlighted in yellow.

According to market intelligence gathered outside the survey, many investors have focused on the large and sudden change in financial conditions witnessed in December, particularly the decline in the stock market, as the motivation for the so-called pivot. Market participants seem to agree that shifting perceptions of the FOMC's reaction to financial conditions, whether accurate or not, have been a leading driver of global markets over the past three months. That said, a number of investors have highlighted that recent data that indicate a weakening in the outlook makes the shift to a "patient" stance seem somewhat prescient.

Regarding actions and communications on interest rate policy that market participants expect from this meeting, survey respondents assign essentially no chance of a rate hike tomorrow. While many foresee changes in the characterization of current economic conditions in the statement, very few anticipate any material changes to the economic outlook nor to the patient stance.

Regarding the SEP, respondents also broadly anticipate the median rate projections at year-ends 2019, 2020, and 2021 will decline 25 basis points from their December levels. As shown by the red circles in the middle-right chart, the median responses indicate an expectation that the median "dots" will show one 25 basis point increase in 2019 and one further increase in 2020, followed by no change in 2021. With respect to survey respondents' own projections for the target range later this year, the median of the modes is now for one rate increase in December 2019 and no further change through the end of 2021, as shown by the gray circles. This compares with two rate increases in 2019 implied by the medians in the previous survey. Both the probability-weighted survey expectations, shown by the diamonds, and the market-implied path of the policy rate, shown by the blue lines, also fell over the period, consistent with the view that the Committee would most likely maintain the target range at its current level for the majority of the year.

Indeed, as shown in the bottom-left panel, the average probability assigned to no change in the policy rate in 2019 increased to nearly 40 percent, from roughly 25 percent in the previous survey. As the likelihood of no change increased, the average probability assigned to the next policy action this year being an increase to the target range declined to just under 50 percent, while expectations of the next move being a decrease in 2019 were little changed

Looking further ahead, market participants are very focused on recent remarks from several participants on potential changes to the monetary policy strategy and a possible shift to average inflation targeting, and it is possible that some of this communication influenced the reaction function results mentioned earlier. Although longer forward measures of inflation compensation in the United States have not changed materially over the intermeeting period, market participants have been very attentive to how such an evolution in central banks' monetary policy frameworks might influence inflation expectations. For context, one indicator of forward inflation expectations across advanced economies derived from inflation swaps markets, shown in the bottom-right panel, has been hovering around the bottom quartile of its range since 2011 despite significant improvements in labor market conditions over this time.

I will now turn to your second exhibit and foreign central bank developments. Measures announced by the ECB in March, which included an extension of forward guidance on interest rates and the announcement of another round of targeted long-term refinancing operations, led to a decline in euro-area equity markets and particularly bank stocks, shown in the top-left panel, as well as declines in euro-area rates. Market contacts attributed the price reaction to a perception that the measures were not as stimulative as might have been expected in view of the significant downgrades to the ECB's real growth and inflation forecasts. More specifically, market pricing of the first increase to the policy rate had already pointed to the second half of 2020, well past the date of the revised forward guidance, and the terms of the new refinancing operations were perceived as not as generous as many had hoped. This disappointment further solidified a conviction among many investors that the ECB has limited to no policy space to ease in response to negative shocks.

Slowing growth and the scope for policy response has also been a focus with regard to China. In response to disappointing data, the Chinese authorities have moved toward an easier fiscal and monetary policy stance. As shown in the top-right panel, China's aggregate credit growth has rebounded slightly in recent months relative to the declining trend observed last year. Some market participants have seized on the recent uptick as possibly portending a stabilization in economic growth in the coming quarters, though others caution that this could come at the expense of a rising debt-to-GDP ratio and an increase of financial market risk.

As shown in the middle-left panel, the Shanghai Composite index rose notably since the turn of the year, driven in part by fiscal and monetary stimulus measures as well as perceived progress on trade negotiations. The latter have also contributed to a rebound in the Chinese RMB since late November. While Chinese markets have been buoyed by positive momentum in trade talks, risks regarding the eventual outcome remain, with investors particularly sensitive to details surrounding the prospect for a reduction or elimination of tariff rates and the contours of any enforcement mechanisms. While officials from the United States and China have not yet reached a final agreement, and the date of any meeting between Presidents Trump and Xi looks to have been pushed off, the prospect of a deal has been increasingly priced into Chinese and other risk assets.

Although not obviously affecting risk asset prices outside of the United Kingdom, developments associated with Brexit remain a source of uncertainty. As expected, the U.K. Parliament voted to avoid a so-called "hard Brexit" and extend Article 50 ahead of the March 29 deadline. However, the European Commission has not yet responded regarding the extension, and the final form of any deal remains unknown. Consistent with ongoing investor uncertainty over the outcome, risk reversals on the pound–dollar currency pair continue to point to higher demand for protection against pound depreciation relative to the dollar, shown in the middle-right panel.

The broad dollar appreciated around ½ percent over the intermeeting period, reflecting gains against the euro, the yen, and the Mexican peso, as shown in the bottom-left panel, largely on concerns about the outlook for these economies. The most liquid emerging market currencies also depreciated slightly over the intermeeting period, but the bigger story has been their remarkable stability over the past six months, despite concerns regarding global growth.

In addition to these concerns, measures of policy uncertainty remain at very high levels, yet at the same time there has been a notable reduction in financial market volatility since the start of the year. This is illustrated in the bottom-right panel, which plots the VIX against a standard measure of policy uncertainty. A number of market participants have made note of the low levels of cross-asset volatility against the backdrop of high policy uncertainty, citing the shift in Federal Reserve communications as a critical factor supporting risk appetite in such an uncertain environment. I will now turn the briefing over to Lorie.

MS. LOGAN. Thank you. Starting on your third exhibit, I'll briefly cover conditions in money markets before turning to a discussion on the transition to a regime of ample reserves.

Overall, the current implementation framework continues to work well, with overnight money market rates generally within the federal funds rate target range over the period. The effective federal funds rate remained equal to the IOER rate, as shown in the top-left panel, and the distribution of trades in the federal funds market was little changed.

While overnight unsecured rates remained stable, the secured overnight financing rate (SOFR) and other repo rates exhibited volatility over the January and February month-end dates, as shown in your top-right panel. Market participants have expressed uncertainty about the reason for the volatility on period-end statement dates since year-end, though they continue to note persistently high net dealer inventories of Treasury securities, shown in your middle-left panel, and Treasury security issuance coinciding with month-end statement dates as contributing factors. Term and forward-starting Treasury repo rates already suggest notably higher rates over the March quarter-end turn.

Despite continued reductions in the Federal Reserve's agency MBS and Treasury holdings, there was a modest increase in reserve balances of $72 billion over the intermeeting period. The overall increase in reserves was driven by the sharp decline in the Treasury's General Account, shown in your middle-right panel. In particular, the TGA fell around $200 billion from January to March 1 before the reinstatement of the debt limit on March 2.

Over the upcoming intermeeting period, with the combination of changes in the TGA and additional asset redemptions, we project reserves to decline to around $1.4 trillion by early May, shown in the bottom-left panel, which is below the lowest level reached thus far of $1.55 trillion in December. There will also likely be some days with large swings around the trend of declining reserves, as depicted in your bottom-right panel, with reserves projected to fall more than $200 billion in late April as a result of tax receipts. We will be closely monitoring the measures presented in the intermeeting report on reserves conditions, in order to see if there are any emerging signs of reserves scarcity during this time.

I'd like to turn now to the transition to a regime of lower, but still ample, reserves on your fourth exhibit. In January, the Committee announced its intention to continue to implement monetary policy in an ample-reserves regime in which reserves are supplied in sufficient quantities to maintain administered rates as the primary means of interest rate control, and active management of the supply of reserves is not required.

As the end to redemptions approaches, our attention will turn to the final transition into this long-run implementation framework, some elements of which are presented in the top-left panel. Although the Committee has decided to maintain an ample-reserves regime, this transition will represent a meaningful shift, because we will be moving from an operating framework driven by the FOMC's asset policies to one driven by Federal Reserve liabilities. Under this framework, it is necessary to understand the path of Federal Reserve liabilities, both by assessing banks' demand for reserves and by forecasting the growth and volatility in nonreserve liabilities. This information will allow the Desk to plan periodic asset purchases to supply an amount of reserves that will meet banks' minimum demand for reserves at the IOER rate, plus a buffer to cushion against anticipated fluctuations in nonreserve liabilities that reduce reserves.

At current reserve levels, or perhaps even a bit lower, Desk operations would not rely as heavily on precise estimates of reserve demand and forecasts of nonreserve liabilities. However, with the Committee's preference to operate at a significantly lower level of reserves, though still one consistent with the ample-reserves regime, the staff will need to put greater emphasis on these forecasts. Additionally, financial institutions will have greater need for information about the level of reserves that the Federal Reserve intends to maintain so that they can incorporate this into their liquidity management. With this objective in mind, the staff has developed an approach to maintaining an ample-reserves framework with a lower reserve level by establishing a minimum operating level of reserves.

A minimum operating level would represent the staff's assessment of the minimum amount of reserves that we are reasonably confident would be sufficient to maintain an ample-reserves regime. This assessment is based on an estimate of the banking system's minimum demand for reserves at rates near the IOER rate, plus an allowance for uncertainty around this estimate. As shown in the top-right panel, on the basis of the Senior Financial Officer Survey, which asks banks directly about their reserve demand, our current estimate of the minimum aggregate demand for reserves with market rates near the IOER rate is around $860 billion. However, importantly, we don't solely rely on survey responses. A broad range of information, listed in your middle-left panel, can inform these assessments.

Because there is uncertainty around a point estimate for the banking system's minimum demand for reserves, the staff currently assess that a conservative minimum operating level of a bit more than $1 trillion, or $1.05 trillion, would be appropriate, at least initially. The additional allowance for uncertainty, shown in light blue in the top-right panel, would provide greater assurance against rate volatility should our point estimate be inaccurate, or if there are distributional frictions of reserve holdings that require higher reserve levels. As we enter this new phase with lower reserve levels, the public will be closely watching our ability to control rates. Therefore, making this transition successfully can establish credibility.

As we gain more certainty about reserve demand by operating at lower reserve levels, the minimum operating level could be moved lower. Managing a minimum operating level would allow for a controlled transition to lower reserve levels, if deemed appropriate, by providing control over the increment of decline.

Periodic asset purchases will be necessary to keep the average supply of reserves large enough that the daily level of reserves remains above the minimum operating level given high-frequency fluctuations and trend growth in nonreserve liabilities. Consistent with the Committee's desire to maintain a regime in which active management of reserves is not required, the Desk could use medium-term forecasts to plan these purchases over a longer time horizon. These periodic asset purchases will essentially offset trend growth in nonreserve liabilities and leave a buffer of reserves to absorb daily changes as well. We currently anticipate that these purchases would start somewhere between the end of the fourth quarter of this year and the first quarter of 2020, as shown in the shaded region in the middle-right panel. However, there is a modest amount of flexibility regarding the exact start date of purchases, and we would consult with the Committee on that decision. Projected reserve levels relative to the current assessment of the minimum operating level are shown in the red line of that panel.

The bottom-left panel depicts how reserve levels would decline if the minimum operating level, shown in light blue, is lowered over time. This is just an illustrative example. Although the staff view the initial minimum operating level as conservative, the resulting average reserves of around $1.2 trillion over the period to 2021 would still be meaningfully below the current reserve level of around $1.6 trillion and similar to, or slightly lower than, what most market participants currently appear to expect. In the most recent surveys of primary dealers and market participants, the median estimate of the lowest weekly average reserve level between now and 2025 was $1.2 trillion, with a fairly tight interquartile range of responses from around $1.1 trillion to $1.3 trillion, as shown in the bottom-right panel. Given the normal variability in reserve levels, the projection of the lowest weekly reserve level, assuming a minimum operating level a little more than $1 trillion, would be at the lower end of these estimates.

We are confident that this operational approach to an ample-reserves regime with a lower reserve level would be effective in controlling interest rates, flexible in responding to changing market conditions, and efficient to operate. In the coming months, we will continue to check our estimates of reserve demand and monitor conditions in reserve markets for signs of scarcity, and periodically consult with the Committee on changes in our assessment of the minimum operating level based on this new information. If the Committee is comfortable with this approach, the Desk could also plan to release a Desk statement later this year that could establish an initial minimum operating reserves level and, thus, provide a time frame in which the Desk might begin to grow the portfolio to offset trend growth in the Fed's liabilities.

I'll briefly conclude with two additional operational updates. First, the Desk intends to release a statement in May indicating that we will convert some of the SOMA's holdings of Freddie Mac MBS securities to uniform MBS (UMBS). Additionally, consistent with the Desk's plans to develop operational readiness for conducting transactions in UMBS, the staff intend to conduct a small-value UMBS purchase next month.

Second, following an opportunity for public comment in February on the inclusion of selected deposits data into the calculation of the OBFR, the Desk intends to release a statement in April announcing that selected deposits data will be incorporated in the calculation of the OBFR beginning in early May.

Finally, a full list of upcoming and completed small-value exercises is located in Appendix 1. Thank you, Mr. Chairman—that concludes our prepared remarks.

CHAIR POWELL. Thank you. Comments or questions for Simon and Lorie? President Rosengren.

MR. ROSENGREN. Just looking at chart number 17, there are sharp declines that occur in reserve balances from 2015 to roughly 2018, and then we don't see nearly as many spikes over the past year. So when you're estimating the volatility of reserves, are you estimating it primarily over the past year or over the past four years? Because it doesn't look like it's the same process, and it does seem that there are periods when we get pretty substantial negative spikes. So could you talk a little bit about the series and the period you're using for your estimation? Because it looks like, at least potentially, those estimates will be highly sensitive to that period.

MS. LOGAN. I think a lot of this volatility is being driven by the Treasury's management of the TGA and the degree to which they're keeping that fairly stable. So as we do the forecasts, we are forecasting what we expect them to do in terms of managing the TGA over that horizon. I think the second area of volatility comes from the statement dates. We do get some swings in the foreign repo pool around some of the statement dates, and some of those swings were a little bit sharper during the volatility in previous years than we've been seeing more recently.

MR. POTTER. But we're not forecasting this. We're forecasting things that produced this. So that is an easier thing than trying to forecast this time series.

MR. ROSENGREN. So if we had had a $200 billion buffer over the past four years, how often do you think we would have ended up piercing what we thought was a sufficient balance?

MS. LOGAN. I should note that some of the additional volatility early on in 2015 was related to the overnight RRP when rates were closer to the overnight RRP. Now that repo rates are so high relative to the overnight RRP, we're not getting that fluctuation as well.

MR. POTTER. I think you're asking a really good question. If we'd been operating with a $200 billion buffer and we'd had a lower level of reserves, would we have produced a miss that could have pushed us below the level? I think the current assessment that we have in the data is "no," but that's something we're going to be looking at, particularly over the next few months. So you'd expect to see perhaps more estimates of this and what that looks at.

MR. ROSENGREN. Thank you.

CHAIR POWELL. Other comments or questions? President Harker.

MR. HARKER. Just two comments. To reiterate some of the comments that were made earlier—one is, I agree with President Kashkari. We operated before the crisis in a corridor system with volatility in the federal funds rate. We shouldn't be afraid of that as long as we can control it, right? And so, after we sort of settle into what the "new normal" is, if we probe where the lower level of reserves are, I don't think we should be necessarily afraid of some volatility as long as, again, we can control it.

The second issue. I want to reemphasize what President Bostic said, that—and I'll rephrase it—"Monotony is a virtue," right? So we should communicate early and often that this is an operational issue, not a policy one—save the composition of the balance sheet question. I think the more we can do that, the better. And we might put together—as you were describing Lorie—a Desk statement that outlines this in detail. I am very supportive of moving this essentially to the Desk and away from the Committee and making this an operational issue to make it clear that we're trying to separate this so that it is not a policy issue—again, save the balance sheet composition question. So I think that in communication, the more we can say that, the more we can just drive that point home, I think that will serve us well. Thank you, Mr. Chair.

CHAIR POWELL. Governor Quarles.

MR. QUARLES. So my questions relate a little bit to the comments I made earlier. I fully support the plan to revisit the reserves number every so often, revise it upon the information that we get, but how confident can we be that we really understand what the level of reserve demand is going to be if we're operating in a regime that rules out even the possibility of scarcity?

Then the second question related to that is, if we do achieve a level of confidence through the tools that you've described: what if the lowest comfortable level of reserves is declining? I mean, what would our response be to that? How would we communicate what was happening there? And would that be viewed as a change in the stance of monetary policy if we were lowering the level of reserves? Or do we do nothing—which may be a perfectly acceptable answer—meaning that, when we understand that the level of reserves is, in fact, lower than we thought, we're not going to do anything except keep the balance sheet constant for a longer period as currency rises and replaces reserves down to what we think that new lower level is.

MS. LOGAN. Having the minimum operating reserve level is a way of controlling that testing. I think if you wanted to see how conditions were at these lower levels, if you look at the red line in one of the panels, when it hits that new lowest level, you would learn a little bit about how money markets behaved at that new lower level. And, through that, plus surveys and other bank microdata, you could make a judgment to then lower the minimum operating reserve level in future months.

I think that could be communicated as a very technical matter, as a matter of the Desk, and what that drives is our forecast for the monthly permanent purchases. So if you drop the minimum operating level, our monthly purchases over those preceding six-month forecasts are going to come down relative to where they were before. I think, for market participants, the minimum gives them a sense of what to expect, that we're not going to go lower. But it's also helping them understand how we're calibrating the monthly purchases that we'll be doing. So I see it very much as just a controlled way of testing.

MR. POTTER. So to go to your other point, if we get this number too low, we'll find out. That's easy.

MR. QUARLES. Right.

MR. POTTER. Your point is, what if it's too high?

MR. QUARLES. What if it's way too high—

MR. POTTER. There's nothing in this regime that helps you find that out.

MR. QUARLES. Yes.

MR. POTTER. We are analyzing the survey data, what the individual responses say, and you pointed out—I think you read the memo, really, with quite a bit of care—it's important to understand the people who frequently breach their reported lowest comfortable level of reserves. And I think understanding what they are putting down is really going to be important. But I think the memo emphasized they're a small set and they don't hold that many reserves.

The global systemically important banks (G-SIBs) hold a lot of the reserves. We've got all of them. And I think, with one minor breach, they're not getting close. How they react, what they do, and what their business models look like are some things that we need to track. We do talk to them in a structured dialogue pretty frequently. One of the largest did drop their reported lowest comfortable level of reserves this time, and I think that what we anticipate will happen, if we get more used to this, is that other people will drop. It's possible other banks will have a reaction when it goes up, and then we'll just have to assess that. If we're doing this every six months, then we'll observe all of the behavior after we've got the survey responses. That allows us to see if they are actually being true to what their survey response is.

CHAIR POWELL. President Kashkari.

MR. KASHKARI. I'm just trying to follow this. Can you explain what would happen if we didn't announce a minimum level of reserves? Because one of my concerns, and I may be misunderstanding, is that it feels a little bit like inflation expectations. We survey professional forecasters: "What's your outlook for inflation?" "Oh, 2 percent." You know they pay attention to what we're saying. So a concern that I have is, if we announce a minimum and we do a survey, they're going to repeat the minimum back to us. What happens if we don't put out a minimum?

MS. LOGAN. In terms of the bank survey, we started this process over a year ago with the structured outreach from banks to understand where in the institution these decisions were made. After we learned a little bit more about how they made the decisions, how they are thinking, then the Fed staff worked together to figure out the questions to ask. I think we had a pretty good understanding of how they were forming their views. By watching their behavior relative to those views, we'll learn a lot about what's forming them. I think they are changing those particular numbers—I think we do see that—they know that we're watching those numbers, and they are making those decisions as committees for their institution.

MR. POTTER. You might have been asking it slightly differently. If we put out a number that says $1.05 trillion, and then we survey people: "What do you think the minimum level of reserves will be in the system," they should say, "1.05." Inflation is much harder to control than that. I don't think that's a problem in the regime that you've chosen. This is exactly what you want to tell the bank: "Have confidence that we are going to be operating every day in an ample-reserves regime, so don't make any plans for not operating in that regime."

MR. KASHKARI. But I guess my question is, couldn't we say we're operating in an ample-reserves regime without specifying a number?

MR. POTTER. We could, and they would work out the number reasonably quickly from the behavior that they saw from us.

MS. LOGAN. What that number is helping us do is communicate with the market how we are sizing the monthly purchases, and that is what really matters for the market. Those monthly purchases can drive trading behavior in the market. So it's the combination of those two things that's important for what we're communicating.

Again, I think if you announced $1 trillion, and then you said, "Oh, we've been looking at survey data, we've been watching behavior, we're going to drop that over the next cycle," then they'll know we're going to drop the monthly purchase sizes, and they will be able to forecast what those would be. I don't think there's anything that would be forming in markets that would prevent you from moving that minimum up and down over time.

MR. POTTER. I think what we tried to do is design something incredibly geeky, and we can talk for hours about it, but hopefully that will bore people. [Laughter]

CHAIR POWELL. Other comments? President Rosengren.

MR. ROSENGREN. Thank you. Part of a choice of a buffer is how much insurance I want against volatility. If volatility is truly costless, then I don't need very much insurance. But if volatility does have a significant cost to the economy as a whole, it's not that I'm afraid of it, but that it is not costless. It would be good, as we're thinking about this, to actually calibrate it in terms of how much the cost would be and what the insurance premium is necessary to get there. It does seem like option pricing or some other way of capturing how costly it is to have the volatility, what we're paying for that volatility, and how much insurance would cost is a useful framework to help think about what the right size of the buffer would be.

I think a number of people in the go-round highlighted they didn't think there was much cost to volatility. And I guess my prior is that creating volatility with no economic benefit doesn't seem like the right tradeoff. But I could be convinced that the costs are so low to the economy of having a more volatile operating procedure that maybe I don't need much insurance against that. But I'd like to understand that much better.

MR. POTTER. I think the value we found in this operating regime is, it's much less volatile than the previous one. Then we would present to you the average federal funds rate, and that was moving around a lot. There was a way for people to trade at the end of the day—that was banks trading with banks. That is a very small part of the market now. That would have to come back if we saw banks getting short of reserves. It would be hard for them at the end of the day, because there is not such a thick market. And they're very reluctant to go to the obvious entity—which is us—to borrow money, because of all of the stigma associated with that.

MR. ROSENGREN. But it's not just volatility to the federal funds market. It's volatility to all short-term rates.

MR. POTTER. Every single market you'll see the volatility.

CHAIR POWELL. President Evans, did you have something?

MR. EVANS. Thank you, Mr. Chair. It took me a little while. I'm comfortable with the plan for the minimum operating level of reserves. I have to say, I'm a little lost by our discussion here. I'm not sure I have a question, but just if I could think out loud for a minute.

We decided to go after a floor system for our operating system, and we're characterizing that as an ample-reserves system. And so I'm kind of trying to remind myself what the big benefit of a lower balance sheet size is supposed to be, the least level of reserves that's consistent with this. Is it an economic cost of having a larger balance sheet? Are we subsidizing banks if reserves are larger? The IOER rate is going to be lower than market rates. I think the story has been that it's not really subsidizing banks because market rates are higher and they could do something else. Banks have to expend resources to manage their reserves if they feel that it's a little more scarce with that minimum level than under an ample-reserves system. And the marginal cost for us to produce these reserves is zero, so, efficiency says it's not really a problem.

I keep coming back to the earlier discussions where there was a political optics argument that roundtripping our balance sheet might provide more credibility in the future. I don't really hear enough of that being discussed today to feel comfortable with that argument. Maybe that is the argument underlying a lot of this. But if it is, I think it's worth a lot more discussion than just these, "I think I'd like a lower level of reserves if we—". So that's where I'm kind of lost over all of this.

CHAIRMAN POWELL. Thomas?

MR. LAUBACH. Sorry. President Evans's intervention rendered my comment obsolete that was directed to President Rosengren. In the past, the staff has always found it difficult to quantify in some way what seem to be some costs associated with a larger balance sheet. If you don't have that, then the natural answer should be zero interest rate volatility.

CHAIR POWELL. No two-hander, John?

