Meeting of the Federal Open Market Committee
June 18–19, 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, June 18, 2019, at 10:30 a.m. and continued on Wednesday, June 19, 2019, at 9:00 a.m.

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

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

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

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

Rochelle M. Edge, Eric M. Engen, Anna Paulson, Christopher J. Waller, William Wascher, and Beth Anne Wilson,[1] Associate Economists

Lorie K. Logan, Manager pro tem,[2] System Open Market Account

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

[1] Attended Tuesday session only.
[2] In the absence of the manager, the Committee's Rules of Organization provide that the deputy manager acts as manager pro tem.

Matthew J. Eichner,[3] Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors; Andreas Lehnert, Director, Division of Financial Stability, Board of Governors

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

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

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

Brian M. Doyle, Wendy E. Dunn,[1] 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

Jane E. Ihrig and Don H. Kim, Senior Advisers, Division of Monetary Affairs, Board of Governors; Jeremy B. Rudd, Senior Adviser, Division of Research and Statistics, Board of Governors

Marnie Gillis DeBoer and Min Wei, Associate Directors, Division of Monetary Affairs, Board of Governors

Christopher J. Gust,[3] Deputy Associate Director, Division of Monetary Affairs, Board of Governors; Matteo Iacoviello and Paul R. Wood,[1] Deputy Associate Directors, Division of International Finance, Board of Governors; Jeffrey D. Walker,[3] Deputy Associate Director, Division of Reserve Bank Operations and Payment Systems, Board of Governors

Burcu Duygan-Bump, Andrew Figura, Glenn Follette, Patrick E. McCabe, and Paul A. Smith, Assistant Directors, Division of Research and Statistics, Board of Governors; Laura Lipscomb,[3] Zeynep Senyuz,[3] and Rebecca Zarutskie, Assistant Directors, Division of Monetary Affairs, Board of Governors; Steve Spurry,[3] Assistant Director, Division of Supervision and Regulation, Board of Governors

Matthew Malloy,[3] Section Chief, Division of Monetary Affairs, Board of Governors

Penelope A. Beattie,[1] Assistant to the Secretary, Office of the Secretary, Board of Governors

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[3] Attended through the discussion of developments in financial markets and open market operations.

Mark A. Carlson,[3] Senior Economic Project Manager, Division of Monetary Affairs, Board of Governors

Sean Savage, Senior Project Manager, Division of Monetary Affairs, Board of Governors

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

Heather A. Wiggins,[3] Group Manager, Division of Monetary Affairs, Board of Governors

Maria Otoo, Principal Economist, Division of Research and Statistics, Board of Governors; Lubomir Petrasek, Marcelo Rezende, and Francisco Vazquez-Grande, Principal Economists, Division of Monetary Affairs, Board of Governors; Patrice Robitaille,[1] Principal Economist, Division of International Finance, Board of Governors

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

Andre Anderson, First Vice President, Federal Reserve Bank of Atlanta

David Altig and Kartik B. Athreya, Executive Vice Presidents, Federal Reserve Banks of Atlanta and Richmond, respectively

Edward S. Knotek II, Paolo A. Pesenti, Mark L.J. Wright, and Nathaniel Wuerffel,[3] Senior Vice Presidents, Federal Reserve Banks of Cleveland, New York, Minneapolis, and New York, respectively

Roc Armenter, Patrick Dwyer,[3] George A. Kahn, Giovanni Olivei, Rania Perry,[3] Benedict Wensley,[3] and Patricia Zobel, Vice Presidents, Federal Reserve Banks of Philadelphia, New York, Kansas City, Boston, New York, New York, and New York, respectively

Gara Afonso[3] and Scott Sherman,[3]Assistant Vice Presidents, Federal Reserve Bank of New York

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

Jim Dolmas, Senior Research Economist, Federal Reserve Bank of Dallas

Transcript of the Federal Open Market Committee Meeting on June 18–19, 2019

June 18 Session

CHAIR POWELL. Good morning, everyone. Let's get started. 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. Before we turn to our first agenda item, I would like to point your attention to Thomas Laubach's briefing material, which should be in front of you now.[1] It has been handed out ahead of time so that you have a chance to see a proposed revision to one sentence in Alternative B, shown in blue. The sense of this language in blue is, we're adding the words "closely monitor the implications of incoming information for the economic outlook