VICE CHAIR WILLIAMS. I interpreted President Rosengren's comment to be that he wanted to understand what kind of volatility we would see as we move this allowance, the light blue part, smaller or larger. What would the tradeoffs be in daily volatility? Would it maybe last a week or something? What would that world look like in which we didn't have such large buffers? And just to understand what the tradeoff is, I do think, without any quantitative analysis around that, we kind of run into the problem that President Evans is describing, which is a very qualitative "I just don't feel we're where we want to be." So I do think having some way of gauging, "Oh, I see—we would see interest rate volatility of this kind. Well, I have now looked at that picture, and I don't like that." So can we maybe come to a conclusion that way?

By the way, can I use this brief moment to say this? President Evans's remark does remind me of a task that my parents gave me when I was growing up in Sacramento. When you live in a very hot, dry climate—we had a swimming pool—the water evaporates rapidly. And my job was to keep the pool full, so you have a hose and you put the hose by the pool and you run it for a few hours to make sure the swimming pool is full. And, invariably, being a teenage boy, I would forget about the hose and flood the yard. [Laughter] My dad, who would find this not a good completion of the task I was assigned, would say, "Why did you flood the yard again?" And I'd say, "You told me to fill the pool. The pool is full. I did what you asked." [Laughter]

CHAIR POWELL. Thanks. With that, I would just add my own comments here. I think you've laid out a thoughtful framework. A thought I have is, really, that it feels like the settings on the dials are essentially putting a very high loss function on any volatility—any volatility—and I don't know that I agree with that. I have no appetite for the Armageddon scenario where we have repeated volatility all over the place. I have no interest in that at all. Neither am I afraid of the kind of early signals that you'd probably get from scarcity if you were having reserves organically decline at a very slow rate according to the Harker plan.

I would also say, if we're apparently about to announce tomorrow that we may pursue holding the balance sheet constant, then I'd have a hard time saying that we were soon going to do a reverse taper or that we would hold the balance sheet constant for only 90 days. That would feel a little bit pointless, in a way.

So I guess all I'm saying is, I feel very risk averse as to volatility, but I'm not in this league. This is really perfect safety against volatility, or almost perfect, and I would say we maybe ought to think more about trying a little harder to get to what we said, which is the smallest balance sheet consistent with "efficient and effective." The other thing is, for me, it makes the idea of a repo facility that much more interesting and so also to be considered. This is not something for a decision today but for discussion down the road.

Further comments and questions? [No response] If not, let's break for lunch. We'll come back at 1:00.

[Lunch recess]

CHAIR POWELL. Welcome back, everyone. I need a vote to ratify the domestic open market operations conducted since the January meeting. Do I have a motion to approve?

MR. CLARIDA. So moved.

CHAIR POWELL. Without objection. Thank you. Let's get started again with our review and discussion of the economic and financial situation. Stacey Tevlin, Joe Gruber, and Marcel Priebsch will be providing the briefings. Stacey, over to you.

MS. TEVLIN.[3] Thanks. My materials are in the packet titled "Material for Briefing on the U.S. Outlook." Panel 1 of your first exhibit compares the January and March Tealbook projections for quarterly GDP growth. As you can see, we made an appreciable downward revision to our current-quarter GDP forecast. This revision was based on the incoming data on spending and production.

The evolution of how we arrived at this current-quarter figure is traced out in panel 2. As shown by the black line, we have marked down our Q1 projection several times, with most of the downward revision to our judgmental forecast occurring in mid-February, when we received the December retail sales data. To provide a check on our judgment, the red line plots the evolution of the first-quarter nowcast from the Board staff's preferred dynamic factor model. These two different ways of filtering the data are generally painting the same picture of downward revisions.

When we received the advance estimate for December retail sales, the sheer size of the reported decline led us to suspect that sales growth might be revised higher in last week's retail sales release. Unfortunately, that suspicion turned out to be wrong. As the black line in panel 3 indicates, sales are still reported to have fallen sharply in December. However, both the Census data and the preliminary data on credit and debit card transactions that we get from First Data, the red line, point to a partial rebound in January. The most recent, and highly preliminary, information received from First Data suggests that sales may have weakened again last month; we have taken these and other available indicators of consumer purchases onboard in updating our near-term forecast, which now implies essentially no net change in retail spending over the three months ending in February and a pace of overall first-quarter real PCE growth that is less than 1 percent at an annual rate.

Last week's news on retail sales, in combination with other data we received since the Tealbook projection closed, led to small downward revisions to our growth projection and, as shown back in panel 2 by the final black circle, our first-quarter forecast of real GDP growth now stands just under 1 percent. Although we had been anticipating that real output growth would step down from last year's pace, we think that the weak reading we've penciled in for the first quarter overstates the degree to which aggregate demand is slowing, and, as you can see back in panel 1, we are expecting a bounceback in the second quarter. Only a fraction of this decline and rebound in the growth rate is due to the government shutdown.

The bars in panel 4 smooth things out some by reporting half-year figures. Two things are apparent in this panel. First, the contribution from inventory investment,

[3] The materials used by Ms. Tevlin are appended to this transcript (appendix 3).

the gold portions of the bars, boosted real GDP growth considerably in the second half of last year. We expect firms to slow their pace of inventory accumulation over the coming year to bring it back in line with spending, leading to a drag on production this year. Second, the contribution to GDP growth made by private domestic final purchases (PDFP), the blue portions, is expected to step down noticeably in the first half of this year. But it then returns to an above 2 percent pace, reflecting our view that the first-quarter weakness in growth is transitory.

Our assessment that the lower growth rate in PDFP is unlikely to persist is consistent with the high level of consumer sentiment, the recovery in financial market conditions, and, importantly, the mostly favorable news from the labor market, which includes both the January and February employment reports and a number of wage indicators. These data are summarized in the next page of exhibits.

The data from the establishment survey were mixed. As shown by the red line in panel 5, BLS's estimate of private payroll gains slowed to 25,000 in February from 308,000 in January. Last month's decline in private payroll growth was also evident in our translation of the firm-level data collected by the payroll processor ADP—the black line. We think that only part of the swing in job growth from January to February was attributable to the effect of weather. However, even with last month's weak read, BLS payroll gains averaged a still-respectable 185,000 jobs per month over the three months ending in February. We have therefore taken only a modest signal from the incoming employment data and now expect overall payroll growth to average 165,000 jobs per month over the next four months—about 25,000 less than our previous projection, but still higher than the pace we judge to be consistent with an unchanged level of labor utilization.

Data from the household survey remained strong. The unemployment rate, the black line in panel 6, came down, on net, over the past two months, and the labor force participation rate, which is not shown here, moved up again. Overall, the employment-to-population ratio was about in line with our expectation.

Panel 6 also plots unemployment rates for various racial and ethnic groups. As shown by the blue line, the jobless rate for blacks or African Americans has crept higher recently. This series tends to be noisy, and the uptick has been accompanied by a noticeable increase in this group's labor force participation rate, so it may be benign. Still, this development is one that we will be monitoring closely in coming months.

In our forecast, the unemployment rate, the black line in panel 7, declines to 3.6 percent by the end of this year and remains at that level next year before edging back up to 3.7 percent in 2021. This fairly flat contour reflects the fact that, on average, output rises at a pace close to our estimate of potential output growth over the next three years. This path for the unemployment rate is a tenth higher than what we wrote down in the January Tealbook, reflecting a narrower output gap. Of course, the gray shaded area indicates that the uncertainty associated with our medium-term forecast is large. In fact, projections of the FRB/US and EDO models, which we highlighted in a box in the Tealbook this time, are calling for unemployment rates near the upper edge of that 70 percent confidence interval.

Panel 8 shows four of the various measures of labor compensation that we follow. In general, wage growth is up from a year ago. The most timely indicator, average hourly earnings, the red line, rose 3.4 percent in the 12 months through February, up from 2.6 percent in the preceding year.

I will now turn to inflation on the next page. Last week, after the March Tealbook was closed, we folded in the CPI and PPI for February, which came in lower than we had expected. Based on our translation of these data, we now estimate that the 12-month change in core PCE prices, the red line in panel 9, edged down from 1.9 percent in January to 1.8 percent in February. Looking at the detailed price data led us to offset only a portion of the downward surprise, and we have essentially allowed the downward inflation revision to carry forward. Total PCE prices, the black line, rose 1.4 percent through February, held down by subdued rates of food price inflation and a decline in consumer energy prices. Total inflation was also revised down last week, but a little less than the core rate.

Our medium-term inflation outlook is shown in panel 10, which plots the four-quarter change in total PCE prices, the black line, and core prices, the red line. We now think that core inflation will be 1.9 percent this year and then edge up to 2 percent next year. Total PCE price inflation is expected to run a touch below core, reflecting our projected path of declining consumer energy prices.

The latest news on consumers' inflation expectations are shown in panel 11. On Friday, we received the Michigan survey measure of median inflation expectations over the next 5 to 10 years. After dipping to 2.3 percent in February, this measure moved back up in early March to 2.5 percent and now stands near the middle of its range in recent years. The Federal Reserve Bank of New York survey of expectations also dipped in February, but this measure has fluctuated in a wider range than the Michigan survey has.

Before I hand off to Joe, I want to update you on a change that we are likely to make in the next Tealbook. As you know, the federal funds path that underlies the staff projection has, for a while now, been well above the median SEP federal funds rate path and, really, even the path of the most "hawkish" individual participant. And, as Marcel will describe shortly, that wedge remains this round. Part of this difference is because we see greater momentum or tailwinds in the economy than most participants do. But part of it is that our current rule—the intercept-adjusted inertial version of the Taylor (1999) rule—is not capturing the decisions of the Committee particularly well right now. Therefore, in the April forecast round, we plan to change our assumed rule to something we hope will be closer to your implicit policy rate reaction function and will be more useful to you. We won't pretend to know the exact framework—or 17 different frameworks—that you are using to set policy [laughter] but will instead aim to come up with a simple rule that roughly mimics your recent and reported intended behavior. The Monetary Policy Strategies section of the Tealbook this time illustrated one rule that appears roughly consistent with the median of your December SEP—a rule that has asymmetric weights on the output gap. We will consider this rule, and others as well, when we choose. In addition, we will plan to regularly reevaluate our rule—not every round, which would be too disruptive, but perhaps once a year. I'll turn it over to Joe.

MR. GRUBER.[4] Thanks, Stacey. I'll be referring to the handout titled "Material for Briefing on the International Outlook." Economic data have largely, though not uniformly, surprised on the downside over the intermeeting period, leading us to revise down our foreign outlook once again. Foreign real growth at the end of last year is estimated to have been a disappointing 1.7 percent, a pace we expect to persist through the current quarter. We expect growth to pick back up toward our 2½ percent estimate of potential, in part as some temporary headwinds fade but also supported by accommodative policy. Certainly, this pickup is far from assured, and we remain attuned to a number of notable downside risks, particularly in China and Europe.

On the next page, one salient aspect of the current soft patch has been the downturn in trade and manufacturing. Shown on the left in red, the new export orders component of the global manufacturing PMI has moved into contractionary territory, and world IP growth, in black, has slowed sharply, even as other sectors, including services, shown on the right, have held up better.

As shown on your next slide, the falloff in trade has been particularly apparent in China, with imports and exports, the red and black lines on the left, respectively, declining at the end of last year. The Chinese authorities' deleveraging campaign likely slowed growth not only in China, but also throughout Asia, contributing to the decline in both China's imports and exports, though trade tensions with the United States also likely played a role. As authorities recalibrate in response to last year's slowdown, our forecast, shown on the right, is for real growth to bounce back up this year, supported by increased stimulus, including a bevy of tax cuts and credit-easing measures. Already we have seen some rebound in aggregate credit, as discussed earlier by Simon, as well as stronger data last week, with industrial production, bottom left, recovering and retail sales, bottom right, moving up further.

On the next page, the euro area has been another source of concern. In the upper left, euro-area data disappointed through the second half of last year, notwithstanding some more positive releases of late, including last week's IP and retail sales. As shown on the bottom, many forecasters, including ourselves, have significantly marked down the outlook for 2019 and 2020 relative to just a few months ago, as it has become apparent that the downshift in growth last year probably owed a little less to temporary headwinds than we had hoped. Though we see growth in the euro area as having bottomed out and expect a slow climb, model-estimated recession

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

probabilities have reached a worrying 70 percent, so we are certainly not out of the woods.

Your next slide provides some context for the increase in recession probability by unpacking the three main macroeconomic inputs into the model and comparing their behavior with that in the three most recent euro-area recessions. As you can see, the path of new export orders over the 24 months leading into January, the black line, has generally tracked that of other euro-area recessions. The model sees this pattern and wants a recession. However, retail sales, bottom left, have continued to grow, less consistent with the experience in previous recessions, even as IP has remained relatively flat, on average, bottom right, although the most recent reading for January was positive.

On the next page, the weaker outlook has led the ECB to extend its guidance for when it will begin tightening policy rates to the beginning of next year, although, as Simon indicated earlier, markets had already been assuming that tightening would not start until later in 2020, a view we share as well. As shown in the middle panel, with core inflation still below or just at target, advanced-economy central banks are under little pressure to hike rates, and communications have generally taken a dovish turn, with a number signaling an increased willingness to be patient. Accordingly, we have pushed back the expected policy rate paths for all major advanced foreign economy (AFE) central banks. In view of this downshift in policy expectations, both in the United States and abroad, the dollar, shown on the right, has been about flat since the start of the year. We still expect a moderate appreciation, premised on the staff outlook of a tighter path of U.S. policy than market expectations.

On the next page, although our baseline outlook is for real GDP growth in China and the euro area to stabilize, and for aggregate foreign growth to strengthen, some familiar, though still notable, risks persist. Last week, the U.K. Parliament held a number of Brexit-related votes, with the end result that the United Kingdom will ask for an extension to its March 29 deadline. The length of the extension is likely to be contingent on yet another Parliamentary vote on some form of Prime Minister May's twice-rejected exit plan. If the plan passes, the extension would likely be short, possibly only through June 30; however, if the plan does not pass, the extension could be much longer, possibly through 2020, as the process of planning exit would basically start over. Any extension still needs the approval of EU leaders. All told, Brexit-related uncertainty is likely to be with us for some time, though the risk of an imminent no-deal Brexit has diminished somewhat.

Trade policy is another perennial risk area in which we have seen some movement. In late February, the Administration delayed the next round of tariffs on imports from China, citing substantial progress on a bilateral agreement. However, more recently, progress has slowed somewhat, and a signing ceremony between Presidents Trump and Xi originally anticipated by the end of the month remains unscheduled.

Markets have been highly reactive to news on trade policy, most recently positively, introducing some risk into our outlook. First, a renewed escalation in trade tensions, and further tariffs, could push markets down. Second, it could be that markets have overestimated the contribution of trade tensions to the slowing of global growth, so that a negotiated removal of tariffs could provide less of a boost than markets might be anticipating. For the reminder of my remarks, I'll examine the evidence on whether tariffs, particularly those aimed at China, are affecting activity in the United States.

Your next exhibit starts with U.S. exports. Exports to China, the red line on the left, fell off sharply in 2018. Of course, this falloff doesn't necessarily translate into weaker overall exports, as many of the United States' exports to China are commodities for which shifting to alternative markets could be relatively costless. For example, as shown in the first two columns on the right, U.S. crude oil exports to China have fallen to almost zero in the fourth quarter, but overall exports of crude set a new record, as other markets quickly filled the gap. The story is different for soybeans. Increased exports to other markets have been insufficient to offset the decline in China's previously immense demand. Overall, as shown on the bottom, export growth last year fell short of what would be expected, shown by the black dot, given the pace of foreign growth, the green bars, and the effects of movements in the exchange rate, the blue bars, suggesting a negative effect from the tariffs, some of which we expect to carry over into our forecast for exports this year.

As shown in your next slide, there is less evidence that tariffs have affected U.S. imports, at least at the aggregate level. As shown in the upper left, import growth in 2018 was almost exactly in line with our expectations given the strength of U.S. growth and movements in the dollar. However, imports from China, the red line in the right panel, were relatively weak, suggesting a shift toward nontariffed source countries. Some evidence to this effect is presented in the table at the bottom. The table compares the growth of imports across four buckets of goods: those that have not seen tariff hikes, column 1, as well as those that have been affected by each of the three rounds of China tariffs implemented so far. Looking at the second and third columns, it appears that the 25 percent tariff hikes enacted over the summer have depressed imports from China, line 2, while the 10 percent tariff announced in September, the fourth column, may have actually boosted imports at the end of last year, possibly in an attempt to front-run even further tariff hikes proposed for these particular goods. Comparing lines 2 and 3, there is some evidence that the tariffs have shifted imports toward Mexico from China, mitigating, to some degree, the effect of the tariffs on overall U.S. imports.

Your last slide looks for tariff effects on prices and activity. There is growing evidence, from both tariff data and the careful study of import prices paid at the dock, that foreign producers are not cutting their prices to offset the effects of the tariffs—rather, U.S. importers are paying the bulk of the tariffs and boosting consumer prices in some cases, including for household appliances, as shown in the upper left. However, the overall effect on aggregate inflation appears to have remained small. Employment growth across industries, on the *y*-axis in the upper right, shows no correlation with industry exposure to tariffs, the x-axis. There is a weak negative relationship between the growth of capital investment and exposure to trade with China, both for exports and imported intermediates; however, the overall direct evidence that the tariffs, or trade policy uncertainty, has meaningfully held down aggregate U.S. economic activity remains scant, or at least the effects have not shown up yet. This could imply that a rollback of the tariffs might not have much direct effect on aggregate activity and prices, though it could boost business sentiment. I'll now turn it over to Marcel.

MR. PRIEBSCH.[5] Thanks, Joe. A very good afternoon to all of you. My name is Marcel Priebsch, and I'm a Board economist in the Division of Monetary Affairs. The exhibits for this briefing are labeled "Material for Briefing on the Summary of Economic Projections." And going third, so soon after lunch, I should point out that I'm under strict instructions to get through this material before one of you dozes off. [Laughter] So I will put the "brief" back in "briefing" and hit the ground running with a few headline results.

All of you lowered your real GDP growth projections in 2019. Compared with your December projections, the median of your assessments for the appropriate level of the federal funds rate is now 50 basis points lower throughout the projection horizon. Overall, your assessments of the uncertainty and risks surrounding your projections are little changed.

Regarding exhibit 1, a substantial majority of you have revised down your projections for real GDP growth this year 0.3 or 0.4 percentage points. Most of you mentioned a recent patch of weaker data on domestic economic activity, and some of you pointed to a worsening global growth outlook, as factors behind your downward revisions. Most of you continue to expect real GDP growth to edge down over the projection horizon, and almost all of you see growth in 2021 at or below its longer-run rate. As shown in the second panel, the median of your projections for the unemployment rate over the projection horizon has shifted up a bit, but most of you continue to project that the unemployment rate will remain below your individual estimates of its longer-run level throughout the projection horizon. As you can see in the bottom panels, the medians of your projections for headline inflation have come down a touch; that said, almost all of you project headline and core inflation between 1.8 and 2.2 percent throughout the projection period.

Exhibit 2 reports your assessments of the appropriate path of the federal funds rate. A majority of you now see, at most, one 25 basis point rate increase between now and the end of 2021. Most of you do not project any rate hike this year; in December, only a couple of you projected that the federal funds rate would be unchanged from its current level at the end of 2019. Muted inflationary pressures and risk-management considerations were both cited as factors contributing to the downward revisions in your assessments. The medians of your assessments of the

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

appropriate level of the federal funds rate in 2020 and 2021 are now below the median of your assessments of its longer-run level.

The red diamonds in exhibit 2 show the median prescription for the federal funds rate based on the Taylor (1999) rule, taking as inputs your individual projections for inflation, the unemployment gap, and the longer-run federal funds rate. As in the past, the rates prescribed by this rule are notably higher than the path of the federal funds rate you consider appropriate. This difference suggests that, with inflation projected to remain near your objective, you do not see a need for responding to the projected unemployment gaps as aggressively as the Taylor rule calls for.

The golden triangles in the exhibit show the median prescription from an asymmetric version of the Taylor rule. Under such a rule, when unemployment is above its longer-run value, policymakers will respond to inflation and the unemployment gap according to the Taylor (1999) rule; when unemployment is below its longer-run value, policymakers will respond only to inflation and not to the unemployment gap. This rule is intended to describe policymakers who are willing to tolerate unemployment below its longer-run value as long as it is not accompanied by high inflation. The median rate prescriptions from the asymmetric rule are much lower than those of the symmetric rule and are currently only slightly above the medians of your rate projections. However, the revisions of the symmetric rule's prescriptions since December—that is, by how much the red diamonds have shifted down—are close to the 50 basis point decline in the median of your rate projections; the prescriptions of the asymmetric rule have declined by much less. This reflects the asymmetric rule's insensitivity to a narrower unemployment gap as long as unemployment remains below its longer-run value.

Exhibit 3 presents your judgments about the uncertainty and risks surrounding your projections. As shown in the left panels, most of you continue to view the uncertainty attached to your projections as broadly similar to the average over the past 20 years. As illustrated in the right panels, most of you generally judge the risks to the outlook as broadly balanced. Two more of you now see the risks to inflation weighted to the downside; none of you see them weighted to the upside. In your narratives, trade tensions as well as developments abroad were mentioned as sources of uncertainty or downside risk to the growth outlook. The effect of trade restrictions was cited as an upside risk to the inflation outlook, while the potential for a stronger dollar and weaker domestic demand to put downward pressure on inflation were viewed as downside risks. A number of you mentioned that your risks assessments remained roughly balanced in part as a result of your revisions to the appropriate policy rate path. I will end my briefing here, and we'll be happy to take any questions you might have.

CHAIR POWELL. Questions for any of the briefers? President Bullard.

MR. BULLARD. I want to go back to page 4 in the international presentation. It has the estimated probability of recession in the euro area within 12 months at 70 percent—the February number. I just wanted to be clear—what's the interpretation of this? I thought you downplayed it after you showed this part.

MR. GRUBER. The inputs into this model are the three macro variables in the next exhibit—so that's the new orders component of purchasing manager's index (PMI), IP, and retail sales. And then there are also some financial stress indicators that go into the model. Basically that's what's informing the 70 percent probability.

As to the downplaying—a lot of this upward movement in recession probability is coming from the new export orders of the PMI, which is concerning, right? But I would just point out that there are some other factors that would be less indicative of a recession right now. If Europe was going into recession, it would be slightly different than recessions we've seen there in the past in that retail sales growth continues to be strong, and that's just not what we've seen in previous instances. So there still seems to remain some momentum behind domestic demand in Europe. It would make this a little different if we were actually going into recession at this point. That was the main point of this.

MR. BULLARD. I guess what we're saying is, Italy technically is in recession.

MR. GRUBER. That's right.

MR. BULLARD. And Germany is right on the borderline.

MR. GRUBER. Their Expert Economics Council revised down the forecast for GDP growth for Germany for this year to 0.8 percent today, so I think that some of the German data have been weak, even within the euro area. But we're not forecasting recession. Generally, outside forecasters aren't forecasting recession at this point. Given the very low unemployment there and still relatively strong wage growth, it would be kind of an odd time to go into recession.

MR. BULLARD. And then, if I skip ahead to page 6, it says we've got the dollar appreciating about 5 percent over the forecast horizon. The story there in the past has been that we were going to surprise markets with our "hawkishness." I guess, given the dots presentation, it doesn't look like it's going to happen. So do you still want the 5 percent appreciation?

MR. GRUBER. I think also, in connection with Stacey's discussion about possibly revisiting this rule, this is one of the parts that we are going to see change if we were to change the staff policy rate path. This is an annual rate of appreciation of, like you say, about 1.8 percent in the dollar. If we were to lower the staff forecast so it's closer to the market expectation, that would flatten out the dollar, right? This path of the dollar is currently taking about 15 basis points off growth in each year of the forecast. So if we were to flatten it out, it would raise growth around 10 to 15 basis points.

MR. BULLARD. Thank you.

CHAIR POWELL. Further questions? [No response] If not, then let's go ahead with our economic go-round, beginning with Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. With the Q4 data finally in, we now know that the U.S. economy expanded at a pace of 3.1 percent in 2018 and delivered upside surprises in both productivity and labor force participation. I'm in the relatively optimistic camp that sees trend growth for the U.S. economy at 2.2 percent and in December projected that 2019 growth would slow but to a pace above trend of 2.3 percent.

Alas, most of the data for the U.S. economy since our December meeting have surprised on the downside, as Stacey documented, and as the various surprise indexes out there, Bloomberg and Citi, will confirm. And I agree with the Tealbook and private forecasters that this necessitates a downward revision to my 2019 projection. I penciled in an even 2.0 percent for 2019 real GDP growth in my March SEP but, truth be told, after the February employment report and some other numbers, that fell to 1.95, but I did round it up to 2 in my submission.

Although this is for tomorrow's policy go-round, I note that I and the Tealbook and private forecasters are marking down 2019 real growth estimates to at or below trend, notwithstanding bond yields that are lower, credit spreads that are tighter, and stock prices that are higher than in December. Lower bond yields, I think, reflect a sharp slowdown in 2019 global growth that we have heard about, as well as some repricing of our policy rate path, and that repricing has been supportive of equities and credit spreads. As to the yield curve, it is very flat, not yet inverted between the three-month point and the 10-year point, and breakeven inflation has picked up year-to-date, albeit from depressed levels.

All of this is consistent, I think, with the markets believing for now that the Fed wants—and is capable of executing—a soft landing. I will venture to say that if we were still communicating, or being seen to communicate, a plan to hike rates twice this year, financial conditions would be much less supportive of growth, and we'd be marking down our projections more than we are today. But, of course, it is not our mandate to engineer a soft landing if the cost is to sustain a material overshoot of PCE inflation and inflation expectations above our target. But today, at least to me, there's simply no evidence of this risk in the wage data, in actual inflation, or in inflation expectations, and I'm projecting core PCE inflation of 1.8 percent for 2019. And I note the 1.8 percent core PCE inflation is equal to the staff's estimate of underlying inflation. We did see, in box 10 in the presentation, a projection of core PCE inflation getting to 2 percent, but I understand that that's not technically driven entirely by the model itself.

As for inflation expectations, I do know that the Michigan survey has been fluctuating narrowly, and it is true that it's stable, but it's now in the lowest range ever recorded in the history of that survey, and the staff estimates of expected inflation drawn from the TIPS curve are also consistent with underlying PCE inflation below 2 percent. Now, as I say in my public remarks, taken together, the evidence suggests to me that measures of expected inflation are at the very low end of a range that I myself consider to be consistent with price stability, at least in our 2 percent objective.

Talking about wage inflation, the 3.4 percent increase in average hourly earnings was a welcome, high "print" for this cycle. But it's entirely consistent with underlying estimates of trend productivity growth and underlying inflation and, as of now, provides no indication of cost-push pressures. Indeed, my personal estimate of u^* remains at 4.1 percent, but after reading some recent research—including the recent *Brookings Papers* article by President Daly, Bill Wascher, and co-authors—I may have to revise down my estimate of u^* at the June SEP to 4 percent.

I'm projecting a gradual rise in the unemployment rate over the next two years, as I do see growth falling somewhat below my estimate of trend. And, of course, another factor relevant to the unemployment projection is labor force participation (LFP). I think one thing that was striking about last year is that in the nine months from May 2018 through February of this year, we saw very strong gains in employment but essentially no change in the unemployment rate, because it was met with an increase in participation. Now I'll acknowledge that LFP gains will eventually cease, because the underlying demographic forces ultimately will prevail, but prime-age participation does remain below earlier peaks, and there may be some room to run in 2019.

Finally, Mr. Chair, in terms of risks to the outlook, alas, at least to me, they are skewed somewhat to the downside. And I, for one, am pleased that we managed in January to get the "balance of risk" language out of our statement. I think that may become helpful in the future.

Global growth is slowing, particularly in China and Europe. John Williams and I were in Basel last week, and I think it's fair to say that the mood among our colleagues in China, Japan, and Europe ranges from anxious, to concerned, to very concerned. Global policy uncertainty remains elevated. Financial conditions have fluctuated, of course, and that makes it difficult to extract signal from noise. In particular, the bond market has seemed to forget that it has a lot of Treasury supply to absorb in this year and future years, and at some point there may be a higher term premium required to do so.

Of course, there are upside risks to the outlook as well, but to me they seem to be concentrated more on the supply side of the economy than on the demand side. If this is so, then upside surprises to real growth could be paired with downside surprises to core inflation. This suggests to me that, in thinking about economic scenarios, we would be well served to resist the temptation to see the world in binary terms with only two possible future outcomes: a path with strong above-trend growth and rising inflation or a path with slowing growth and falling inflation. There is a third scenario, which, to me, is very plausible: roughly trend growth with stable inflation. And I'll discuss the implications of all this tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. We ended the 2018 year with the mood being bad but the data being good, and the opposite is true today. Moods are picking up, but the data have been soft, retail sales and employment being the best examples. With less monetary and fiscal stimulus at play, it's not surprising that the economy is slowing. The question is, are the data signaling more slowing than we expected? My answer is "yes," even discounting, to some extent, the readings on Q1 growth from retail sales and employment and not taking as much signal from that data as they would seem to want to give.

Relative to my December SEP submission, I've marked down real GDP growth notably for 2019. I now expect the economy to slow to trend this year—which was different than I had previously thought—and remain there for the next several years. With real GDP growth close to growth in potential, I expect the unemployment rate to hold steady at about 3¾ percent for the next couple of years. And then, of course, that would spill over into an expectation about inflation, I hope getting up to 2 percent but not rising much above that, or at all above that, in 2019 or 2020. I'm going to discuss downside risk to inflation at the end. Importantly, it's worth noting that I expect this outlook with a funds rate path of no change this year—which is quite a bit different than I had assumed in December.

As the economy slows to trend, it's a good time to reexamine what *g**—our trend growth—is. In San Francisco, we do this regularly, but we dug into it a lot this time by considering a suite of different models designed to capture trends in two components of potential growth: total hours growth—total hours in the economy—and growth in output per hour. If I start with total hours growth: Conditional on trends in labor force participation and incorporating some of the lift we've seen of late in 2018 and in hours worked per worker, the models project that total economy hours will increase at about ½ percent per year in the longer run over the next 5 to 10 years. This is quite consistent with forecasts produced by the Congressional Budget Office and private forecasters. Estimating trend productivity growth is harder. There's much more uncertainty. So we use a bottom-up approach using a sectoral methodology developed by John Fernald. This methodology tries to account for innovation, capital deepening, and labor quality, and also allows for shifts between high-productivity states and low-productivity states—a high-productivity state example being the late 1990s.

Projections of this model put trend productivity growth for the next 5 to 10 years at about 1.2 percent per year. That is faster than we've seen since 2010 and only a bit faster than in the past 15 years. It is a slower productivity growth regime than in the 1990s or even in the '50s and some part of the '60s, but it's, on average, consistent with what we've seen in the other periods. If you put these two projections together, ½ percent total hours' growth and 1.2 percent productivity growth, that gives you a *g** estimate of 1.7 percent per year. Of course, as many of you know—and I'm at the low end of the real GDP growth projections in the SEP—there's substantial uncertainty around this estimate. I thought it would be useful to go through where there are some risks.

One place there's risk is with respect to total hours' growth. It will be hard, as Governor Clarida just mentioned, to offset the effects of the demographic shift—the baby boomers retiring. But it is also true in work that I've done with Nicolas Petrosky-Nadeau, and, as Chair Powell mentioned in the *60 Minutes* interview, that labor force participation of prime-age workers in the United States is far below our industrialized nation partners or competitors. Nicolas and I show that policies to increase participation among this group would include family-friendly work policies, skills training, redevelopment, and even treatment for opioid addiction. If you just think of an example, because it's hard to quantify what each of those would do, but if you just said, "What if we had the participation rates of prime-age workers in Canada? How much would that add to our labor force growth?" It would be 0.3 of a percentage point. So that's a sizable move. It moves you from 1.7 percent growth to 2 percent, which in a slow-growth economy is nontrivial.

For productivity growth, it's, of course, always possible that we can have the next technological revolution, and in the West Coast we are all hoping for that. But in the absence of that, it's a point of fact that productivity growth can both surprise us on the upside but also surprise us on the downside. So we just did a simple calculation in what I would call the low-productivity growth states and said, "What's the standard deviation?" And it's about 0.35. So that means, given an estimate of 1.2 percent productivity growth, we could be north of 1.5 percent if we get a good draw, and we could be south of 1 percent if we get a bad draw. I think it's useful to keep watching the data and have those risks in mind as we move forward. Right now, I'm going to stick with 1.7 percent trend real GDP growth and, in that case, what we have is an economy in which we have a really good labor market, growth at its trend rate, and inflation that's relatively muted.

I want to finish by turning to this "inflation relatively muted." So my projections are already for just getting to 2 percent, but I think there are downside risks to that. One drag is going to come from, as I mentioned last time, prices in acyclical sectors—sectors that don't really respond to the strength of the economy. A prime example of this is health-care services price inflation, which is heavily influenced by legislation, such as cuts to the public health insurance programs—so Medicaid or Medicare. Now, although some of these cuts have recently expired, many are still in place, and they're likely to keep health-care price inflation at historically low levels.

A second downside risk, and one that I'm paying particular attention to, is inflation expectations. As many have mentioned around the table, market-based measures of inflation compensation are still lower than last summer, and that is a little worrisome. Now, the Board staff last time did look into this model to see what we're really getting. Is that term premium, or risk premium, or is it inflation expectations? The San Francisco Fed team did the same thing, looking at the New York Fed models, the Board's models, and the models we keep in San Francisco. They all agree that most of the developments are in risk and liquidity premiums, not inflation expectations. So that is some comfort. But I think it's important to also worry that, after seven years of not getting sustainably to 2 percent inflation, and survey-based expectations are drifting down a little bit; Vice Chair Williams had a nice table at the Monetary Policy Forum that showed that consistently running below 2 percent is a problem. It could eventually unanchor expectations, even if just a little bit. So it's important to think about this downward drift and remain vigilant on that front. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. Incoming data from the first quarter have caused me to lower my forecast of first-quarter real GDP growth significantly. And, in common with the Tealbook, I now expect the number to be closer to 1 percent growth for this quarter. It is noteworthy that, as of the end of January, the Tealbook forecast for the quarter was 2.3 percent. An important part of the overall slowdown is a slowdown in household spending. A critical question at this juncture is whether this weakness is likely to persist or whether the economy will return to growth, as forecast in the Tealbook, at a rate a percentage point slower than last year but still somewhat above the potential rate.

There are credible arguments for this being a temporary decline, rather than a trend. Both the volatility and the decline in stock markets here and abroad have largely been reversed. U.S. and Chinese equity prices have recovered smartly, with Chinese markets particularly strong in response to renewed confidence in a trade agreement and significant policy actions by the Chinese government to provide stimulus. Long-term Treasury yields have remained low. As a result, the improvement in stock prices and the lower costs on mortgage rates could spur stronger household spending over the rest of this year.

But the arguments for more persistent low growth also have some weight. Weakness might persist because some of the original sources of uncertainty remain elevated. My staff has done work on uncertainty, following the work of Baker, Bloom, and Davis, but using a somewhat broader set of words to capture worries and doubts about the sustainability of the current expansion. The work highlights the fact that this broader measure of uncertainty was unusually high at the end of last year, which may have more residual effects on consumer behavior. In terms of the situation in China, to date financial markets have recovered more significantly than the underlying economy, and at least some high-frequency indicators in Europe would suggest more persistence to the recent slowdown in their economic activity.

Still, the fundamentals for the U.S. economy remain fairly robust. Hence, the forecast I have submitted is more consistent with that of the Tealbook, which judges that the problems in the first quarter will not persist. Although the fundamental drivers of the U.S. expansion remain positive for the remainder of the year, I still have some concerns about the near term, and the February employment report was not reassuring. Furthermore, the ability of U.S. and foreign policymakers to respond if the economy does weaken is limited. The federal funds rate stands at 2.4 percent, and with both policy and long-term government bond rates in Europe and Japan near zero or negative, our ability to offset unexpected economic strength is much greater than our ability to offset unexpected economic weakness. One of the challenges of the low equilibrium interest rate is that it forces us to be more responsive to periods of global weakness, because the amount by which we can reduce rates is so limited.

Thus, a risk-management approach to the current situation, which is a pause in monetary policy actions, makes sense to me and is fully consistent with the "pivot" in our communication. The pivot has been at least partly responsible for the improvement in financial conditions. I would highlight, however, that my forecast expects somewhat more inflationary pressures than the Tealbook. Wages have continued to rise, and I view the increase in excess of the sum of inflation and productivity as being driven more by tight labor markets than significantly higher productivity. While business leaders I speak with have been concerned about financial markets and uncertainty, their biggest concern remains the tight labor markets. Wages and salaries have been rising faster in New England than the nation, and business contacts relate that to unusually tight labor markets in the region. If these trends continue, there may be a limit to how long monetary policy should pause, a topic that I will discuss tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. Regarding the forecast, I am in general agreement with the staff's near-term forecast of economic activity and have ratcheted down my near-term outlook as well. We already anticipated greater first-quarter weakness in January, so I didn't have to make quite as big an adjustment. Apparently, what our contacts have been telling us is now being ratified by the data.

The Third District's economy has taken a bit of a pause since we last met. Job growth has slowed, and it could be characterized as modest. There are a few pockets in which the labor market is, in fact, soft. The unemployment rate in the region has declined to 4 percent and is below its pre-recession rate, and respondents expect nominal wages to grow at a 3 percent rate over the course of the coming year.

The state-by-state benchmark revisions have added a bit of concern to my overall assessment of the labor market. The benchmark revisions have significantly lowered employment growth in the region and in 80 percent of the states nationally. Now, although the sum of state revisions do not add up to the national revision, it appears that, historically, when the state revisions are significantly negative and the negative news is pervasive and persistent, as they are now, the economy weakens. So the negative revisions this year as well as last may indicate that the labor market is not as strong as it appears.

Manufacturing in our region rebounded a bit in March with our manufacturing index, which will be released Thursday, bouncing back into nonrecessionary territory after turning negative in February for the first time since May 2016. Manufacturers, however, remain guardedly optimistic with hiring plans and planned capital expenditures remain at healthy levels. Nonmanufacturing activities also bounced back into solid expansionary territory. Along similar lines to manufacturers, respondents are optimistic, and the region's consumers have retained a good deal of optimism as well, with a marked increase in optimism appearing in the Third District's most recent index.

On the other hand, residential investment in the region is very weak, with permits flat to down over the past two years and house price pressures abating in line with the rest of the nation. Regarding inflation expectations, our quarterly survey of firms indicates that they expect home prices to rise 2.3 percent over the next 12 months and for overall consumer prices to rise 2.5 percent over the same period.

To summarize: The regional economy took a bit of a breather of the intermeeting period. The fundamentals remain reasonably healthy. Contacts are also expecting a bit of firming in inflation rates. However, the recent labor market revisions are a bit concerning.

Now turning to my own national outlook, I, like the staff, have revised down my estimates of real GDP growth and expect output to grow at 2.1 percent this year before gradually declining to my long-run projection of 1.9 percent in 2021. With respect to the unemployment rate, I see a bottoming out at 3.6 percent this year, then a gradually rise to 3.9 percent by the end of the forecast horizon, which is a rate substantially below my long-run value of 4.5 percent.

Regarding inflation, I anticipate a small and welcome overshoot of our 2 percent target this year and next, with inflation reaching 2.1 percent before returning to target. Thus, I anticipate trend-like real GDP growth with inflation near target, but I am somewhat more uncertain about the trajectory of the real economy than I was at this point last year. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. I still see growth at or above trend, with industrial production solid and sentiment rebounding. The January retail sales number reassured me that December was not a consumer turning point. I will say, the recent retail sales reports are hard to square with the strength I hear from our local contacts. The fundamentals supporting continued growth in consumer spending remain strong. Labor markets still appear healthy. Given the strength of the household employment report and the continuing drumbeat from our District about how hard it is to find workers, I'm interpreting the February establishment survey as an outlier. I am also encouraged by the recent behavior of productivity and compensation. Core inflation looks to be basically at target, and I'd note that the 12-month Dallas trimmed mean has been within 5 basis points of 2 percent since June. Our Fifth District manufacturing and services surveys bounced back nicely after a couple of weaker months, and contacts tell us that neither consumers nor businesses have scaled back.

Taking a step back from all of this, I see the past year as having had three stages. It began with a sense of euphoria following the tax cut and the omnibus bill, fueled also by deregulation and strong international consumer spending. This had the effect of boosting investment and nudging up prices. By midyear, the euphoria had faded, but the tone was still stable. Tariffs and international weakness increasingly grabbed headlines, and investment softened. Firms became less courageous in raising prices. At the end of the year, there came a sense of panic in equity markets, which spilled over into sentiment. The government shutdown didn't help, and the sentiment effect must account for some of the weakness in recent data: retail, auto sales, and potentially even employment.

But I do believe confidence has rebounded—not to the levels of a year ago, but more to the levels of the second half of the year. Equity markets are back. The uncertainties that concerned at least me at our last meeting are, frankly, way down. In particular, I'm hopeful the shutdown has chastened political leaders on brinkmanship. Trade deals look like they are on the way to being settled. A "hard" Brexit looks less likely. Sentiment indexes have rebounded. My business contacts confirm that the consumer is still active and that their firms are maintaining investment levels. Expectations are sky-high in our District, especially in Durham, Chapel Hill, and Charlottesville. [Laughter]

However, all that said, I do think some real scarring has occurred. The economy's upside now seems more limited, and, as a consequence, the appetite for aggressive investment, aggressive hiring, and courageous pricing is likely to be limited as well. In the past few weeks, I have been struck by the degree of concern—almost despair—that I hear about the next election and the implications for a stable environment for growth, and if this feeling persists, I worry this will also limit the economy's potential for growth.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. Our Dallas Fed surveys and contacts with companies suggest that economic growth in the 11th District is solid, albeit at a more subdued pace than in 2018. Our contacts continue to indicate they are facing challenges in finding people to hire. Two-thirds of our surveyed firms report difficulty in hiring workers. These firms expect continued wage pressure and are resorting to a range of other benefits, such as educational opportunities and career-path opportunities, as well as enhanced wages in order to attract workers. Texas continues to benefit from migration, though it adds burdens to the state. This is particularly helping workforce growth in cities like Dallas, Houston, and Austin and is helping offset, to some degree, the labor force shortages that we're facing.

I would note that, in the current session of the Texas legislature, which meets every other year, the major debate that's going on is about increasing funding for education and skills training. The governor and lieutenant governor have made this issue a top priority. Texas has lagged the nation in terms of math, science, and reading scores, and we've noted that the United States lags the rest of the world in math, science, and reading—and again, Texas lags the nation. This is particularly true of the fastest growing demographic groups in the state, blacks and Hispanics. On the bright side, increasingly, state and local leaders are connecting future GDP growth with making needed improvements in child literacy, improving secondary education, raising teacher's salaries, improving college readiness, and beefing up skills training. Contributing to and framing this debate has been an important priority for the Dallas Fed Districtwide, and Vice Chairman Clarida was able to observe some of our efforts firsthand in his recent trip to Dallas.

Regarding the U.S. economy, our Dallas Fed forecast of real GDP growth in the United States for 2019 is now a touch below 2 percent. As has been discussed, risks to this forecast include slower-than-expected global growth, potential deterioration in financial conditions—which certainly have improved since January 1—and a lack of resolution to trade tensions and uncertainties. On the positive side, though, we continue to note that household balance sheets are strong, and income growth should support solid consumption growth. Homebuilders we speak to are seeing some firming in their business, and, potentially, actions by the Fed have helped contribute to this. Lastly, we would expect the Dallas trimmed mean inflation rate to remain close to target in the near and medium term.

The last comment I'll touch on is the issue of growth in corporate debt. We're closely monitoring the amount, growth, and deterioration in credit quality of nonfinancial corporate debt in the United States. We recently published an essay on this topic and its implications for monetary policy and financial stability. In our work, I'd just highlight that we found most notable a dramatic rise in the level of BBB-rated corporate debt, which has tripled from year-end 2008 to year-end 2018, from approximately $800 billion to over $2.7 trillion. In addition, leverage loans doubled over the past 10 years from $0.6 trillion to $1.2 trillion, and high-yield debt issuance grew $700 billion to $1.1 billion. It is estimated that a substantial portion of this growth in nonfinancial corporate debt was used to fund share buybacks, dividends, and merger activities, and this trend has also been accompanied by more relaxed loan and bond covenants.

All in all, I don't see this as a systemic issue: Although borrowers in the United States are much more leveraged, or more leveraged, lenders do not appear to be dramatically more leveraged, according to our analysis. We do think, though, this is more indicative of a deterioration in credit quality in the United States, which means in a downturn, there's a risk for more rapid deterioration in financial conditions, which could in turn amplify a slowing in the U.S. economy. I would comment, though, that if we could just take a snapshot and freeze things here, I think these issues are manageable. But I think these issues are likely to get worse.

I have been an advocate of this pause, and I continue to be, but, realistically, with rates this low, we have to recognize that buybacks, M&A, and similar activities are highly accretive—"accretive" meaning they improve earnings per share. Shareholder activism is exacerbating this problem and encouraging this kind of activity. In many cases, companies are dealing with slower growth or margin erosion by decreasing their capital allocations to cap-ex and instead borrowing to increase their allocations to share buybacks and dividends and, in some cases, merger activities. This in the old days would have been referred to as a "harvesting and milking" strategy, and we see this more prevalently, I believe, in the United States.

On the lending side, banks have increasingly found ways to originate and facilitate this business without substantial holdings on their balance sheet. It's very much a fee business. Loans are increasingly held in pools backing collateralized loan obligations (CLOs), which are segmented into credit tranches and sold to investors. This structure actually was quite resilient in the past recession, although credit quality of these loans today is worse, but we're still optimistic that this should be a resilient structure. In addition, there appears to be an increasing amount of this lending emanating from business development companies and other direct lenders. This is often facilitated with warehouse lines of credit from commercial banks.

My only comment on this growth in corporate debt is, at a minimum, I think this is a topic and a vulnerability worthy of continued focused attention by regulatory agencies in the financial stability oversight council (FSOC). I'd recommend that our supervisory and regulatory teams should continue to think about whether there are supervisory actions that the Federal

Reserve could take that would help mute the growth in these lesser credit categories of corporate credit. And I certainly would recommend we continue to be cognizant about this growth in corporate debt as we think about changes to stress testing and leverage requirements for the big banks. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. Eighth District contacts are more optimistic than in January. Some businesses are doing quite well, but not in interest rate sensitive sectors. Banks have, generally speaking, been less optimistic than business contacts as a whole. Agriculture looks weak. Several reported that soybean exports, which are a primary export of the Eighth District, are substantially lower than in past years. We just saw a graph of that showing fallout from the ongoing trade war.

I see the national outlook as being clouded by weak first-quarter readings with real GDP tracking being quite low at this moment. As we just saw in the staff presentation, nonfarm payrolls in February were quite weak. Consumer expenditures were weaker than expected. Business investment was a question mark. Unemployment claims have been edging up, I would say trending up a little bit, and that has historically been a very good predictor softening labor market conditions, but we'll see.

Foreign GDP looks weak, as we just saw in the staff presentation. In my opinion, I wouldn't downplay the trade war on that dimension. I think the trade war is causing significant angst outside of the United States, much more than it is inside the United States. So I think that's affecting investment outside the United States and affecting real activity through that channel. I guess my main comment is that this weak data will take time to assess. My baseline case is that a lot of this is noise and will iron out in the second quarter. However, we don't know, and so what we should do now is just wait and see. I can't envision us really having good information on how this pans out until we get to the July timeframe. And there is no reason why we shouldn't wait and see. I think we're in good position, if that's what we do.

The jobs report in particular—only 20,000 jobs in February. Maybe it's noise, maybe not. I think a good question for this Committee is, "what would we do if we got further weak jobs reports in the next couple of months?" I think there would be two ways to interpret that. One would be that that was just a natural slowdown for an economy that is slowing down to its potential growth rate. We have been predicting slower growth of jobs for years, and if it finally materialized, why should we be surprised? But I think a more likely narrative is that it will be interpreted as an elevated recession risk and a slowdown that is going too quickly. So that's just a little food for thought about something that we might encounter—I would say, with low probability, but we might encounter it during the spring, and that would be very immediate for this Committee. Which of those two explanations would we want to lean toward?

Inflation continues to be quite muted. Whether you look at core PCE inflation or the Dallas Fed trimmed mean right at 2 percent, I don't see very much upward inflation pressure. The St. Louis Fed inflation pressures index is pointing lower, not higher. The Tealbook has core PCE inflation slightly below target in 2019. Feedback from the real economy to inflation continues to be very weak. I see no end in sight for that. Inflation expectations are somewhat lower over the past six months. As you know, I don't put a lot of weight on the decompositions of the TIPS compensation into the different categories. I think that those decompositions are heavily influenced by priors that go into the analysis at the beginning, which suggest that inflation expectations don't move very much, so everything that happens in the data must be noise. And I don't subscribe to those priors. Average inflation since 2012 is clearly below 2 percent. An observer that came here from Mars and looked at the data would be forgiven if they thought our inflation target was 1½ percent. I think that has the potential to continue to drag inflation expectations lower.

I agree with Governor Clarida that the yield curve remains an issue. I don't think it's an acute issue right at this moment. The spread between the 10-year Treasury rate and the 2-year Treasury rate has been fairly constant at a low level. I don't see this getting worse, but I don't see it getting better either. I wouldn't mind if we found ways to increase the yield curve spread there, but I don't see anything changing on that front in the near term. I do think we are susceptible to a yield curve inversion. If we got a very negative shock of some kind, probably the 10-year would deteriorate further, and possibly we'd get an inverted yield curve at that point.

On policy, which I will talk about tomorrow, the flat expected rate path is very sensible, in my view. But I also think it's not a moment for complacency. It's never a moment for complacency. In the monetary policy world, you have to be alert to incoming data that may change the picture. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. Reports from business contacts indicate that the pace of economic activity in the Fourth District has picked up in recent weeks, and sentiment has improved. The March reading of the Cleveland Fed staff's diffusion index, which measures the difference in the percentage of business contacts reporting better versus worse conditions, went to 21, erasing January's sharp decline. Contacts' expectations regarding near-term growth also improved markedly.

Some manufacturers did report slower order growth, but activity remains at relatively high levels, and some firms are being more cautious in managing their inventories and capital spending. Large regional banking contacts reported that, though commercial clients have voiced concerns about a slowdown in the global economy, most are sticking to plans to increase capital spending.

District labor market conditions remain strong. Payroll employment has continued to grow at a 1 percent pace, well above the Cleveland Bank staff's estimate of the District's longer-run trend growth rate. For more than a year, the District's unemployment rate has remained at 4½ percent, which is about ½ percentage point below our staff's estimate of its longer-run normal level. And it's near the lowest levels the region has seen since the early 2000s.

Across various sectors, all of our contacts have consistently told us that their biggest concern is the difficulty in finding workers, and this is beginning to affect the level of activity. Indeed, one-third of District contacts reported that tight labor market conditions have impeded keeping pace with recent increases in product demand. Some firms have turned down, or have become more selective in taking on, new business. Some firms have delayed projects or built in longer production times.

Although wage pressures continue, nonlabor cost pressures have eased since the middle of last year. Some manufacturers attributed lower input cost pressures to some retrenching in steel and aluminum prices after a large tariff-related run-up last year. Price pressures in the District remain elevated but are down somewhat compared with a year ago. In most cases, contacts noted that the price increases they have been able to secure have simply allowed them to maintain margins. Directors on the Cleveland board reported that they do have some pricing power, but margins continue to be squeezed. They also indicated that cost increases associated with commodity price changes have been easier to pass through to customers than those associated with higher wages.

For the national economy, the tightening in financial conditions in the fourth quarter last year has mostly been reversed, and business, consumer, and investor sentiment have improved since our last meeting. Incoming data have been mixed but indicate growth has softened substantially in the first quarter. Consumer spending was weak in December, and early readings suggested it only partially recovered in January. Housing, manufacturing activity, and business investment have also slowed, as has global demand. Corporate earnings have been revised down, which suggests weaker investment spending than last year. The question is whether growth will continue to move down or whether we will see some rebound in the second quarter. In my view, the most likely outcome is that growth will pick up, although I intend to stay very attuned to incoming information on the U.S. and global economies, both the data and the reports from regional contacts. And I will be ready to adjust my forecast as necessary.

I have marked down my 2019 growth forecast to reflect first-quarter softness, but my projection over the remaining forecast horizon is broadly similar to my December SEP forecast. My modal projection is that growth will be at or slightly above my trend growth rate of 2 percent over the remainder of the forecast horizon. This is slower than last year's 3 percent pace, reflecting the waning effects of fiscal stimulus, past reductions in monetary accommodation, and softer global growth.

Despite a weak reading on payroll job growth in February, the labor market is strong. Some of the weakness in February may have been weather related, and monthly job gains over the past three months have averaged a strong 186,000. The unemployment rate is low, and the job openings rate is at its highest level since the series started in 2000. I expect job growth to moderate over the forecast horizon but to be strong enough to absorb those entering the labor force. So the unemployment rate will remain under 4 percent, well below its longer-run level, which I put at 4½ percent.

Now, if the economic expansion is to be sustained, it is unlikely job growth can stay as strong as last year's pace of over 220,000 jobs per month. Conditional on demographic factors, including the aging of the population already under way, most estimates of trend job growth fall in a range of 75,000 to 120,000 per month. Of course, there is uncertainty around those estimates. It's possible that the job gains, unemployment rates, and participation rates of the past couple of years mean those trend estimates are too pessimistic. But our assessments of demographic forces would have to be far off to produce a trend estimate in the range of 180,000 to 200,000 per month. So we should not be too disappointed to see some moderation in job growth after last year's levels.

The continued strength in labor markets has led to a more pronounced pickup in wage growth. However, these gains have been in line with productivity growth, and so have not added to inflationary pressures. It is encouraging that productivity growth in the nonfarm business sector strengthened last year. But I think it's too soon to tell whether the pickup will be sustained and support further acceleration in wages.

In my view, the inflation picture remains roughly unchanged from the time of our last meeting. We saw some weaker readings on inflation in January and February, but this was as anticipated and largely reflected the drop in oil prices in the fourth quarter of last year. Oil prices have been moving back up since the start of the year, so these weaker readings are likely to be transitory.

Although core CPI inflation slipped a bit last month, the move was small relative to normal month-to-month variation, and median CPI inflation edged up in February. The

Cleveland Fed nowcast, which incorporates the available CPI releases, shows headline PCE inflation declining to 1.4 percent in February but core PCE inflation holding steady at 1.9 percent. My expectation is that after the transitory softness in near-term readings, PCE inflation will be near 2 percent over the rest of the forecast horizon.

Now, a crucial factor in this forecast is inflation expectations remaining well anchored. We have had mixed readings of late that bear watching. The five-year, five-year-forward estimate from the Cleveland Fed's model of inflation expectations, which combines market and survey data, softened this month, but the Blue Chip consensus remained steady. The household survey measures of inflation expectations from the University of Michigan and New York Fed softened in February, but I think it's too early to read too much into these declines. The changes are not outsized relative to usual monthly variation, and the Michigan survey's preliminary estimate rebounded in March. A softening in inflation expectations, if sustained, is a downside risk to the inflation forecast. On the other hand, continually rising wage pressures pose some upside risk.

With respect to growth, there is some risk that the weak first-quarter GDP report will damage consumer and business confidence that the expansion is sustainable and cause them to become more cautious with their spending. The weak GDP report may be a catalyst for the concern that several bankers expressed to me that we are "talking ourselves into a recession" despite solid fundamentals.

Other risks to the outlook are largely the ones we have been discussing over past meetings. The economies in Europe and China are slowing, and forecasts have been revised down once again. The ultimate outcome of Brexit is increasingly unclear, which could increase financial market volatility and feed back on our economy. On the other hand, the postponement of additional tariffs that were set to be imposed on imports from China has reduced some uncertainty and has given firms more time to reorient their supply chain.

I want to thank the staff for the excellent memos on leveraged lending and business-sector lending in the QS report. I hope we will continue to follow these trends. I was glad to learn that the staff plans to conduct a review of LISCC firms' indirect exposures to leveraged lending and weaker underwriting standards. Our estimates of potential losses are based on historical losses, but this may be an underestimate, given that a large share of these loans is now going to less creditworthy borrowers. As they say, past performance may not be indicative of future results.

I continue to see some risk coming from elevated levels of leveraged loans going to less creditworthy borrowers. Commercial real estate valuations remain "lofty." There was a lost opportunity to increase the countercyclical capital buffer. While the stress tests are correctly designed to evaluate whether banks' capital levels are sufficient to allow them to continue to lend during a severe stress event, whether the banks would actually choose to do so is an open question. Financial vulnerabilities could amplify an economic slowdown.

On the upside, a more favorable resolution of these situations means that the outlook could turn out to be better than expected, and the strength of the labor market, easing of financial conditions, and improvement in sentiment also provide some upside risk to the forecast.

So, based on my assessment of the economy and risk, my modal outlook includes a few more increases in the funds rate, but I acknowledge there is considerable uncertainty around that path, both because economic shocks may mean the economy may evolve differently than expected, but also because it's not entirely clear what policy rate path is consistent with the outcomes in my modal forecast. This is another way of saying that there is uncertainty associated with estimates of both *r** and *u**. The funds rate is now at the bottom of the range of estimates of its longer-run neutral rate, and the economy is in a good spot with respect to our dual-mandate goals. So this gives us the opportunity to continue to gather information on the economy and assess our outlook and the risk before making any further adjustment in the policy rate. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. While our economy continues to add jobs at a solid pace, demand appears to have softened against a backdrop of greater downside risks.

First, with regard to the modal outlook: Softer spending in the United States and the slowdown abroad, together with some possible overhang on sentiment from earlier financial volatility, are likely weighing on the modal outlook and could be a harbinger of slowing in the underlying momentum of demand. Real GDP growth slowed at the end of last year, with fourth-quarter growth estimated at only about 2¼ percent at an annual rate, compared with 3½ percent in the previous quarter. A variety of estimates have real GDP increasing closer to a 1 percent annual rate in the current quarter.

I've been watching consumer spending carefully, starting with a sharp dropoff in retail sales in the last month of the fourth quarter. There have been some offsetting developments since that time. The January retail sales data showed a partial rebound, and consumer sentiment has bounced back from its earlier decline that now appears related to the shutdown. Even so, auto sales are also down so far this year, and the preliminary February retail sales data that Stacey mentioned suggest another decline. So there are reasons to be vigilant.

There are also indications of softening in business fixed investment in comparison to the strong gains registered last year. The latest data on capital goods orders suggests some softening. Surveys of business sentiment have generally moved lower over the past six months, reversing much of the run-up seen previously. And I wouldn't discount that the sharp repricing of risk late last year has left an imprint on current sentiment.

Beyond our shores, the foreign outlook has weakened considerably and is a notable crosscurrent to the modal outlook. Foreign growth projections have been revised down repeatedly, and the slowdown now appears to be more persistent than initially assumed, with growth likely running below potential for much of last year.

In China, economic activity slowed noticeably in the second half of last year. Policymakers have been trying to achieve a balance between, on the one hand, restraining very elevated levels of debt, which can be seen in the sharp declines in credit, while, on the other, maintaining strong aggregate growth. The protracted trade conflict with the United States has complicated that challenge.

Concerns about China's slowdown are reverberating globally, as was true in 2015 and '16, although the incidence today is quite different. The weakness in Germany now appears to be more persistent and pronounced than had been anticipated late last year, and the euro area is seeing slowing in other large member economies. I am very concerned about these signs of slowing in Europe, since policy space appears to be constrained for political and institutional reasons. Global weakness in trade and manufacturing has also weighed on Japan.

In contrast to the signs of softening in real activity, financial conditions have loosened further since our last meeting, unwinding the tightening that occurred late last year. Notably, the 10-year Treasury yield moved down 15 basis points. Risky yields have fallen even more with spreads on high-yield corporate bonds moving down a further 30 basis points, and the S&P 500 index is up almost 7 percent over the intermeeting period. In an encouraging sign, five-year, five-year-forward inflation compensation is up by about 15 basis points. The change in our anticipated policy rate path has likely contributed to these developments.

Although risks associated with financial market volatility have eased, other risks around the modal outlook appear tilted to the downside. The accumulation of policy-related risks in particular remains prominent. In addition to creating hardship for many families, the unexpectedly long shutdown has increased attention on the possibility for disruptions in upcoming fiscal negotiations. In particular, the debt ceiling will need to be raised in the fall, and the Bipartisan Budget Act is scheduled to expire in 2020. If agreement isn't reached, spending levels could fall back to the sequester caps, and this would amount to a significant headwind compared with the 1/3 percentage point boost to U.S. real GDP growth estimated for this year and last. Recent developments suggest that prospects for an immediate "no deal" Brexit have receded. Nonetheless, the situation remains highly uncertain. And a hard landing in China would obviously have spillovers through financial and trade channels.

Finally, the slope of the yield curve, as was noted earlier, continues to send worrisome signals. As reported in the Tealbook, the recession probability, based on the spread between the 10-year Treasury rate and 3-month T-bill rate, was at nearly 60 percent. While that probability may well be overstated because it's estimated on historical data that do not take into account today's unusually low term premiums, nonetheless, I am watching these and other indicators carefully, as it does appear that recession risks currently are higher than average.

Let me wrap up with a very brief discussion of our dual-mandate goals. The recent labor market data have been quite mixed. Payroll employment increased by only 20,000 in February. Obviously, those numbers can be quite volatile from month to month. Poor weather may have accounted for some of last month's weakness, and we don't see the same weakness in the household survey. Still, the independent ADP measure of payroll gains was also soft in February. And, broadly speaking, although initial claims for unemployment insurance remain near the low levels that have prevailed in the past couple of years, they, too, have trended up a bit recently.

The February readings on inflation were also on the soft side, consistent with core PCE prices rising about 1.8 percent over the 12 months through February. We'll need to be vigilant to ensure inflation achieves 2 percent on a sustained basis. Underlying trend inflation continues to be running slightly below the Committee's 2 percent objective. This is indicated by many statistical filtering models and corroborated by some survey measures.

The fact that estimates of underlying trend inflation remain on the soft side reinforces the evidence that the Phillips curve is very flat, and the available evidence suggests that inflation expectations remain well anchored to the upside. And, if anything, the contours of today's "new normal" suggest we should be equally attentive to a risk of erosion in inflation expectations to the downside.

With the goal now being to preserve the progress we've made toward maximum employment and target inflation, this does suggest that taking out some insurance against the possibility that some of these risks may materialize should be a factor in appropriate monetary policy. Further bolstering that case is the proximity of interest rates to their effective lower bounds. All of these considerations, I believe, reinforce the case for watchful waiting—a subject that I will return to tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. Productivity is very high today. It is 2:25, and I'm speaker number 10. [Laughter]

The reports given by my directors and other contacts were similar to the past round. Despite the still-present downside risks and softer data, they see overall domestic demand remaining solid and continued labor market strength. Nevertheless, even with higher wage growth, overall inflationary pressures appear to have ticked down. Not surprisingly, several of my contacts with an international presence reported weaker activity abroad. However, most reports about the U.S. economy were still positive. The CEO of a manufacturing conglomerate indicated that his cap-ex–related sales continue to be relatively strong. Similarly, two heavy equipment manufacturers reported no material change in domestic business conditions since January. In contrast, a large steelmaker in my District has become less optimistic about 2019. The CEO now says that his benchmark expectation is for steel consumption to be flat this year.

The reports on consumer spending were mixed. One of our directors runs a major clothing firm that produces work and outdoor clothing lines. She reported a strong start to the year. She also noted that while mall-based retailers continue to struggle, many of her contacts from other retail segments expect robust sales in 2019. Our director from the financial services industry reported that after a very strong 2018, growth in credit card volume slowed, but it stabilized at still-solid levels. However, retail auto sales have been softer in recent months, and the major manufacturers are closely monitoring developments to see if production cuts might be warranted.

Despite the weak February employment report, the reports on labor markets were generally positive. For instance, the head of a major temporary help services firm said that nearly all of their domestic clients are reporting solid labor demand. Pay rates have been steadily increasing, with lower-paying jobs in particular seeing faster wage growth. This is a continuing storyline, as the benefits from tight labor markets are spreading to broader groups of workers.

This CEO reported another interesting development. Apparently, in normal times, a big part of success in the temp help business is convincing client firms that they need to raise pay. He says it is usually like pulling teeth because clients are seeking to lower costs, not to raise them. Lately, they are calling him to ask whether higher wages are needed to actually attract the workers that they need.

Even with rising wages, a number of contacts reported an expectation of easing pricing pressures. Most have already priced in past cost increases due to tariffs and other input cost pressures. With commodity prices easing and tariffs not expected to rise further, these contacts expect a softer pricing environment in the second half of the year.

Turning to the national outlook, we continue to face large uncertainties and a challenging forecast environment. Like the Tealbook, we expect real growth to recover after the current quarter, though without any makeup for the first-quarter miss. As a result, our GDP forecast for this year is now at 1.8 percent. This is ½ percentage point lower than our projection in the December SEPs and a touch below our estimate of potential output growth. In 2020 and ’21, growth is projected to remain modestly below potential, little changed from our December path. We now see the unemployment rate holding steady at 3.8 percent this year and next, before starting to edge up in 2021. In December, we thought unemployment would fall to around 3½ percent in 2019 and ’20. This reduced degree of resource pressure is a downside factor in my inflation outlook.

In addition, I continue to be concerned that inflation expectations are too low relative to our objective. Household survey measures have not moved up despite the stronger inflation data since last March. The recent increase in TIPS breakevens largely appears to reflect higher oil prices. In any event, they remain low relative to previous periods when inflation was more in line with our 2 percent objective. That said, I have not changed my inflation projection since December. My SEP still has core PCE inflation at 2 percent this year before it gradually edges up to 2.2 percent in 2021. But to achieve this outcome and to get our growth forecast, I think we need a more accommodative monetary policy than I submitted for my December SEP. I'll talk more about my new policy assumptions tomorrow. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. We're going to take a little coffee break now. And we're basically a little ahead of schedule. Famous last words. [Laughter]

VICE CHAIR WILLIAMS. Don't forget, I haven't gone. [Laughter]

CHAIR POWELL. Why don't we come back at 10 minutes of. We'll do that. Ten minutes by that clock.

[Coffee break]

CHAIR POWELL. Okay. We continue with Governor Quarles.

MR. QUARLES. Thank you. Thank you, Mr. Chairman. As everyone has noted, some of the recent data have been disappointing. And, accordingly, even I have marked down my forecast for the first half of 2019, but I haven't gone quite as far as the staff. Some of the recent weakness seems a bit mysterious and, as a consequence, I am discounting it a bit. For example, as has been noted, the December fall in retail sales, even if confirmed by the revision, was out of step with some other indicators. For example, very shortly after that number came out, I was meeting with the CEO of a major credit card company about some regulatory matter or another, and he volunteered that their data, which covered 50 percent of all retail transactions in the United States, showed no slowdown at all. He was completely unable to account for the December number. I wonder if something odd might be going on with that data, especially in light of the government shutdown. Again, even though we've had revisions confirming it and that not much of the December decline was made up in January, but I am downweighting those observations a bit until more data become available.

As President Mester, among others, has noted, the weak payroll data in February likely reflected the weather to a certain extent. Also, looking back over the data, one-time drop-offs of a similar magnitude to the one we saw in February don't appear to be that rare. There were similar-sized hiring pauses in 2016 and 2017 without much effect. And February's weak number is even less worrying, given that, unlike other big declines in the past, it came after the exceptionally strong January number. And, finally, the payroll report seems a bit at odds with the labor force survey, which was strong, with unemployment ticking down and labor force participation ticking up.

Outside the first half, my outlook is largely unchanged. I have growth picking up later in the year and then gradually easing to a longer-run rate that remains considerably stronger than the staff's forecast and most of the SEP numbers as well. Relative to the staff outlook, my relative optimism owes to two factors: investment and productivity growth. On investment, the staff forecast for equipment and intangibles expenditure has a relatively sharp deceleration from 7½ percent last year to only 2.7 percent this year and then lower still in the years after that. In contrast, I expect investment—although this is a volatile number—to remain over the course of time relatively robust, supported by the tax bill, profit growth, and a generally favorable business environment.

Perhaps part of the difference between the staff investment outlook and my own is the divergence in our projected path for interest rates. Despite having one of the most robust policy rate paths in the SEP, I still don't have rates rising anywhere near as high as the staff, so I see less of a drag from interest rates on investment, more substantial capital deepening, and faster potential growth.

Productivity is another point of difference that I have with the staff forecast. I am very encouraged by the step-up in labor productivity growth to almost 2 percent last year. Now, the staff has chosen not to take much signal from last year's higher growth. That might be the right decision, but surely there is some upside risk around this outlook. And I think there are many reasons to believe that faster productivity growth could be more persistent. For one, it could be that tight labor markets have played a role in boosting productivity and that this trend could continue.

On inflation, as I have pointed out before, I view the current core rate of 1.9 percent as being effectively on target. Given the volatility and idiosyncrasies of the data, I am not particularly troubled by being a tenth or two away from our 2 percent. I have also been encouraged by the continued climb in nominal wage growth. Average hourly earnings increased 3.4 percent over the 12 months ending in February, just the latest post-crisis high as wages continue their steady climb up. As always, I find the data on inflation expectations difficult to interpret. Market-based measures have moved back up since January, but they still remain below where they were before their plunge late last year.

A further puzzle about these measures that I find striking and somewhat confusing is how correlated supposedly far-dated inflation expectations seem to be with spot oil prices. The fall in expectations last year coincided with a sharp fall in oil prices, just as the more recent recovery matched a bounce-back in oil prices, which is curious. And—transparency being my shield and my halberd—I am SEP participant number 4. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. Like many of you around the table, many of our internal discussions this round were about what to make of the recent weakness in the economic data. The perspectives offered by Sixth District contacts and directors has me holding close to my previous forecast. Sentiment remained relatively upbeat this cycle. Business leaders generally expect 2019 to be a solid year for growth, albeit slower than the swift pace we saw last year. The upshift to a more optimistic view than in December is clearly connected to a dissipation in perceptions of downside risks associated with financial market volatility and disruptive trade policies.

Many of my contacts offered up the judgment that the Committee's messaging had also removed some uncertainty related to the path of interest rates. As one of my directors bluntly put it, "I can deal with uncertainty around higher tariffs or higher interest rates, not both." [Laughter] Consistent with the notion that uncertainty has abated somewhat, the uncertainty index from our Survey of Business Uncertainty, or SBU, fell moderately in February. Work done by my staff suggests that the SBU index statistically follows movements in the VIX but with a significant lag. Our interpretation is that firms in the survey are, for the most part, not overly influenced by transitory shocks to the market.

Similarly, our conversations indicate that businesses are taking the recent weak spending data with a grain of salt. Like many here, I did not get a sense from my contacts that the trajectory of consumer spending has softened materially. In fact, like President Evans, I heard specifically from my directors in the banking industry that credit and debit card spending remained solid thus far this year. And a director connected to a large global transportation company noted that residential package deliveries remained strong, at least through February.

As an aside, there was an interesting comment from a director of a regional charity organization. Following the Netflix release of *Tidying Up with Marie Kondo* [laughter]—you guys watch this, I know you do—this organization noted an unusual double-digit increase in donations in January, a month in which donations typically fall off. Apparently, the show is inspiring households to declutter. While he expected to be overwhelmed with this newfound inventory, this contact noted an accompanying sharp increase in sales growth, particularly for low-income individuals. His sense was that these folks were trading down from discount big-box shopping out of a need to stretch their budgets. I think this is a good reminder that households experience the economy from vastly different positions. Strain at the low end of the income and wealth spectrum may be growing.

The other area of notable weakness in the macrodata stream was, of course, the February jobs report. As with the incoming sales figures, sentiment from my contacts is not consistent with a collapse in employment growth. Most expected the pace of hiring to continue on a solid rate. Despite continuing indications that labor market conditions are tight, there has been little change in firms' collective appetite for raising wages. Reported annual wage increases, on average, remained around 3 to 3½ percent. This is consistent with the flattening trajectory we have seen in our Wage Growth Tracker.

It does appear that firms have stepped up their nonwage efforts. Across the board, businesses continue to fine-tune their suite of tools used to attract and retain workers. This includes increased investments in training, enhanced benefits, renewed focus on culture, technological solutions to deal with the lack of worker availability, and so on. When prompted at our Atlanta board meeting, directors expressed the view that the labor market tightness they are experiencing is a new normal driven by behavioral, demographic, and structural changes in the workforce. And I am paraphrasing, but they do not seem to view labor market tightness as being driven excessively by hot demand conditions that will ultimately dissipate as the economy slows.

This cycle, we put a particular emphasis on engaging with our contacts around margin compression. Sentiment regarding margins continues to be mixed, though the majority of contacts are reporting little concern about compression. Among those firms experiencing or expecting pressure on their margins, responses still indicate a reluctance to raise prices. Some even indicated they would rather accept lower profits and/or delay cap-ex and hiring decisions. Upcoming results from the System's national Small Business Credit Survey dovetail with the anecdotal reports. As a preview, less than half of all small businesses—the modal firm in the survey had fewer than five employees and annual revenue of $1 million or less—raised their price over the past about 12 months, and this is despite the fact that more than 70 percent of the sample experienced input cost increases.

As I mentioned at the outset, I am largely holding to my previous growth narrative—solid, above-trend growth and firming inflation, until we accumulate further evidence that the economy has moved off its modestly above-trend trajectory. I see the risk to the outlook as balanced. While there are a handful of easily identifiable downside risks at present, against the backdrop of last year's stimulative fiscal measures and tax reform, and the possible resolution of key global uncertainties, we could just as easily see a repeat of last year's strong household spending and solid investment performance. I am feeling quite patient, but more on that tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. The outlook for the 10th District economy remains positive overall, but signs of moderating growth are prevalent. Construction activity started to slow in late 2018, and both apartment and office completions are projected to decline. Even in Denver, the fastest-growing metro area in our District, construction activity is expected to moderate over the next year. Our latest surveys of District manufacturers and service providers also pointed to softer readings. Business contacts noted that new orders, shipments, and exports softened in recent months, but they continue to report labor shortages for both skilled and entry-level positions, with 2 to 4 percent wage growth expected this year.

Energy activity is holding steady with oil prices near breakeven levels but below the price needed to substantially increase drilling. Looking ahead, our contacts expect prices to remain in the $55 to $60 range this year, with few prospects for investment in new structures in the near term, and some signs that new drilling activity is slowing.

Finally, the farm sector remains stuck with low commodity prices and persistently high input cost. And with serious flooding in parts of the region, it is literally stuck in the mud as the spring planting season approaches. Even so, financial stress among agricultural borrowers has been relatively muted, given the combination of stable farm real estate values as support for bank operating lines and some level of cash flow support from government payments associated with trade disruptions.

For the national outlook, my March SEP points to growth slowing to its trend rate over the forecast horizon and the unemployment rate declining somewhat further, then stabilizing with subdued inflation. I see risks as tilted to the downside. These risks, combined with the latent effects of last year's rate increases, have led me to flatten my policy rate path in the interest of risk management. My outlook for slower but above-trend growth this year reflects momentum in consumer spending. In particular, total labor compensation and overall income growth suggest that household income is growing at a solid pace and that the gains from the current economic expansion are being broadly distributed across households.

Recent census data shows that lower-income households are experiencing very strong growth in real income. The years 2015 to 2017 mark the first 3-year period in the past 50 years in which the bottom two quintiles of the income distribution have both experienced mean household real income growth at an annual rate greater than 3 percent.

My outlook for the labor market also remains positive, although I expect that we could see a moderation in employment growth this year. The modest gains reflected in the February jobs report leave employers adding 186,000 new jobs, on average, over the past three months, which is in line with my own expectations. Evidence of slowing labor market momentum over the past six months shows up in the Kansas City Fed's Labor Market Conditions Indicators. Across 24 labor market variables used to construct this measure, the key drivers pointing to the deceleration in momentum are declines in the ISM manufacturing employment index, the Michigan consumer survey of expected job availability, announced job cuts based on a survey by Challenger, Gray & Christmas, the NFIB survey of the percent of firms planning increases in employment, and aggregate weekly earnings. Also worth noting, the February jobs report made no contribution to the decline in momentum over the past six months. This current lower reading for momentum does suggest that while the employment rate could decline further, the pace of job gains is likely to slow this year.

While consumption is on track to be the principal driver of growth, the outlook for business investment is more mixed. Orders for core capital goods, which I see as a leading indicator of business equipment investment, have declined in recent months, suggesting slower growth for equipment investment this year. On the other hand, our District business contacts suggest they will continue to invest in equipment that can mitigate the effects of ongoing labor shortages and also to accommodate high sales volumes, even as capital costs have increased modestly. Our contacts also noted that competition for market share in wireless networks related to the deployment of 5G networks will support large equipment expenditures for the next couple of years and that these plans are already well in train.

I continue to see a benign outlook for inflation. While we remain without PCE inflation data from January and February, recent readings from the consumer price index suggest that inflationary pressures remain moderate. In particular, the prices of goods made a positive contribution to overall inflation during the middle of 2018, and the latest CPI report confirms that goods price inflation is moderating to typical levels, mitigating overall price pressure. I expect dollar appreciation and energy price declines that occurred last year to feed through into core prices, which will likely exert downward inflationary pressure throughout much of the year.

Finally, I see the balance of risk to my outlook for the U.S. economy as having tilted to the downside and emanating primarily from slowing global growth in the euro area, the United Kingdom, Japan, and China as well as global economic policy uncertainty more generally. This downside risk could also expose vulnerabilities associated with a highly leveraged corporate sector, as President Kaplan highlighted earlier. During the intermeeting period, market expectations for corporate earnings were revised down, reflecting a weaker global outlook.

In addition to U.S. exporters, nearly one-fourth of U.S. employment is at multinational corporations whose earnings rely in part on revenues flowing from foreign sales. Slowing demand abroad creates a substantial headwind for these corporations, many of which already carry high levels of debt. A further decline in corporate earnings could be a source of stress to debt service capacity and lead to spillovers in investment, hiring, and overall economic growth.

My federal funds rate SEP submission, giving the path of appropriate monetary policy, has flattened. With limited monetary and fiscal policy space to respond to potential shocks, the current low inflation environment offers the opportunity to monitor these risks while the effect of our past policy tightening continues to move through the economy. And I will talk more about that tomorrow. Thank you.

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you. Mr. Chairman. In my view, the Committee's decision in January to emphasize that we would take a patient approach appears to have been the appropriate course of action. In support of this view, we have seen evidence of several pieces of economic data since then showing signs of weaker spending.

Even though financial markets have been volatile, the performance of the U.S. economy ended last year on a high note. The Board staff now estimate that the pace of real GDP growth was a solid 2.3 percent in the fourth quarter, with the unemployment rate at 3.8 percent. This figure is remarkably low even when compared with other periods when our economy was considered to be particularly healthy.

The economic data that have come in since the January meeting seem to suggest that domestic spending growth has slowed down markedly this quarter. Most notably, the latest retail sales data, which were delayed because of the government shutdown, dropped sharply in December and only slightly reversed that decline in January. Other data show that businesses cut back on new orders for capital goods toward the end of 2018. So it now appears business investment growth is also cooling this quarter.

More generally, it now seems that aggregate demand is headed for a weaker growth trajectory at the start of this year, with the Board staff currently forecasting that real GDP growth will likely register a rate below 2 percent and possibly as low as around 1 percent in the first quarter. Some of the recent softness in spending is likely a result of the government shutdown, which undoubtedly weighed heavily on the minds and checkbooks of many consumers and business owners. The sharp decline in consumer confidence that we observed in January tells a consistent story.

And while my expectation is still that the effects of this shutdown will be fairly well contained within the first quarter, broad uncertainty about government policies seems to me to be a continued source of concern. In particular, discussions about the debt ceiling will soon be on the horizon.

The housing sector has remained a weak spot in the domestic economy. Residential investment declined throughout last year, and the incoming data and indicators have remained weak in recent months, yielding another lower forecast for this quarter. After peaking last fall, mortgage rates have dropped to their lowest levels in more than a year, which should positively affect housing demand. But because there’s a time lag response of homebuyers to lower mortgage rates, it will likely be some time before the housing sector expands meaningfully again.

Other factors are weighing on the outlook for economic growth this year, including continued uncertainties about global economic conditions and trade, particularly—as many others have noted—uncertainty in the EU, the slowdown in China, and ongoing unresolved trade negotiations. Even so, I see reasons for optimism about the overall direction in which the economy is headed. For one, financial market conditions have improved in recent weeks, and they’ve now reversed much of the tightening we observed toward the end of 2018.

Equity prices have recovered a good amount from their December lows, and borrowing rates for both households and businesses have eased noticeably. In all, I think conditions appear broadly supportive of spending, although markets remain somewhat more volatile than usual.

In addition, the labor market continues to perform well. To be sure, the small increase in the jobs numbers for February was disappointing, but the Board staff who study these numbers closely see evidence that some of the weakness in February was weather related. And I'm also comforted by the fact that while the average rate of job creation in January and February was slower than last year's average of 223,000 a month, it was still a solid growth number. And, as I noted earlier, the unemployment rate continues to be very low—well below what the staff notes is the natural rate of unemployment.

Other labor market indicators that analysts often point to still seem to be generally positive: labor force participation has picked up, layoffs are low, and measures of job openings and help-wanted ads are near their highest levels on record. That said, I am worried that the recovery in unemployment in rural areas appears to be lagging behind other parts of the country. This is not surprising, as most trends tend to reach rural areas with a delay, but it's still concerning to me. And I will continue to monitor levels of access to Social Security and disability benefits and other factors in these regions.

In my view, the uneven economic performance across geographic areas should be followed carefully. The challenging conditions in the agriculture sector, as both Presidents Bullard and George mentioned, are another ongoing concern in rural areas of the country. After the shutdown ended, the USDA released its updated forecast of farm income. For 2019, they expect a small increase over 2018, but one that is below the average of the past four years and well below the peak in 2013.

Ag-sector bankruptcies and nonperforming loans have remained well below levels observed during the 1980s, but the ongoing upward drift in these measures continues to weigh negatively on the outlook, particularly in the Midwest and the Plains regions and areas more concentrated with dairy producers. In addition, as President George mentioned, the recent flooding affecting farms and livestock producers in the Midwest is another big concern.

Other areas, such as California, are faring relatively well, given their production of more high-value crops like almonds, pistachios, grapes, and strawberries, which require more intensive labor to produce. In many ag regions, liquidity risk is ongoing as farm debt continues to rise, with carryover debt increasing year on year, although it is still low by historical standards.

Regarding national conditions, the news on inflation has also been generally positive. PCE price inflation was close to our 2 percent target over the 12-month period ending in December, and recent readings on inflation expectations have remained stable. Wage growth also looks to be gradually getting stronger. Taking all of this into consideration, I believe that developments on the price-stability side of our mandate continue to suggest that we can take time to monitor the effect of the Committee's earlier actions without the expectation of further immediate or pending actions.

In conclusion, I continue to see several factors that pose risks to the outlook for economic growth, particularly foreign economic growth and trade policies. But I continue to expect that the domestic economy will transition smoothly from the strong real GDP growth in 2018 to a more moderate pace this year. Thank you.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. In the intermeeting period, the Ninth District saw a nice boost with the birth of my daughter [laughter], Ulysses Sabine Kashkari, who arrived on February 4, 2019, weighing in at seven pounds, four ounces. Mom and baby are doing great. I would note that my daughter chose to arrive so as to share a birthday with the Chairman, and I think that means she's off to a very good start. [Laughter]

Outside the Kashkari household, modest growth continues in the Ninth District. Most sectors are doing well, though consumer spending has been mixed of late, and agriculture, as others have noted, remains weak. Unemployment rates in the District are holding steady at around 3 percent, and wage and price growth remains moderate.

Regarding the national economy, the economy appears to have slowed a little bit around the turn of the year. Much of the slowdown is attributable to consumption, but consumer confidence remains high. Like the Tealbook, I expect spending and output to bounce back. Still, there is somewhat of an increase in downside risk in the past few months.

As we look at the labor markets and the very weak February payrolls report, my base case is that it's probably going to turn out to be a blip. I don't want to overreact to it, but it's something I'm obviously paying close attention to. Average hourly earnings continue to rise slowly, but labor productivity has also picked up. So wage growth is not yet signaling an increase of price pressure ahead. And I also welcome the staff's revision to their assessment of trend labor force participation. I hope we can continue to see that trend continue both with the staff and with the economy.

Regarding inflation, 12-month core PCE inflation is still running slightly below 2 percent. Survey measures of inflation expectations have slipped a bit. Michigan long-term inflation expectations remain low. The New York Fed survey also fell. On the other hand, the risk-neutral probabilities based on inflation derivatives show that inflation risks at the five-year horizon are now roughly balanced after being tilted to the downside in recent months.

Regarding financial markets, I also am paying attention to long-term Treasury yields, which have come down. Ten-year Treasury rates are now around 2.6 percent, possibly signaling a weaker outlook for real GDP growth, and, as others noted, the yield curve remains very flat, and I am watching that closely. Other downside risks remain, such as economic growth around the world, especially Europe and China, as we heard in the briefing earlier, and Brexit remains highly unpredictable.

So, in summary, I continue to see modest growth coming ahead with somewhat more of a tilt to downside risks, and those risks seem to have increased somewhat. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chairman. My assessment of recent economic developments is quite similar to that in the Tealbook. After the sharp deterioration we saw in the fourth quarter, financial conditions have rebounded, supported by our communications emphasizing patience and data dependence. Credit spreads have narrowed, equity indexes are up, and long-term interest rates have come down. In contrast, the indicators of economic growth have moderated, with consumption and investment losing momentum.

To align with the disappointing tone of the economic news here and abroad, I have once again revised down my 2019 growth forecast and now expect growth this year to come in at 1.9 percent, a bit above my 1.8 percent estimate for potential. I'm SEP respondent number 8. With growth expected to run around trend this year and next, I see the unemployment rate staying close to its current level of around 3¾ percent.

The softness in recent readings of inflation and inflation expectations has caused me to lower my forecast of core inflation this year to 1.9 percent, as in the Tealbook. I now see inflation reaching, on a sustained basis, our 2 percent target for next year. With the economy very near our dual-mandate goals, growth close to trend, and the funds rate right at my estimate of neutral, I penciled in no rate increases for this year.

Of course, there are risks associated with this otherwise quite favorable forecast, with an intensification of the global growth slowdown high on the list. In particular, my staff has delved into the risks posed by a sharp slowdown in China. Like the recent Board staff presentation on this topic, they find that alternative indicators of China's economy point to somewhat weaker growth of late than the official real GDP growth rates. But, at least so far, this appears to be a manageable bump on the road rather than the feared hard landing. While we cannot rule out a hard landing–type scenario, I get some comfort in the knowledge that Chinese policymakers appear to have ample policy space and the willingness to use it to steady their economy.

The same is not true for Europe. As Governor Clarida pointed out, we are seeing pretty significant weakening in the economic outlook. Especially regarding monetary policy, they don't have very much policy space. In this context, the possibility of a further deterioration in the outlook for Europe is especially worrisome.

Regarding the outlook for inflation, recent data prove how hard it is to get inflation back to our 2 percent goal despite an otherwise very strong economy. This persistent undershoot in inflation, despite unemployment below 4 percent, is often attributed to a flattening of the Phillips curve. But what may otherwise appear to be a breakdown in the Phillips curve likely reflects a number of supply and other factors that have been affecting inflation, and these interfere with our ability to clearly measure the effects of labor market slack on inflation.

So think about what the Phillips curve is trying to tell us. It's trying to say it's where the state of the economy is relative to full employment and its effect on inflation. Of course, there are a lot of other things, as President Daly just mentioned, that do affect inflation. And to the extent that those are moving around a lot, that makes it harder to see this relationship.

One solution to this problem is to focus on categories of prices that are less prone to measurement error in some of these supply-side and other factors. This approach follows in the tradition of using core inflation that excludes food and energy components that are primarily driven by idiosyncratic factors rather than the amount of slack in the economy. One such measure has been proposed by Jim Stock and Mark Watson. They call this "cyclically sensitive inflation," or CSI. Similar ideas have been studied and developed by economists at the New York and San Francisco Feds. Using CSI to measure inflation, there is no evidence of a flattening of the short-run Phillips curve. But then that leads to questions of why inflation is so low. If it is not a flattening of the Phillips curve that explains it, then what does? One explanation is that it's the intercept of the Phillips curve that may be significantly lower than in the past.

Now, the intercept of the Phillips curve reflects two influences on inflation, neither of which we can easily measure. One is the amount of slack or the natural rate of unemployment or some idea of potential output, and then the other is inflation expectations.

So there are two possible explanations based on this for why inflation is low. One possible explanation is the one assumed by the Board staff. They argue that labor markets are, indeed, very tight. Unemployment is well below its natural rate, but inflation expectations are anchored below our long-run target. And, as they have shown in a number of presentations, that explanation actually fits the data reasonably well.

The second possibility is that inflation expectations are anchored roughly at our target, but labor markets are also roughly in balance. Again, this is kind of arithmetic here. You can explain the low inflation because you think that either the natural rate of unemployment is really low or that inflation expectations are anchored too low. Either of these is plausible. As Governor Quarles and others mentioned, we never have absolute truth over these various measures of inflation expectations or other things.

At one level, this sounds like not a very satisfactory discussion, because it sounds like we don't really know what's happening. For example, if you look at a wide range of estimates coming out of recent research by economists around the Fed, you can come to the view that the natural rate of unemployment is somewhere between 4 and 4½ percent, and that seems like a pretty large gap. But it's actually one that is not particularly important for our policy decisions. Let me talk a little bit about that. I have two hours, right? [Laughter]

CHAIR POWELL. Yes, you're on a roll.

VICE CHAIR WILLIAMS. Let's just assume that the truth is that u^* is close to 4.5, like the Board staff assumes and I have assumed in the past, but that inflation expectations are anchored below target. In that case, the policy prescription is going to be to keep unemployment well below u^* in order to boost inflation as inflation is fighting upstream against these low inflation expectations. That is my interpretation of how the Tealbook forecast holds together. So if you really think that u^* is 4½ percent in the long run, but the inflation expectations are anchored too low, we still need to run a hot economy to get inflation consistently at our target.

On the other hand, some of this research that argues that u^* is really 4 percent and inflation expectations are essentially at target. Well, that gives you the obvious answer. Given that we're right where we want to be, we just need to keep unemployment around 4 percent, and that will keep inflation at 2 percent.

So, in either case, regardless of which theory you believe, you come to the conclusion that we want unemployment to be roughly around 4 percent—or a little bit lower or a little bit higher, but roughly around 4 percent—over the next couple of years to achieve our dual-mandate goals. So I'm going to reinterpret u^* for this to say: What's the unemployment rate that we think we need to be at for the next several years to achieve our dual-mandate goals of maximum employment and price stability?

No matter how we cut the data, I come to a number that's roughly around 4 percent. I've actually written down 4.1 percent, which is the estimate that comes out of some recent research by four economists either currently at or previously at the New York Fed, so that's what I've put in as my u^*.

I do think this brings up an issue about how we think about and describe what full employment means in the SEP and, more generally, in our communications. I want to bring this up also because of Stacey's comment about rethinking the policy rule in the Tealbook. And it's the way you describe—I know because I did peek at the memo we're about to hear about—this idea of an asymmetric policy rule. I think we should go back to maybe asking why we act like there's an asymmetry around u^*. It's probably more of the story I just told: That some people think that 4½ percent is the right number for the very long run unemployment rate. But that's not really the right number to think about in terms of our dual-mandate goals over the medium term. I just think that's a conversation that we should have, or the subcommittee on communications could include it in their framework discussions. Thank you.

CHAIR POWELL. Great. Thank you. Thanks, everyone. So, like most of you, I see accumulating evidence of further weakening in economic activity over the past few months.

Also, like most of you, I see good reason to believe that real GDP growth will stabilize at a healthy pace, perhaps even above its trend rate.

After a consistent sequence of growth markdowns over the past six months, however, we do need to remain alert to the possibility of a more significant slowdown. To "unpack" that a little bit: Although we so far have only limited hard data for 2019, what we do have suggests a significant further downgrade in growth for the first quarter from our expectations last fall and even since January.

The staff slashed their estimate of Q1 growth from comfortably above trend in January to just 0.9 percent today. There's a good case that the Q1 slowing here at home will prove transitory, because underlying fundamentals remain strong, including solid job growth, low unemployment, rising incomes and household wealth, and favorable levels of consumer and business sentiment. The weak payroll reading for February gives pause but, on balance, seems anomalous with broad kinds of strength in the household survey and very high reported job growth in January.

If a bounceback is coming, it seems unlikely to be aided by the foreign sector, as growth abroad has continued to weaken. Readings on purchasing manager index (PMIs), industrial production, and trade signal continued softness in Asia and especially in Europe. The ECB has reversed course in the face of disappointing data after moving to begin a tightening cycle, and, as others noted, if Europe goes into recession, the ECB will have little policy space with which to react.

The staff now expects U.S. GDP growth to be 1.8 percent this year, down 0.4 percentage points since January and down ¾ percentage points since September. I am slightly more optimistic, and many around the table seem to also have a base case with growth near or modestly above potential. If something close to this forecast comes to pass, the labor market should remain strong. This is a favorable real-side forecast, especially for this point in the expansion.

The base case on the inflation side presents, for me, greater challenges from the standpoint of our objectives. Conditions did not push core inflation up to 2 percent on a consistent basis last year even with growth well above trend, unemployment well below estimates of the natural rate, and our policy rate still below most estimates of neutral.

And in the latest CPI and PPI readings, we are seeing some signs of slippage in the inflation data despite a temporary boost from tariffs. Breakeven inflation rates implied by TIPS are still low, and readings on inflation expectations from the Michigan survey have remained near the low end of their historical range. With growth considerably slower this year than last in the base case, we may not convincingly achieve our inflation goal in 2019, and at that point we would be more than 10 years into an expansion with inflation below 2 percent. All of this leaves me concerned about our credibility on inflation and also a bit more sympathetic to the notion that inflation expectations may have edged below 2 percent.

Anticipating tomorrow's discussion, I'll say a few words about the policy outlook. At last year's FOMC meeting, the Tealbook forecast for 2018 was for growth of 2.9 percent, unemployment to drop to 3.5 percent by year-end, and core inflation of 1.9 percent and rising slowly. An unprecedented full-employment fiscal stimulus package was coming through the pipeline totaling $1.5 trillion between tax cuts and spending increases, and the target range for the federal funds rate was 1¼ to 1½ percent.

In this context, it seemed eminently sensible, at least to me, to move the federal funds rate up closer to our estimates of neutral, and we did so over the course of the year. The situation today remains quite favorable from a dual-mandate perspective: core inflation near 2 percent and the labor market expected to stay strong and healthy.

But from a policy perspective, the picture looks fundamentally different. Our interest rate is now in the broad range of neutral. Real GDP growth has dropped over the course of the past six months and is now projected to run near, or perhaps a bit above, the trend rate. Inflation appears likely to continue running below 2 percent—modestly so—and, while we can't dismiss the risk of an upside breakout in inflation, the risk seems remote.

In this context, I think our focus should be mainly on conducting policy so that this long expansion will be sustained. Our patient posture is designed to support that result, and I believe it has been vindicated by the data, contributing to the improvement in financial conditions since the beginning of the year and likely helping trim the risk of further deterioration in the outlook. With the outlook favorable and inflation muted, policy is in the right place for the conditions we see. Until the data show clear signs of breaking in one direction or the other, I think we would be wise to remain on hold with no presumption about the direction of our next policy move.

It has always made sense to me that we would learn more about the level of the neutral rate as rates moved up closer to neutrality. The experience of the past year tentatively suggests to me that we are now close to that rate. The slowdown in real GDP growth since September may be a coincidence, but it's also consistent with approaching neutrality, and the performance of inflation also points to policy being a bit tighter than I thought or a lower neutral rate. So I've lowered my estimate of neutral to 2½ percent. I've also lowered my estimate of the natural rate of unemployment to 4.0 percent, again, with both last year's experience and the outlook in mind. And I have an explanation similar to the one John just went through, only shorter. [Laughter]

VICE CHAIR WILLIAMS. You know, I have feelings. [Laughter]

CHAIR POWELL. I also thought that—John said it very well—the discussion of the asymmetric Taylor rule, or loss function, is a very interesting one to have, and there are different ways to parse it. So I think that's a very important discussion to have.

To wrap up, I will just mention that I have asked the subcommittee on communications to explore ways in which we can more effectively communicate the role of the interest rate projections in the SEP—the dot plot. I do see the dots, properly understood, as playing a useful role in our public communications. But I also see a real, and recurring, communications issue.

At a time when we are all but eliminating forward-guidance language in the statement and also carefully telegraphing actual policy changes, the dots can become the only news after a meeting. Markets can read the dots as akin to a consensus plan, which has proven problematic at various inflection points. Convincing the markets to place less weight on the dots is like asking a bear to dance: You may be speaking to that rare dancing bear; more likely, you will find yourself on the menu. [Laughter]

And, particularly for those of us who do feel strongly about the dots, this is a good time to think of ways to alleviate this problem. So, with that, let's go right ahead with Thomas's monetary policy briefing and then some Q&A.

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

With alternative B, the Committee would continue to point to global economic and financial developments and muted inflation pressures as the factors counseling a patient approach while it determines what future adjustments to the federal funds rate would be most consistent with the attainment of its goals.

In the staff's baseline outlook, the recent weakness in both domestic and foreign growth does not persist. Rather, starting in the second quarter, growth rates are expected to return to, or rise slightly above, their longer-run trend values. By contrast, as Stacey reported, neither headline nor core inflation is expected to reach 2 percent this year. If this outlook comes to pass, a question that the Committee will

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

confront is whether and how to modify its communications about the future path of the federal funds rate in a context in which downside risks to economic activity appear to have diminished, but inflation continues to run below 2 percent. I will return to this question after discussing some analysis we recently presented in the Monetary Policy Strategies section of the Tealbook.

As you know, for some time we have presented optimal policy simulations using a standard symmetric loss function as well as an asymmetric loss function, as highlighted by Vice Chair Williams. The upper-left panel may remind you either of March Madness or of the fact that I presented it a year ago. The panel illustrates the key difference between these two loss functions. The horizontal axis measures the gap between the unemployment rate and its natural rate, with negative values indicating that the unemployment rate is below its natural rate. The vertical axis measures the gap between inflation and its target value. For every point on a solid circle, the sum of the squared inflation gap and squared unemployment gap is the same. Hence, as discussed in the panel to the right, a policymaker who has a symmetric loss function would find combinations of the unemployment gap and the inflation gap on a given circle equivalent. Outcomes on circles closer to the center are preferred to those on wider circles. The dashed lines show outcomes that are equivalent from the perspective of an asymmetric loss function. The two loss functions value outcomes the same when the unemployment gap is positive, but, when the unemployment gap is negative, under the asymmetric loss function, only deviations from the inflation objective matter. Starting from the economy's current position, illustrated by the hollow dot in the lower-left quadrant, if you valued outcomes according to the symmetric loss function, you would aim to bring the unemployment rate back to its natural rate, accepting the cost of continued further undershooting of inflation, as in the solid blue arrow. By contrast, the asymmetric loss function would call for returning inflation to 2 percent, even if doing so would push the unemployment rate further below the natural rate, as in the dashed arrow.

The solid black lines in the middle three panels present the paths for the federal funds rate, the unemployment gap, and inflation under an economic outlook consistent with the March SEP medians. The dashed black lines present paths for these variables that are optimal from the perspective of the asymmetric loss function, taking as given the SEP median baseline and the FRB/US model's view of monetary policy transmission. The red dotted lines present paths that are optimal from the standpoint of the symmetric loss function. Policy that is optimal under the symmetric loss function calls for a substantially higher federal funds rate path than the median path for appropriate policy because it is attempting to return the unemployment rate more rapidly to its natural rate. By contrast, the federal funds rate path that is optimal according to the asymmetric loss function almost coincides with the median path from the SEP. The prescriptions from the asymmetric Taylor rule using your current SEP submissions, presented by Marcel earlier, are a close cousin of optimal policy under an asymmetric loss function. In sum, at this time your projections for appropriate policy seem to be reasonably closely approximated by asymmetric preferences of this kind.

Why might policymakers choose policies that are desirable from the perspective of an asymmetric loss function? As discussed in the lower-left panel, an obvious possibility is that they fundamentally agree with the notion that, as long as no adverse inflation developments arise, there are no intrinsic costs associated with a tight labor market, and there might even be benefits, such as those examined in the recent research by President Daly, Bill Wascher, and former Board colleagues. Because any adverse side effects of high resource utilization may materialize only gradually, such an evaluation must take an appropriately long view. The conventional argument against such asymmetric policy behavior is that it would result in an upward bias to inflation outcomes, resulting in an above-target rate of inflation, on average, without any improvement in the average level of employment.

What was a bug in a world in which the effective lower bound was an afterthought, however, may become a feature in an environment, like that seen both here and abroad in recent years, in which the effective lower bound figures prominently. In particular, the upward bias imparted to inflation that results from setting the policy rate in a way that is desirable from the asymmetric loss function's perspective could largely or entirely offset the downward bias that might result from policy being frequently constrained by the effective lower bound. In fact, even a policymaker whose preferences are better described by the symmetric loss function might, in a low-r^* world, find it attractive to choose policy according to an asymmetric loss function.

This brings me back to my initial question of how you might wish to communicate about the future path of the federal funds rate, should downside risks to economic activity diminish but inflation continue to run a little below 2 percent. In current circumstances, a policymaker with asymmetric preferences will aim to move inflation up to 2 percent more rapidly because this policymaker will not lean against the currently high level of resource utilization, in contrast to a policymaker with symmetric preferences. As noted in the lower-right panel, you may therefore wish to communicate, over time, that, as long as inflation and inflation expectations do not rise notably above 2 percent and no signs of other imbalances emerge, a strengthening in the outlook or the dissipation of downside risks by themselves would not alter your patient posture. Such communications would be particularly attractive if you were concerned that inflation continuing to run below your objective might risk eroding longer-run inflation expectations.

An important caveat to keep in mind, of course, is that, in all of these simulations, the public is assumed to understand the policymakers' greater tolerance for letting inflation run above 2 percent for a while. In particular, the public understands both the upside bias imparted to inflation from asymmetric behavior and the downside bias from the proximity to the lower bound. Clear communications about policymakers' intentions would seem to be an important prerequisite for successfully managing such temporary inflation overshoots. A lack of clarity, by contrast, might confuse the public into thinking that policymakers' inflation goal has moved up.

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

CHAIR POWELL. Questions for Thomas? President Rosengren.

MR. ROSENGREN. Very interesting presentation. My own staff has been noting that we seem to actually be voting more like an asymmetric loss function. The challenge is, in January, we didn't adopt a framework that has an asymmetric loss function.

So the first question is, what do you think is the reputational risk of adopting a framework in January that doesn't have an asymmetric loss function and then having the staff modeling us as an asymmetric loss function three months later? It strikes me that I would prefer Vice Chair Williams's explanation to an asymmetric loss function. That seems like a fundamental change in the framework, and we should probably change our framework first and then follow it, if we do have a framework that we want to change. It seems like we're putting the cart a little bit before the horse, but I'd be interested in your reaction to that.

And then I have a second question: How do you think financial stability fits into your discussion? One of the reasons for thinking about a symmetric loss function is having periods of low equilibrium interest rates that continue for long periods of time. President Kaplan talked a little bit about more leverage in the economy and some of the risks that go with that. So one of the reasons for being worried about pushing labor markets very tight is not just that—there are some good things to a tight labor market—but, if you think financial stability risks go up during that environment, that would be one of the reasons you'd model it that way. There's no discussion of financial stability here, and there's no mention of financial stability in our framework. Do you think that is a significant problem that needs to be integrated if we decided to go down this path? Both of these topics are obviously much bigger than a five-minute discussion, but I'll throw that out anyway.

MR. LAUBACH. I will take a first crack. In fact, I hope that maybe some of these topics will resurface later in the year when you have discussions around the policy framework more generally.

First of all, I want to be clear. The attempt here was not to read minds and reverse engineer. I tried to be very careful in simply saying, "Look. These two paths look similar." I did not try to impute that, therefore, you must hold asymmetric preferences. It simply happens that right now they lead to similar paths.

In terms of the framework, what I would say is that, the way that I read the consensus statement, you did not in January adopt a framework that I would read as consistent with a form of makeup strategy. I see a bit of difference between asymmetric policy preferences and a makeup strategy. In particular, what I think the consensus statement arguably is a little broader about is in describing how the Committee reconciles tradeoffs, because, if you read the balanced-approach paragraph, that's awfully wide. And I don't see right now a sharp contrast between what is written there and the behavior described by this asymmetric loss function, because it has all of these words in it—I don't have them right now in front of me—about taking into consideration the different time periods that it may take to eliminate deviations from the goals. So I think there's a fair amount of flexibility there. Nonetheless, again, this was not intended to say "Oh, now I've discovered what you truly think." This was not it.

In terms of financial stability, I did mention in passing that you need to evaluate the consequences of such behavior over a sufficiently long time period, right? I mean, for example, you might say, "Well, right now this looks very appealing," but, ultimately, you'll get a whole lot more inflation overshoot than you might have bargained for. So you need to take an appropriately long horizon here. And the same, I think, is true for financial stability consequences, that you want to think about whether there is ultimately a price to pay.

In fact, one more general point is that I think the asymmetric preferences add yet another element to the discussion that makes, in technical terms, certainty equivalence break down, because you now have a model that has a lower-bound constraint. That is one nonlinearity. Financial stability considerations may induce yet another nonlinearity, so risk-management considerations will loom very large in this framework, right?

And it cuts both ways. On the one hand, you may want to guard against the erosion of inflation expectations, because you're spending too much time at the lower bound with low inflation outcomes. On the other hand, you may have a different mechanism in the background here that says "But at the same time, there's also a probability of future financial stability risks going up." So, I think, in a richer framework, one would have to model probably all of these things. And it's right that, in the FRB/US model for example, we don't have these financial stability risks building in these simulations.

MR. ROSENGREN. Thank you.

CHAIR POWELL. Governor Brainard.

MS. BRAINARD. Yes. I also thought this was very interesting. I had, I think, some similar questions. In particular, on financial stability, if I look at the past few cycles, I really have a hard time telling an inflation story. It looks like the Committee was responding to financial imbalances, and we don't tend to incorporate that into our monetary policy framework, but I think we probably need to work a little bit harder at that.

The second thing that I'd just be interested in, as Stacey takes onboard a different monetary policy function into the Tealbook, I can't help but wonder, doesn't that in turn affect the projection that you have for activity? You've been very, very strong in terms of your projections for activity with a big miss on the federal funds rate path, and I'd be quite interested in how we're going to reconcile these two things, because you do have more underlying momentum than perhaps is in some of the SEP forecasts with a much lower rate path.

And then the third thing I wonder is, it looks to me like we're inflation targeting in three of the four quadrants. Haven't we abandoned the dual mandate in three of the four quadrants? Isn't that essentially what this is equivalent to? And how should we think about that?

MR. LAUBACH. Under the asymmetric loss function?

MS. BRAINARD. Yes.

MR. LAUBACH. I think in the two left quadrants you are just trying to get inflation to target, because you are indifferent about any of the unemployment rate levels there, right? That's literally what this loss function says. You could think of a more generalized version that's perhaps not quite as radical where these lines are not literally going flat all the way to the left, but at some point they bend down so that you have something a little bit more like a range for the natural unemployment rate or a range for a normal unemployment rate where you are simply uncertain, and you say, "I'm indifferent between any of these, but surely when the unemployment rate hits 2 percent, this is not a good outcome." So then you again start pushing up the unemployment rate. But, yes, you would have a certain range where basically you're saying, "All these unemployment rates are fine. I'm not going to respond to those. I'm only going to respond to inflation."

MS. TEVLIN. May I address the second one?

MS. BRAINARD. Yes.

MS. TEVLIN. So you're right. The fact that we have greater tailwinds and momentum in our forecast has been sort of masked by our very high federal funds rate over the past year or so or longer. When we lower the federal funds rate, if we left everything else the same, we would have a much stronger forecast.

So we are going to take the opportunity to look at a number of aspects of our forecast that we would like to investigate, but I would guess we will end up with a stronger forecast. At the moment, we have a forecast that's lower than the median SEP number. So we would be moving closer to you, maybe above—probably above—but we're going to look at the whole pattern of the forecast and reevaluate a number of things.

CHAIR POWELL. Great. Thanks. President Daly.

MS. DALY. I think I have a question in here, but mostly I am just trying to understand, because there are many things on the table. And, like President Rosengren and Vice Chair Williams, I am trying to understand. It looks like there is a technology—an asymmetric loss function—that we know how to use, that we can apply, and that helps us with our models and figuring it out.

But I know when I think of it, I'm not adopting asymmetric loss function mentality. I am using what Vice Chair Williams described. I think about "What's the rate of unemployment, the u^*, we need to achieve in order to get to the inflation part of our dual mandate?"

The more traditional way to describe that would be a time-varying u^*, but that's very hard to get. And so I just think in these discussions, even in the SEP when I'm asked to write down a longer-run rate of unemployment, it generates this idea that you want something with a demographic adjustment, and we're talking about something quite different.

So I think there's a lot of things on the table about: How do we ask the question in the SEP? What's the object that we're trying to find? How do we describe it to the public? And then, what technology do we have? Because we use standard models that are already constructed to produce estimates we can understand.

So I felt it was a little muddied, because we're talking about three different goals of what we're trying to accomplish all in the same conversation, and I don't think we have to adopt an asymmetric loss function in order to achieve what we're trying to do. You could just write down 4 percent for u^* and say, "That's it"—or you could pin it on inflation expectations. Either way, you would accomplish exactly the same thing. So the question I have is: Do you agree with that? Or do you want me to adopt asymmetric loss functions?

MR. LAUBACH. Let me simply say, number one, I sympathize very much with the sentiment. I, too, have been scratching my head increasingly about what the longer-run unemployment rate actually is that you are reporting in the SEP. And I think that's—well, I don't have assignments to give to the subcommittee on communications. [Laughter.]

But I think the gist of this was not that I wanted to advocate that you should think seriously about subscribing to an asymmetric loss function. I think it is one way of thinking about a world in which the lower bound is frequently binding, in which you may be concerned about a downward bias to inflation that then becomes ingrained through inflation expectations via that mechanism. In that world, you can, in times like now, afford the luxury to not press too hard against what appears to be tight resource utilization, and that makes it appear as if you are acting as if you had asymmetric preferences.

Again, I am looking in part to your paper as saying that there are benefits of tolerating for a while such a strong labor market. And in this world in which you are concerned about a downward bias to inflation and inflation expectations, actually, that may be just the right thing to do. In this sense, of course, there is a certain similarity to other makeup-type strategies—namely, it says that it's basically okay if you are tolerating some inflation overshoot in a period like this, because in other times you will get the undershoot because you are at the lower bound.

MS. DALY. May I add one more thing to this? There is another way to think about our paper, though. The way we did this exercise is that we used a natural rate of unemployment that is computed in the way we typically think of it—a demographically adjusted one. So there is a gap, and we use that gap to describe a hot economy.

But if we adopted this strategy that Vice Chair Williams just described—you just lower your u^* in these periods to achieve your inflation goals—you would essentially accomplish exactly the same things as described in our paper. You would let the expansion persist because you wouldn't get too agitated that you had a big unemployment gap, and you would accomplish the goals of getting the marginalized workers back in and working.

So I don't think we actually would disrupt the findings of our paper if we took the strategy just described, because it would essentially amount to the same thing. It's arithmetic in the end. It's just about how you label it.

CHAIR POWELL. Governor Clarida.

MR. CLARIDA. A very stimulating presentation. I'm not as quick a study as I used to be, so this may sound obvious. The first point, though, is that the bullet points are very suggestive that this might result in upward inflation bias, and this might offset downward bias.

But as I see the way you sketched it out on page 1 with the objective function, it doesn't solve the time-consistency problem, in the sense that, every period, you'd like to get back to your inflation target. And so unless you have a commitment technology that is bequeathed to you, having this loss function doesn't solve the Kydland-Prescott problem of a makeup strategy.

MR. LAUBACH. That's right. It's under the assumption of a no-commitment technology that it produces, over time, an upward inflation bias, if nothing else happened. So if you had the asymmetric loss function but there was no lower bound constraint, then this loss function would lead you exactly into the standard Kydland-Prescott problem of having above-target average inflation. That's the equilibrium in which you end up. It is precisely balancing this upward inflation bias against a downward inflation bias from the zero lower bound that basically gets you this.

MR. CLARIDA. Okay.

CHAIR POWELL. Other comments? President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I like this very much, and we've talked about it before. I think this is a good description of what is actually happening at the Committee, so I think we should explore this further.

I do think it's consistent with our long-run statement. The long-run statement says that we want the inflation part of the objective to be symmetric, but it's noncommittal on the other part of the objective. So I think it would be interpretable as being consistent with our long-run policy statement.

By the way, you could have asymmetry on both dimensions, and you could say, "I don't care, as long as inflation is below 2 percent and unemployment is below the natural rate." Then you'd have a complete range of "I don't care" if you wanted to do it that way. And I think, historically, in macroeconomics, some behavior has been like that. As long as inflation is low and unemployment is low, we don't have to do anything, or we don't care, but there is a range of inaction there. This only has the range of inaction on the one dimension—the unemployment dimension, when unemployment is particularly low.

One of the things I have been frustrated with in the discussion here at the table over the past couple of years is that we have been arguably almost hitting our inflation target, but unemployment went so low, then the staff was calling for big rises in interest rates, because we had to get unemployment up 80 basis points to some conception of an uncertain natural rate. And I wasn't really sure that that was a really good description of what we needed to be doing in this economy. I think this is very much capturing the spirit of what we need to do here, and it is worthy of further exploration.

CHAIR POWELL. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. Let me just add, I also think this is very positive, so thank you very much. I am very supportive.

I think I've had two major quibbles with the Tealbook. One was the policy rate path, which you're addressing here. The second was the assessment of slack. For me, slack is not just in the unemployment rate. There is also labor force participation (LFP) slack—an LFP gap, so to speak. I'm just curious, would an LFP gap be another way of explaining this? Could one have a symmetric view of our dual mandate but just think that there is more slack in the labor market that's not captured in u relative to u^*?

MR. LAUBACH. So, narrowly, I should say the reason why I am using the unemployment gap is simply because that's the one thing that we can construct from your SEPs.

MR. KASHKARI. Yes.

MR. LAUBACH. But we cannot construct from your SEPs an output gap. Otherwise, an output gap that would include many more margins, including potentially a participation gap, would be preferable.

MR. KASHKARI. It's just that what President Daly said resonated with me. When I go through this with my staff, I don't think to myself—I mean, maybe I'm implicitly doing this—I don't think to myself, "I don't care if the labor market gets overly tight." I just think there is more slack in the labor market, and it's not captured in the unemployment rate. But if this is an approximation getting us there, then I'm comfortable with it. I just wanted to put it out there that there are other ways of getting to the same result other than just literally adopting an asymmetric loss function.

CHAIR POWELL. President Kaplan.

MR. KAPLAN. I found this a great discussion. I am particularly interested in this idea that Vice Chairman Williams mentioned about the lower Phillips curve intercept and understanding that better. I gather what you're saying is, there will be a point at which inflation might finally take off, it just may be at a lower intercept.

The comment I would make—which, I guess, I'm foreshadowing for future meetings—is that there is the tradeoff between inflation and unemployment, and a third criterion, which I think is what President Rosengren mentioned: financial stability. I think, increasingly, you will hear me and maybe others discuss this. Because my fear is, as we're fighting this battle, we're increasingly creating what I'd call a vice that is gripping us—which is debt building up, building up, building up, building up. And it will continue to build up as we fight between unemployment and inflation to the point where I think that debt buildup itself will become enough of an excess that we become—I don't know what the word is—slowdown intolerant, or much more slowdown intolerant. I think President George talked about it.

I think this is going to have to increasingly be part of what will have to be a three-party debate, not a two-party debate. I don't have the answers, but I'm starting increasingly to worry about it, and the best way I can describe it is this vice is growing. Again, it's not a problem of the lenders being leveraged; it's unlike '08. It's a problem with the borrowers being leveraged, and I'm increasingly concerned about this excess imbalance building. And I want to make sure, in this debate, we don't lose sight of that.

CHAIR POWELL. Two-hander.

MR. BULLARD. Can I just weigh in on this?

CHAIR POWELL. Sure.

MR. BULLARD. I think President Kaplan and others bring up a great point. I mean, financial stability is an important concern. There is no question about it. My view would be, that's not in these models. So when we're looking at the models, they are talking about real economy versus inflation, and we want to think about that part clearly. We're going to have to come in with judgmental adjustment—there is no question—on the financial stability part.

And I'm very sympathetic to the idea that the most recent recessions have not been because of excessive inflation. They have been because of some kind of asset bubble, and we've had to think about that and weigh whether we want to lean against that. I don't think it's very hopeful to think we're going to get that into our models in a coherent way, so it's going to have to be a separate judgment. And I agree that we can't lose sight of it. I totally agree.

MR. KAPLAN. I'm not commenting as much on the model as much as getting it as a criterion into the discussion.

MR. BULLARD. Definitely.

CHAIR POWELL. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I think this has been a fascinating discussion. I agree with many of the comments that Vice Chairman Williams made. I think there's a lot that's artful in where we are with unemployment being low and trying to discern whether it's the natural rate at the same time that inflation expectations are low.

So I think this gets us to think about different types of policies than what we would get from just Taylor rules and things like that. I really applaud the staff looking at different policy rules. I think that's going to be quite a challenge, because it's already been pointed out that you've got momentum for the economy that's premised on a certain policy rate path. Now, you're going to put a different policy rate path there, and so, logically, there are going to be implications there, but I think that's great.

I didn't really feel the need to say that, but as we talk more about financial stability, I wanted to weigh in that this is a very difficult subject for the FOMC to talk about, at least that's my opinion. I am more sympathetic to thinking about financial stability issues when we're at the zero lower bound and we're pursuing very aggressive monetary policies, because there's something else really clogging things up and we have to do more.

We're now at a funds rate target range of 2¼ to 2½ percent. We think that we might be at the natural rate. So it's not obvious that we're goosing financial conditions with our monetary policies. There could be other reasons for why that is, but if we thought that when the funds rate was close to zero and it might be too much to think of supervisory policies to do more in order to control that—well, we're in a more normal environment.

So I think the supervisory policies and other things have to be thought about very carefully. And there is the countercyclical capital tool for a cyclical point and other things, which takes us pretty far afield from FOMC deliberations, but if we're going to bring it all in, it has to be a pretty full discussion. So, thank you.

CHAIR POWELL. President Mester.

MS. MESTER. Thanks. I just want to go back to the asymmetric loss function for a moment. So I guess another explanation of the SEP paths is that we've been trying to figure out what u^* is. If there's uncertainty about u^*, you come in and you let the data tell you, and you could get behavior that might resemble this asymmetric loss function because it's learning, right? We're trying to learn what u^* is.

But what that means is that if you were to say, "We're going to adopt this asymmetric loss function," our behavior would be different. So you have to think a little bit harder than just changing the loss function because if our underlying behavior changed under a different loss function you wouldn't end up getting the same economic outcomes. This endogeneity means that I would just want us to be cautious about thinking that you could just change the loss function. I guess it's a Lucas critique kind of thing. I think more of this has been learning as we go along. We don't see inflation rising. That's informing us that something about our estimate of u^* may be different.

So maybe a path forward would be, "This is a great thing. You basically took this asymmetric loss function to show you can replicate." There may be other things that you could do, in terms of a learning model, that would keep the symmetric loss function, but then replicate, and maybe other explanations for trying to explain how we behave.

The other thing—I thought that the symmetric loss function came out of theory that suggested that it actually can replicate better outcomes and welfare-improving outcomes. So that's the other thing to think about. It's not just a matter of just taking your model and plugging in a different loss function. There's a fundamental there that that symmetric loss function comes out of, and I think that that should also be pointed out as you go forward in this work. So thanks.

CHAIR POWELL. Okay. Maybe I will have the last—go ahead, Jim.

MR. BULLARD. I just have one separate question about language in alternative B, which I think is appropriate to bring up today. Is that okay?

CHAIR POWELL. Yes.

MR. BULLARD. In paragraph 2 of alternative B, we still refer to financial developments—"In light of global economic and financial developments"—and I just wanted to ask Thomas, what's the logic behind leaving that in? I think a lot of people might look at that and say, "Well, financial conditions have improved, at least from the U.S. perspective." So should the FOMC still be citing that as a rationale in this statement?

MR. LAUBACH. In my interpretation, global economic and financial developments is a pretty broad tent. "Global" can include both in the United States and elsewhere. "Economic and financial" includes obviously a lot, and just by listening to the previous go-round, it seemed to me that, for a number of you, the slowdown in China and, in particular, in Europe seems to loom fairly large, and that there may be downside risks emanating from that.

So I think that's one reason why you may find it still appropriate to point to that, even though, say, financial conditions themselves, in particular in the United States, now look more favorable. The financial data look better, but the hard economic data actually have surprised over the intermeeting period to the downside.

MR. KAMIN. I would add that issues like Brexit and Italian debt, et cetera, have a very important financial component to them.

MR. BULLARD. Would a global financial conditions index have shown improvement over the intermeeting period?

MR. KAMIN. Well, yes. Our measures of financial stress abroad have improved. So, in some sense, what you would be referencing here are issues that have a very strong financial component to them. Brexit is a risk that has a tremendous financial component in it. Similarly, Italian debt issues pose financial risks. Indeed, over the intermeeting period, there has been an improvement in the tone of financial markets. So stress levels, in that sense, have gone down, but the risks and issues that are involved have not.

MR. BULLARD. Thank you, Mr. Chairman.

VICE CHAIR WILLIAMS. I agree with everything that Steve said. I also think that this is the sentence that sets up the patient approach to policy. And I think of this as going back to September—financial conditions even in the United States have tightened since September. We've seen it get much worse. We've seen it get a bit better. I would argue that much of the "getting better" was due to the "patient" policy approach. So I think it is still a background. It's a backdrop to where the global and financial conditions are, and, as Steve said, there's quite a bit of uncertainty around these as well.

CHAIR POWELL. I want to go back. I was just about to offer a comment on the far more interesting question we were still discussing. I see it as there are three candidate explanations for the Committee's behavior, and I think that the asymmetric loss function is the least satisfactory of them. For one thing, it's certainly not how I think about it. It's not that we're literally indifferent to unemployment, no matter how far below *u** it goes. I don't think that's the right way to think about it.

I think the middle explanation is the inflation expectations way to think about it. But the idea there is that you're running a hot economy, and I'm not sure that's right either.

I really do think the best of these three is to say, as I think Mary said first and others said, that the longer-run *u** concept really has little policy relevance today, and that there's a *u** that's operative in today's environment is just lower. That's a much better way to think about it. That's a better way to explain it to the public. Anyway, I wanted to just add that, of the three, I think, that's the most satisfactory.

VICE CHAIR WILLIAMS. And if I can double—

CHAIR POWELL. Yes.

VICE CHAIR WILLIAMS. If you read our long-run goals and policy strategy, we actually describe maximum employment as being the maximum employment that's consistent with our 2 percent inflation goal. So I think, in a way, we painted ourselves into our corner by talking about the long-run natural rate of unemployment, because if you read the words we say in our long-run goals, we actually describe it correctly. But then we want to hang a number on it, and then we have this long-run *u**. So I agree with the way you said it, and it's the way I have described it, too. But we need to think about how we put that in documents, because I don't think we're being inconsistent. I think we're actually doing exactly what our mandate goals are. We're struggling a little bit about how to take this economic concept to a long-run natural rate of unemployment and link it to this issue.

CHAIR POWELL. It's a problem that we're writing down this number that's in the mid-4s, which suggests to anyone who's paying attention that we've really got to get unemployment up, which to me is just not right in a world where there's no inflation. We obviously know we don't know anything beyond the forecast period, if indeed we know anything beyond the next week. So I think it's a problem to have that number as the one longer-run unemployment rate u^* that we write down. I think it's a problem. I do.

VICE CHAIR WILLIAMS. Well, luckily, there's a subcommittee. [Laughter]

MR. CLARIDA. I think that if you look at the Committee's evolution on u^*, it's not as though u^* stayed constant and we decided to ignore it—u^* has drifted down by 150 basis points, more or less.

CHAIR POWELL. It is less.

MR. CLARIDA. So, as Loretta said, we have learned. I've learned in the six months here. I've already marked it down once. I'll mark it down again in June. We see the labor market data and learn; that's how I think about it.

MS. DALY. But John—Vice Chair Williams—it is so hard for me to remember that. [Laughter] Not that I don't admire it.

VICE CHAIR WILLIAMS. I believe it.

MS. DALY. But the way you described it, if the question was posed to us that way, we would accomplish the learning that President Mester described. We would accomplish the description for communications you just described. We'd be asking ourselves to write down the u^* that we think is consistent with achieving our inflation target.

It would be a quicker process of getting that to come down, I think, because there's some stickiness when you're trying to use these demographically-adjusted u^* models. I think that would be something to consider, departing from that language when we're asked about it and moving toward the language we actually hold ourselves to in the documents.

CHAIR POWELL. Okay. Anything else before we break? [No response] Thanks very much. We'll get together tomorrow morning at 9:00, and we will gather in the elegant West Court Café at 5:00. Thanks very much, everyone.

[Meeting recessed]

March 20 Session

CHAIR POWELL. Good morning, everyone. After the meeting yesterday, I asked that the Balance Sheet Normalization Principles and Plans be revised to incorporate a taper that would involve only one step, from $30 billion down to $15 billion, which would begin in May. I'm going to ask Simon and Lorie to say a few words about the implications of that.

MR. POTTER.[7] Thank you, Mr. Chair. We have a little briefing note here. It's called "Material for Briefing on Balance Sheet Normalization Principles and Plans"—not the press release. In this handout, we show the no-taper option versus the two taper options. The one that you've seen previously is the April one. Remember, that tapers down in April to $20 billion for the cap, and then in July, it goes to $10 billion. The May taper, as the Chairman just pointed out, starts in May, and it's fixed at $15 billion for the cap.

The goal of both of these is to slow down the descent of reserves. We've been trying to land something for a while. We're not quite sure where the landing point is. And I think, as we've thought about it, we quite like slowing down as we get closer to that landing point. This is a small amount of trying to slow down, but it's a reasonable amount to do. The two taper options slow down exactly the same amount in Q2. The April taper slows down a little bit more in the third quarter. But, of course, we have plenty of time to look at things before the third quarter comes. So, in effect, they have the same option value for you if we see anything different. And I think both of them more smoothly transition to the point that we roll over all Treasury security holdings, and that we start reinvesting the MBS paydowns into Treasury securities.

[7] The materials used by Mr. Potter are appended to this transcript (appendixes 7, 8, and 9).

So if you decided that this was the approach that you would like to take, we would, along with the press release that you would have, release a Desk statement, which would outline to the public what this taper would look like. And the example we gave is the May taper.

We'd also include in the last part of that statement—and that's the third thing you have here—a notice to the public that in May, we will update on the details of how we would reinvest the agency paydowns into Treasury securities starting in October. I'm happy to take any questions on this, as is Lorie.

CHAIR POWELL. Questions for Simon? [No response] One idea was to address the concern that was raised about immediately tapering. Really, the taper begins effectively at the next FOMC meeting, which ends on May 1.

Also, it's important, I think, to hear Simon say that they think this helps them. I don't think that came out well yesterday. This actually helps more gradually and carefully approach the level of reserve demand, which we are highly uncertain about.

So, no questions or comments? [No response] Then I guess I would ask for a show of hands of all of those who can support releasing this statement today. [Show of hands] Any opposed or abstentions? [No response] Okay. Thanks very much.

We'll go straight into our policy go-round, and we'll begin with President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. I support alternative B as written. I appreciate the rewrite of the first paragraph, which now more appropriately conveys the weakness in economic data that have been received so far in the first quarter. A pause in tightening is justified by the risk that the weaker data we have seen this quarter may be more persistent than we are currently expecting. In particular, I continue to worry about global economic growth being weaker than my forecast. However, my modal forecast implies further tightening of labor markets, with inflation rising above target over the forecast horizon. If the economy unfolds along the lines of my forecast, rate increases will pause but not stop. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. I support alternative B as written. It does make sense to acknowledge that inflation compensation remained low and to continue to state that survey-based measures of inflation are little changed. The "little changed" language, while technically correct, does obscure the fact that not only market, but also prominent survey measures such as Michigan, while stable, are fluctuating in ranges somewhat below those that prevailed before the Global Financial Crisis or even as recently as the "boom times" of 2012. As I've indicated at previous meetings and in public remarks, this evidence, to me, suggests that inflation pressures are not only muted, as we state in paragraph 2, but measures of expected inflation are also at the lower end of a range that I would consider to be consistent with our price-stability objective.

In regard to the way forward for the economy and monetary policy, I would make three points. First, in this SEP, the median projection of long-run u^* has again declined. It is now at 4.3 percent. And seven participants, including me, project a long-run u^* of 4.2 percent or lower. Over the past 12 months, the unemployment rate has averaged 3.9 percent and, as recently as January, stood at 4 percent. So at present, we face an inflation gap measured by core PCE that is modestly negative and an output gap that is modestly positive.

If I apply original Taylor rule weights to my 2019 projections for core PCE inflation, the unemployment rate, and r^*, I get a policy rate roughly equal to the 2.5 percent level that defines the lower end of our estimated range for long-run nominal r^*. And, as I mentioned yesterday, in my projections, I see growth falling somewhat below my estimate of trend and thus project a gradual rise in the unemployment rate toward u^*.

Second, as we all appreciate, monetary policy needs to be forward looking and can be subject to long and variable lags. An important judgment the Committee will need to make in the months and years ahead is how best to strike the proper balance among three compelling realities when it comes to achieving and maintaining our dual-mandate objectives. The first reality is the inclination to be preemptive in a world of long and variable lags. The second reality is the need to consult models to inform the basis for any preemptive move. And the third reality is the responsibility to recognize that the benefits of a preemptive move to raise rates based on a model that turns out to be correct must be balanced against the cost to the economy of a preemptive move to raise rates based on a model that turns out to be wrong.

Speaking for myself, this suggests that close attention should be paid to market- and survey-based measures of expected inflation, and the yield curve slope, as reality checks against inflation predictions from historically estimated Phillips curve or calibrated DSGE models. At a minimum, I would apply a cost–benefit calculation to any recommendation to raise rates solely based on a model's prediction, without supporting evidence of upside inflation pressure from surveys or financial market data.

Now, of course, initial conditions are relevant in striking this balance. If core inflation had for some time been, and today was, north of 3 percent, I would likely spend little or no time on the above calculations before supporting a rate hike. Or if core inflation had been below 1 percent for some time, this would be, obviously, a less relevant consideration.

Third—and I'll finish here—as I mentioned yesterday, I believe we would be well served to resist the temptation to assume that, once any uncertainty about global economic and financial developments is resolved, we'll essentially face two possible scenarios for the economy: very strong real growth and rising inflation, or very weak growth and falling inflation. There's a third scenario, which, to me, is very plausible and is essentially some version of the Tealbook baseline: roughly trend growth with stable inflation that is just below 2 percent. If the economy were to proceed according to this scenario, these considerations suggest, at least to me, that the case for a rate hike this year would not be evident. But, of course, the data can and may change, including evidence about *u**, *r**, and expected inflation. And if they do change, then my preferred path would change. But I think the above considerations would be relevant. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. I support the policy action in alternative B and have no comment on the proposed statement language.

On the basis of my outlook and the potential for stronger growth and more pressure on labor markets, I continue to think that one additional 25 basis point increase in the funds rate target this year will be appropriate. However, as the proposed statement language emphasizes, given all of the current crosscurrents and little sign that undesirably higher inflation will emerge, the Committee does not need to be locked into anything in the near term.

We really won't know for a while if the recent indications of slower growth are transitory or a more permanent feature of the landscape. So I think it is wise to remain flexible—as one of my directors put it, to have an athletic posture. For that reason, I think that patience is the appropriate risk-management emphasis to have at this juncture. But I would also stress in communications that because policy decisions remain highly data dependent, patience does not equate to no action for the rest of this year.

While my position that patience is not the same as expecting zero rate increases is what many believe—witness the result of the primary dealers' survey—that view is far from universal. The SEP funds rate path could be interpreted as a sign that we have definitively moved to the sidelines for this year. When polled about their interpretation of "patient," a sizable minority of my directors expressed exactly that view, and that was without seeing the dot plots. In my own view, as I said, another rate increase could be justified if my forecast of stronger growth materializes. I do not want to preclude this possibility, and I fear that the SEP in isolation will be taken as saying the bar is now set exceptionally high with respect to another rate adjustment in 2019. If that's the consensus, then I suppose that's okay. But I'm not there right now, and I hope that our communications keep our options open to the greatest extent possible. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chairman. I support alternative B. The outlook is still highly uncertain, and keeping policy on hold is clearly the right thing to do today. However, thinking about the medium-term trajectory of monetary policy continues to be quite challenging. After quite a bit of thought, I decided that a shallower, more accommodative policy rate trajectory was appropriate. I see two reasons for that. First, some of the recent data have been quite soft. Most likely, this is just a temporary lull, and real GDP growth will pick up to trend after the first quarter. But it seems prudent to pause long enough to assess just how strong the headwinds currently hitting the economy really are.

Second, even after assuming trend growth resumes in the second quarter, I needed to mark down my 2019 growth outlook substantially. With my old policy rate path, that weaker, near-term outlook would have implied inflation just barely getting to 2 percent by 2021. And even that seemed like a close call, given that inflation expectations seem to be stuck below our target. I think we should be aiming for inflation to modestly overshoot 2 percent later in the projection period. I view such overshooting as key to the credibility of symmetry in our inflation target, particularly given the prolonged period we've undershot 2 percent.

So, in the end, I judged that my policy rate path needed to be much shallower than in the December SEP. I settled on no changes in the funds rate target in 2019, a single increase in 2020, and another one in 2021.

I still see the fundamentals of the U.S. economy as strong, but the headwinds buffeting the economy now seem more persistent and argue for lower rates. Sluggishness in domestic demand and tighter financial conditions suggest short-run *r** has dropped below its long-run level. Our more sophisticated DSGE model analysis supports this conclusion and sees some persistence to the shocks reducing short-run *r**.

In addition, the challenges to global growth appear to be broader and deeper than I thought in December. And I am concerned that the continued indecision over Brexit, trade, and tariff brinkmanship as well as a variety of political issues worldwide will take an even larger toll on household and business sentiment and spending in the period ahead.

Regarding inflation, as I just noted, in my view, we should not be averse to allowing inflation to run somewhat above target. Indeed, such overshooting may be necessary to ensure inflation expectations firm around our 2 percent target. For some time, my SEP submissions have incorporated such overshooting by design. I now think policy must be more accommodative to achieve this feature. First, unemployment is unlikely to undershoot its long-run neutral level by as much as in my earlier projections. Second, I've been disappointed that inflation expectations have not moved higher, even though year-over-year core inflation has risen and been close to 2 percent since last March. Household and business surveys have changed little. TIPS compensation has risen only a little from its recent lows, and that likely largely reflects higher oil prices. And, as I noted yesterday, my business contacts are seeing less materials cost pressures, and some are looking for a softer inflation environment later this year.

All in all, I do not view this picture as one in which inflation expectations are consistent with a symmetric 2 percent target. To move inflation expectations to where I think they should be, my new policy rate path holds rates at the current level through this year and most of next. By late in 2020, I would expect to finally see more definitive signs that inflation and inflation expectations are firming. Once these signs emerge, I think one rate hike in late 2020 and another in the first half of 2021 will be appropriate, bringing the funds rate to neutral or slightly above it. Policy would then be on hold to evaluate progress toward our objectives.

I expect our policy decisions will be highly data dependent in 2020 and 2021. In particular, given the crucial endogeneity between policy and inflation expectations, I think we should be responding more to actual inflation data than to forecasts of pressures emerging further down the road. In my baseline forecast, we will not be raising rates until 12-month core inflation has clearly and substantially breached 2 percent and is headed up modestly further. If we do not get there, then policy should remain on hold. If inflation pressures build more quickly than I expect, we will have time to respond appropriately, as a flat, non-accelerationist Phillips curve limits the upside risks.

I want to conclude by emphasizing the importance of establishing a firm commitment to a symmetric 2 percent inflation target. There is the basic point that if the public doubts this commitment, inflation expectations will be mired below 2 percent, making it all that more difficult to achieve our goals. So this commitment is fundamental to our current operating framework.

In addition, if we ever want to adopt inflation averaging, conditional price-level targeting, or any of the other alternatives on the table in our upcoming monetary framework review, we need to have first solidified our commitment to 2 percent inflation symmetry. How can the public expect us to commit to the time inconsistent policies that are inherent in many of these alternatives if we have not first demonstrated our credibility over the symmetry of our current target? We must follow through on our current framework. Otherwise, those other possibilities have little chance of success. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I think we're in good shape for today. I see the main message of today's decision to be that we're reinforcing the idea of the end of normalization in the United States. I would say the normalization phase is over. That doesn't mean we can't do other things—and we'll do other things—but the idea of getting out of the lower-bound episode is reaching its end here.

I would say the normalization is not what many around the table here, or many in financial markets, were expecting when we started on this process some time ago. Rates are topping out at a lower level than would have been anticipated. The balance sheet is remaining at a larger level than would have been anticipated. I think there are good reasons for both of those. The global rate environment remains extremely low, both in real rates and in nominal rates. I think that was not something that was envisioned when we were getting going on normalization, so we're ending sooner partly because of that. On the balance sheet, I think we did not recognize, even a couple of years ago, that the effects of the Dodd-Frank Act and other aspects of financial regulation were going to increase reserve demand substantially more than what we would have anticipated. Plus there have been other developments affecting the balance sheet, including Treasury Department policy regarding their account balances at the Federal Reserve and the growth of currency.

So I think it's a great day in many ways. I think many around this table felt that normalization would be extremely difficult and fraught with volatility in the economy. That has not really been the case. We still have many challenges ahead of us, of course, and how to play this remains an open question.

I think the likely interpretation of today's decision will be "dovish." We've got our dots lower than I think many would have anticipated. I continue to think it will behoove the Committee to think carefully about what we want to do about the Summary of Economic Projections. We kind of have two policy statements coming out. One is a written statement, and one is a dot plot. Sometimes they go together, and sometimes they don't.

I think we need to think about that more carefully as we go forward, but today it's going to look pretty consistent with what we've been saying. We have a good narrative behind the current policy, with muted inflation and muted inflation expectations being the lead item, a very weak Phillips curve relationship being very important as well, first quarter real GDP growth surprising to the downside—we do think that'll bounce back, but you never know, so you have to wait and see—and global growth surprising to the downside. I think those are all major factors that have been cited in the discussion yesterday and today.

I want to turn to the issue about policy rules for use by the Committee. Some of you know that I have, in speeches, suggested modernizing the Taylor (1999) rule, and I have three ways that we could modernize that rule. John Taylor has certainly been crazy successful in his promulgation of the Taylor rule, but he did write on this 20 to 25 years ago, and things have changed in several ways. So I just want to briefly talk about ways that I think it could be improved.

The Taylor (1999) rule is the one that's been used around here the most as a benchmark. The first way to modernize this rule would be to lower r^*, the intercept term—we have lowered the r^* already here. The staff has its own estimates. I would lower that even more based on a non-model-based, nonparametric look at global data on real interest rates. I think GDP-weighted short-term real interest rates are still below zero today. And if you want some trend out of those data, you're going to come up with a number that's very low. It's probably a little bit below zero, but call it zero. Or if you think it's not quite that low, you could add a little bit to it. But I think that's the ballpark that we'd start with for r^*. It's very, very low and even lower than a lot of the estimates that have been used by participants around the table here.

The second thing I think we could do is have an inflation expectations gap instead of an inflation gap. Expectations are probably the most important determinant of actual inflation, and a lot of what we do is the management of inflation expectations, so why not just have that directly in the rule instead of trying to go through other variables and hope that those variables are correlated with inflation expectations?

When Taylor was writing his 1999 paper, there was no such thing as a TIPS market, or it was just starting. Today there is a TIPS market, and we could use those data to inform our judgments about where inflation expectations are relative to target. If markets aren't expecting a lot of inflation, why are we expecting a lot of inflation? That would be the logic of that.

There are issues around that. If you wanted to use the Michigan survey instead, the Michigan survey has drifted down, as Governor Clarida points out. I do think that, for use around the table here, we should bias-adjust the Michigan survey. Instead of plotting the raw data, I think we should have an adjustment: Show me whether you think the Michigan survey is telling us that we're going to miss our inflation target to the low side or to the high side. The way the survey works, it's been biased to the high side for years and years, and I think that bias adjustment needs to be made. So that would give us an inflation expectations gap instead of an inflation gap.

And, finally, there'd be an output gap in this rule. I've argued that the coefficient on that output gap should be reduced by a factor of 10 to reflect the very flat Phillips curve that we have seen. Some of those adjustments have already been made by the staff.

If you make these adjustments to the Taylor (1999) rule, you'll get a pretty good tracking of what the Committee has actually done in recent years. This is an untested approach, but I just thought these comments might be useful, since we're thinking about how to proceed with regard to a baseline policy rule.

Finally, on the language in the statement today in alternative B—and I do support alternative B—I brought up yesterday this issue about "global economic and financial developments," which is in paragraph 2. I am a little bit queasy about putting "financial developments" in there, since financial conditions have improved globally. I'm not sure we can cite that on a day when we're moving in a dovish direction. I think a simple thing to do would be to just cross that out and say, "In light of global economic developments and muted inflation pressures, the Committee will be patient." I don't think it's critically important, but it might sound a little tinny and a little tone deaf compared with what's happened during the intermeeting period.

That concludes my comments. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. The outlook is cloudy, but today's policy decision is clear. I support alternative B.

Over the past few years, in pursuit of our dual-mandate goals, we have gradually reduced policy accommodation and brought the funds rate up to the bottom of the range of FOMC participants' estimates of its long-run neutral rate. This strategy fostered a strong labor market and brought inflation up to our target. Real GDP growth is now slowing, but there's uncertainty about the pace and duration of the slowdown and whether we'll see a rebound from the weak first quarter.

My modal forecast is that the expansion will continue with growth at or slightly above trend, strong labor markets, and inflation near 2 percent over the forecast horizon. To achieve these outcomes, I anticipate the funds rate will need to move up a bit more later this year, but I acknowledge there is uncertainty associated with that policy rate path.

Given the current level of interest rates and little sign that inflation is poised to rise appreciably despite the strength in labor markets, I see no urgency to change our policy stance today. I see things as Governor Clarida does. There's less need to be preemptive because we brought the policy rate up to the range of neutral, and we're near our goals. I agree, we should take the opportunity to allow the economy to evolve and to continue to assess economic and financial developments and the risks before determining any further policy action.

Now, part of that assessment is evaluating the negative signals coming from the weaker first-quarter data and the positive signals coming from the strong labor market. If the slowdown in growth is steeper and more persistent than expected or inflation moves down, we could be on hold for some time or may even have to consider easing policy.

But it's also important that we not get too pessimistic about the economic outlook and send too negative a signal. A slowdown in growth and employment from the unsustainable paces we've seen over the past year is consistent with our policy goals and with sustained expansion. Some softening in the data should be expected.

The strength in the labor market may suggest there's more underlying positive momentum in the economy than we might think. So I agree with President Bostic: We need to keep this possibility on the table. Depending on how the economy evolves, in order to sustain the expansion and the achievement of our goals, we may not be done raising rates, and we may need to be prepared to do so if appropriate.

Regarding statement language, the challenge is to convey that the economy is slowing. There's some uncertainty about the pace of slowing, but at this time, the Committee does not expect a severe or prolonged slowdown and believes that the most likely outcome is that the expansion will continue, labor markets will remain strong, and inflation will remain near our 2 percent goal.

The fact that our outlook remains positive seems to be a particularly important message to convey, as first-quarter real GDP growth is likely to come in quite weak and get a lot of attention. Although I would prefer more of a link between the first paragraph's description of recent economic conditions and the Committee's outlook in paragraph 2, I think the language in alternative B basically sends the appropriate message, and I support it as written.

That said, I do think the message from the press conference and the balance sheet statement could be interpreted more dovishly than we intend. So I think we really have to be cautious about that and try to avoid sending the wrong signal.

Communications have become a very important part of Federal Reserve policy. In thinking about where the economy is and how we talk about it, I wonder whether our communications would be different if, instead of setting a point goal for inflation, the Committee had set a range target. This is distinct from targeting average inflation, which is akin to price-level targeting, and which is being discussed as part of the monetary policy framework conversation.

Now, I realize that at the time the 2 percent inflation goal was set, there were arguments on both sides of whether to set a point target or a range. This was before I was on the Committee, but as I recall, those wanting to set a point target argued persuasively that this would better anchor inflation expectations, especially at a time when we were going from not having an explicit target to having one. But implicit in that was that the Committee would be able to tolerate small deviations from the target, given the precision with which we can measure inflation and the precision with which we can guide the economy. I can't help but think how our communications today might be different had the Committee opted for a range rather than a target. Perhaps there would not be much difference, but I think there might be. And I hope that the Committee will put this on the list of things to discuss as part of our framework study. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. I support alternative B as written. The language is little changed. And given my own downgrading of the economic outlook, I see no reason to change it.

The language in alternative B should continue to assure markets that the Committee will be patient, and that is consistent with my own policy views. I see the need for, at most, one rate hike in 2019, with an additional possible hike in 2020 and no hike in 2021. At that point, policy will be slightly above its neutral setting, which I estimate to be 2.75 percent. Of course, things will most likely change between now and then, so I will do my very best to get my creaky old body and mind into an athletic posture. [Laughter] Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. I support alternative B as written. In light of various uncertainties, particularly relating to decelerating global growth, the effect of waning fiscal stimulus, the effect of previous Committee rate increases taking hold, as well as muted inflation pressures, I believe we're wise to be patient.

That caution, for me, is also reinforced by the shape of the yield curve. I'm struck by the 2-year Treasury rate in the mid 2.40's, the 5-year rate around 2.40, and the 10-year rate a little bit below 2.60. Those numbers seem to suggest to me and reinforce the conclusion that, at this stage, caution is warranted.

My SEP submission calls for no increases in '19 and no increases in '20. That said, this submission is not written in stone, and I am open to the idea that these views may need to change. I do believe there's some reasonable probability that growth in the United States will stabilize at or near trend, with inflation at our target. If that occurs, we're going to have to, obviously, make a judgment about whether some additional action is appropriate. I'm also open to the possibility that the next move in the federal funds rate might need to be down, versus up, if growth is weaker than I expect.

In any event, I think patience will serve us well in making these judgments, and we'll benefit from taking time to see how the economy unfolds. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Chairman Powell. I support alternative B as written. Currently available national economic data have not changed my outlook significantly from the January meeting. Although the data seem to suggest that household and business spending growth has slowed down sharply this quarter, I think this will probably be only a temporary dip, part of which can be traced to the effects of the shutdown.

The labor market appears, on balance, to remain very strong, with the unemployment rate well below what the staff notes as the natural rate of unemployment. Financial markets are much less volatile, and borrowing conditions look to have eased quite a bit since the end of the year. Residential mortgage rates have dropped to their lowest levels in more than a year, though we've yet to see improvement in residential sales data.

Overall, I remain optimistic that the performance of the domestic economy in 2019 will continue to be strong, although uncertainties about trade policies and the economic performance of our important trading partners present negative risks to the economic growth here at home. In addition, we have yet to experience an extended period when inflation has been near our 2 percent target. Although it's not my expectation, it seems possible that the soft inflation data in recent months could prove longer lasting.

In my view, the current data suggest we're close to the neutral rate. So unless we see significant changes in the data, it makes sense to continue our patient stance and to monitor economic conditions carefully to assess the full effect of the previous rate increases as well as our adjustments to our balance sheet. This is particularly important, as there are still several factors that weigh significantly on my assessment of economic growth over the coming year. Being patient can provide us with the opportunity to consider and determine the appropriate future actions as warranted by data available at that time. Thank you.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. Today's decision, of course, is straightforward. Growth seems to be moderating toward trend. Unemployment is low. Inflation is stable and close to target. We said we'd be patient. It's hard to make the case for anything other than holding rates steady.

I may be alone, but as I prepared for today and as I foreshadowed last time, I did find myself impatient with the word "patient." [Laughter] I can make the case we're headed back to an above-trend track now that sentiment has rebounded, productivity and investment showed well in the fourth quarter, and many uncertainties seem to be heading toward being resolved. But, alternatively, I can make the case that the economy is weakening, based on retail sales, international stagnation, and the employment report. Either scenario could crystallize quickly. The time for forward guidance is past. Why constrain ourselves? Put differently, I see eliminating forward guidance as creating policy space either way.

I recognize the communication challenges. Market participants might interpret removing "patience" as "hawkish" or perhaps even "dovish," but today may be the perfect day to make the change. Our SEP median makes the case we're balanced in our outlook, at least for the near to medium term. That will offset concerns that we're inexorably taking rates up or that we see a recession is imminent.

Alternatively—because I'm pretty sure you're not going to change the statement now [laughter]—if we want to prepare the market for the change, the Chairman could use his press conference for that purpose, indicating we will take the language out relatively soon, as in alternative C without the bracketed forward guidance. The SEP will help give the message that such a move would be neither "hawkish" nor "dovish."

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chairman. I support alternative B as written. The changes to the first paragraph certainly capture the subdued or even negative tone of some of the recent data. Given those data, I view our patient stance at this meeting as being appropriate. I am very comfortable with remaining patient at this point.

That said, unlike President Bullard, I don't think we're done. But I do agree with him that today might be taken that way. So I agree very much with President Mester, President Bostic, and President Barkin just now that our communications need to keep our options open. I do see the need to further increase the target rate for policy at some point, very likely later this year. My own estimate of the neutral policy rate is a few rate hikes north of where we are now. So, in the long run, I continue to see the current stance of policy as being accommodative, and, eventually, the economy will require higher rates in order to maintain sustainable growth.

My higher estimate of the neutral rate is a result of my optimism regarding the potential growth rate of the economy. I think that the tax cuts, productivity developments, and improvements in the general business environment will impart some momentum to economic growth and support higher interest rates. But I would add that my neutral rate, although higher than some estimates—maybe many estimates—remains well below what was considered the pre-crisis norm.

As I've said before, I'm not particularly troubled by the relatively muted reaction of inflation to the apparent tightness of the labor market and other aspects of the economy. Given our success in communicating our policy and anchoring inflation expectations close to target, I continue to question whether inflation is, in itself, a particularly good indicator of where we are in the business cycle.

Now, we have two and a half hours, and I prepared an elaborate aviation analogy [laughter] involving a Beechcraft King Air at the Springbank Airport in Alberta after the coldest night in the history of Canada, but I will save that for a later day. [Laughter]

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. I support alternative B as written. The economy remains on solid footing by most measures even as the growth outlook moderates relative to its performance last year. Maintaining the current stance of policy seems appropriate today as we monitor the evolution of downside risk as well as last year's policy tightening.

As I noted yesterday, with limited monetary and fiscal policy space to respond to potential shocks, the current low-inflation environment offers the opportunity to be patient and monitor these risks as we determine whether any further adjustment to rates is needed. I do support the views that I've heard here from President Barkin and others. And, as I've said before, the opportunity to remove "patience" from our statement at some point soon is going to be important to give us flexibility either way. I also think this patient approach will allow the public today to appropriately focus on the announcement about the Committee's revised Balance Sheet Normalization Principles and Plans. Thank you.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. I support alternative B as written. As I described yesterday, relative to December, I have marked down my forecast for 2019. I now expect growth this year to come in close to its long-run trend, the unemployment rate to remain steady around 3.7 percent, and inflation pressures to remain muted. This is in part a reflection of headwinds, as many others have mentioned, but also a response—which is a little bit larger than I thought it was going to be—to our past policy rate increases and the waning of fiscal stimulus.

With growth at trend, we have achieved or are close to achieving our dual-mandate goals, and the funds rate is at or near neutral. Patience and watchful waiting, as Governor Brainard said yesterday, are appropriate. Accordingly, I have penciled in no rate hikes this year.

Now, returning to the discussion that we had yesterday, which I found very helpful: I do not arrive at my views on appropriate policy based on an asymmetric loss function for unemployment. Rather, I'm concerned about our inability to date to achieve 2 percent inflation on a sustained basis. Whether this is due to a series of wedges that disrupt the linkages between economic activity and inflation or is related to a downward drift in inflation expectations, the policy prescription is the same—as Vice Chair Williams said yesterday, patience with a goal of allowing inflation to rise sustainably back to target. Of course, sustaining the current expansion also has the benefit of boosting job prospects and wages of those historically marginalized in the labor market, as my *Brookings- Papers* article with Bill and our coauthors found.

The bottom line is that, given the outlook for growth and inflation, I see no pressing need to raise interest rates further this year. If the economy evolves differently than I expect, either faster or slower growth, we can respond agilely at that time without, as President Evans mentioned, any risk that we're going to have runaway inflation or that inflation would plummet.

I would also like to take this opportunity to briefly comment on the SEP. I think it broadly supports our communication strategy. Overall, I think the SEP has served us well. It is hard to imagine, especially in a year when we are seeking public input and marketing that we're particularly transparent, that we would want to cut back on the information and produce less frequent SEPs or include fewer series in it.

As the Chair noted, the most challenging issue is the dot plot. While far from perfect, it was a useful tool when the policy rate was near zero, as it conveyed the asymmetric distribution of future rates as they were constrained by the lower bound. The funds rate path was also quite helpful in conveying to the public the evolution of the Committee's views on longer-run r^* and, I would argue, the other star variables as well, when they saw the long-run natural rate of unemployment and also g^* come down.

Now that we are away from the zero lower bound, the dot plot may overemphasize disagreement among participants over the central tendency or may be misinterpreted, as you mentioned, as a consensus forecast. But this is a tradeoff, one that I, admittedly, do not face as you do, Chair Powell. The other side of that tradeoff is the lack of transparency.

So, overall, I'm guided by the principles that monetary policy works best when the public understands the rationale for our actions and can follow the logic of our reaction function. As such, I would find it difficult to support eliminating the SEP or reducing the elements of the package of economic forecasts and policy interest rates that help market participants and the public understand how we are thinking about and managing policy. I will, though—as you asked yesterday—think hard about how to make the SEP better. Thank you.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. I support alternative B. I'm generally happy with the current policy stance. I don't want to overreact to a single weak jobs report. I anticipate that job growth will pick up after the turn-of-the-year slowdown. I continue to believe that there's still slack in the labor market and, therefore, see no need to raise rates, given stable inflation and inflation expectations.

As I look forward, for me, the risks have increased somewhat to the downside. I don't think any forward guidance on the path of rates is appropriate. I think we should be prepared to adjust rates, as others have said, in either direction depending on how the data evolve.

Let me just add one comment on the SEP. I think this move today in the SEP is a big move. I think markets are going to look at it and be surprised by how far the dots have moved, and I think the move is appropriate. I'm happy with where the SEP is landing.

The concern that I have is, in this environment, in which the path ahead is really unclear, the dots could move a lot period to period, depending on the data that come in. And this, I think, is going to work against us. Think about GDPNow forecasts. They whipsaw around. Imagine if the data are mixed and we see the dots moving around to June, to September, and to December. I think the SEP is very useful and very powerful when we have a lot of confidence about what the path ahead looks like. I think, in an environment like now, when we don't have a lot of confidence and could see a lot of volatility in the dots, the SEP could end up working against us. So for me, that points toward—and the communications subcommittee is looking at this—finding ways to deemphasize the dot plot and reserving it for when we really want to use forward guidance. And I don't think right now we're in a time when we really want to use forward guidance, because we just don't know. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. At a time when the modal outlook has weakened and risks appear more weighted to the downside than the upside, the best way to safeguard the gains we've made on jobs and inflation is to navigate cautiously on rates. Risk management in an environment of a low long-run neutral rate and an attenuated relationship between resource utilization and overall inflation supports this approach. Watchful waiting will allow us to gather more information about domestic momentum and foreign real GDP growth, as well as some of the policy risks weighing on sentiment. For these reasons, I support alternative B.

For the time being, “patient” is descriptive of the modal policy rate path seen in the SEP median. However, like Presidents Barkin, Bostic, Mester, and George and Governor Quarles, I am reluctant to again get locked into forward guidance. And, of course, patience is only the right policy in one direction. We would be patient about raising rates if the economy continues to grow above trend until inflation has clearly reached 2 percent on a sustainable basis. But we wouldn’t be patient if further evidence of weakness were to accumulate, in which case we would likely move quite swiftly. So we should be thinking about the appropriate communications that would allow us a smooth transition in either direction.

I’m also pleased asset redemptions will end later this year. And I believe that we should be pleased with how smoothly balance sheet normalization has proceeded, in view of the fact that it was largely uncharted territory when we initiated this process. And I really want to take my hat off to all of the staff who have worked on this process. It really has been very impressive.

I want to return to a subject introduced by Presidents Kaplan and Rosengren yesterday. The recent “pivot” in our posture has contributed to a near-complete reversal of the financial tightening we saw late last year. With the recent rebound in financial conditions, asset valuations are again starting to look rich. As of Friday, the S&P 500 index was only about 4 percent below its all-time high of last fall—a level that the staff estimates put stock prices at a historically elevated range. And, similarly, high-yield spreads have reversed more than half of their recent widening. Corporate indebtedness, as President Kaplan mentioned yesterday, remains at record levels in relative terms, and, after a wintertime lull, issuance of risky corporate debt has picked up again.

Research suggests there's a systematic relationship between risk-taking and the business cycle. For example, when the unemployment rate is low, the equity risk premium also tends to be low. And, as the experience of recent decades has illustrated, this pro-cyclicality of risk-taking has been an important factor in all of the recent cycles, as it appears financial imbalances have played a much more important role in bringing about a slowing in the economy than has an inflation-induced tightening of monetary policy.

If it were possible to better insulate the real economy and, in particular, the labor market from the financial cycle, we would be better able to achieve our dual-mandate objectives. In its most recent discussion of the role of monetary policy in achieving financial stability, the Committee stated its preferred approach would be to rely on macroprudential tools so as to avoid the costs associated with deviating from our dual-mandate objectives. Recent research supports this prioritization—and demonstrates that, in achieving financial stability, the use of macroprudential policy has a much better cost–benefit tradeoff than monetary policy does.

In the U.S. context, of course, the use of the Countercyclical Capital Buffer (CCyB) would free up monetary policy to focus on its dual-mandate goal while also building resilience cyclically—something that monetary policy does not do. The CCyB has the further attraction that it can be released were the economy to weaken, further boosting the ability of the largest institutions to continue lending and boosting the effectiveness of our monetary policy response. We saw, in a financial stability tabletop hosted by President Mester in her role as chair of the Conference of Presidents Financial Stability Committee, that this mechanism was particularly attractive.

So making the CCyB a systematic part of our actions to address credit cycles could have the potential for extending the life of cyclical expansions. That's especially important in current circumstances. To meet our inflation goal at the same time when we may be entering a period of heightened financial imbalances and thus greater recession risk, it's very desirable to find a way to prolong the expansion while keeping financial risk in check. In this regard, it's worth noting the Committee hasn't explored the topic of financial stability and monetary policy since April 2016, and it might be valuable to have an opportunity to revisit this topic in light of recent research.

Finally, with regard to the dot plot, I think my comments really echo those voiced by President Daly quite closely. I do think that the dots are an important part of transparency and accountability. On the other hand, I recognize that they can present communications challenges, particularly at year-end. So I welcome the opportunity to explore whether there are ways to improve the SEP in a manner that better conveys useful information to the public. And I know that Governor Clarida is going to take forward that charge. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chairman. I support alternative B as written, which appropriately continues to emphasize a patient and data-dependent approach.

I'm looking at paragraph 1 in alternative B, and there is obviously a lot of red ink. As President Mester and others correctly asked, pointed out—and a number of people have been talking about this—how do we make sure we get the right balance in paragraph 1? Q1 growth is slowing pretty dramatically, but we don't think that's really a sign of where the economy is going to be for the rest of the year. There is also the issue that Governor Clarida talked about with the inflation expectations and how to get that right. Obviously, in one paragraph, it's impossible to capture the nuance, the subtlety, and the uncertainties.

I do think that paragraph 1 does a good job of getting the level right, which is, this is a strong economy. This is about as good as it gets from a dual-mandate point of view, with unemployment below 4 percent, inflation near 2 percent, and growth around trend. But it also does reflect—I think, accurately—the "delta" in the data flow that we're getting.

But when I read through this and I listen to everybody, I realize that the real challenge we have—whether it's in the statement, in the press conference, or whenever we communicate—is that there's a lot going on. There are a lot of pieces to this. So it's good to have a kind of nice summary statistic—and, oh, that's good because, as President Daly said, we have the SEP. [Laughter]

Let's look at that. We see real GDP growth—the median—which is a very good summary statistic in general. It shows growth at 2.1 percent. Real GDP growth in Q1 might be below 1 percent, but we have a view that the economy is growing roughly at trend, the trend being the longer-run median of 1.9 percent. Unemployment is expected to be below 4 percent through this year and the next few years. As a number of people have mentioned, we have an evolution of our views of u^*, r^*, and g^*. But this is a pretty strong numerical statement that we think, despite the ups and downs between Q4 and Q1 and the inventory cycle and the weather and all of those things, that we fundamentally see an economy continuing to grow—but slower than last year—a strong labor market, and inflation coming in around 2 percent or a little bit lower.

But we also have a good story about the "delta"—from December, at least. Growth is a little bit softer. My calculation on the median is that the unemployment gap has been shifted up by 0.3 percentage points. In other words, our assessment is now that labor markets will be a little bit less tight—a reflection of both a lower u^* and a little bit higher unemployment rate—

and overall inflation a touch softer. And then when you run that through a Taylor rule or some kind of view on how the right-hand-side variables feed into policy, we see a softer path—a lower, flatter path for the funds rate—which I think actually holds together well.

I bring this up because I don't think we should lose track of the fact that having a nice summary of our views—a coherent story on both the level and the "delta"—is something that is a very helpful complement to all of the other communication we have. It's also a formal process that we go through regularly. So I think that the SEP this time, despite all of the concerns about dots and medians and everything, is actually helping us a lot in communicating our views on the economy and where policy is likely to go.

Going back to January, I had three possible scenarios for the economy this year, in decreasing order of optimism. While it was unclear which of the three would materialize, I saw the middle scenario of near-potential and near-target growth and near-target inflation as most likely, and that is supported by an unchanged target for the policy rate that's right at my view of neutral.

Recent developments have not altered this assessment. Although geopolitical and global risks hang over the economy and some slowdown in growth is in the cards, we still have solid domestic fundamentals, and that should help prevent a more dramatic deterioration in economic activity. At the same time, upward pressure on inflation seems unlikely to emerge in the course of this year.

I want to come back to a topic that a number of people mentioned yesterday and that Governor Clarida mentioned again. I do think we have to be very watchful on this inflation expectations issue—about its becoming anchored too low. I think President Evans referred to its becoming mired at too low a level. In a world in which the neutral rate is very low and that constrains policy space, persistently low inflation can pull inflation expectations lower, and that in turn pulls inflation further down in a vicious circle.

We are seeing signs of this already in the world around us. If you look at Simon's chart in his packet yesterday—this is, I guess, figure 6—long-run inflation expectations, at least market-based measures from swaps, have come down pretty significantly in both Japan and the euro area, obviously reflecting the reality that inflation has been below their target for many years and is likely to stay there for many years to come. These issues could become especially worrisome if the global growth slowdown intensifies. Thank you.

CHAIR POWELL. Thank you. I sense strong support around the table for alternative B, and I'm now going to ask Jim to make clear what it is we're voting on and read the roll.

MR. CLOUSE. Thank you, Mr. Chairman. The vote will be on the monetary policy statement as it appears on page 4 of Thomas's briefing materials, and the vote will also encompass the directive to the Desk as it appears on pages 6 and 7 of Thomas's briefing materials. I just note that the second paragraph of that directive that describes the rollover-of-Treasury-securities option will be the first option shown on page 6. That's the one without the April taper. With that, I'll call the roll.

Chair Powell	Yes
Vice Chair Williams	Yes
Governor Bowman	Yes
Governor Brainard	Yes
President Bullard	Yes
Governor Clarida	Yes
President Evans	Yes
President George	Yes
President Rosengren	Yes
Governor Quarles	Yes

CHAIR POWELL. Thank you. Now 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 on the 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 on the 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. And now, before we confirm the date of our next meeting and wrap up, I'd like to turn the floor over to Governor Clarida, who has a few comments on the review and also the subcommittee.

MR. CLARIDA. Thank you, Chair Powell. Well, as you'll recall, there are really three essential elements to the framework review, so I wanted to update you on where those stand. The three elements are the series of *Fed Listens* events, a conference graciously hosted by the Federal Reserve Bank of Chicago in June, and then a number of work streams by our staff that will help prepare us in the second half of the year to discuss the framework review.

Each of those three is in good shape. We've already had one *Fed Listens* event in Dallas, and many more are scheduled. And as those are finalized, they'll show up on a central webpage that is available for you and the public.

Regarding the June 4 and 5 conference, the program is complete and will be posted shortly. You either have or will shortly receive your invitations for hotels and the like, and then we're sending out a broader list of invitations later.

The third element, of course, as we discussed at the January meeting, is that Thomas Laubach is leading an effort to coordinate work streams that are under way now that will then help prepare us for the discussions we'll be having in the second half of the year.

As you know, Chair Powell has asked the subcommittee on communications to explore ways in which the SEP and the dots can be refined and improved. We have already met twice on that, once by conference call and once in person yesterday, and received a very good briefing on several options by the staff. I have already started to reach out to you by phone. My colleagues will continue that process as we seek your input to that. And, as we reach convergence on the subcommittee toward recommendations, we'll try to get that onto the agenda at a future meeting.

CHAIR POWELL. Great. Thank you. I'll wrap up with just a couple of words on the dots. First of all, I think we're in a really good place on policy. I think the decision today is a good one. I think I'm very comfortable that we're in the right place and that patience is still the right stance. Also, I completely appreciate the difficulty in making changes of a material nature regarding the dots. It would be a high bar for doing that. But if you think back, December was about convincing the public that, while there were two rate increases shown in the SEP, those increases were highly uncertain without sounding like you were backing away from the decision to raise rates. This meeting is more of a decision about conveying that this is not a promise never to raise rates again, but also coming off not too "hawkish" and not too "dovish."

So, honestly, it can be complicated to communicate. The existence of the dots is a great thing, but it really does present communications challenges at certain points. When the economy is moving along on an expected path, they’re great. So I would say, what you’re going to hear from me is a lot of rhetoric of “they’re not a decision”, and that sort of thing, which is going to get boring, if it’s not already, and maybe won’t be effective, either. But I do think President Kashkari is right. There can be plenty of ways that we once again find ourselves either trapped or at risk because of the dots, as opposed to them helping in certain circumstances. So that’s why I do take this process seriously.

And with that, to wrap up, the next meeting is Tuesday and Wednesday, April 30 and May 1, and that concludes the meeting. As usual, a buffet lunch will be served at 11:30 in the anteroom for those of you who don’t have better options. [Laughter] Thanks very much.

END OF MEETING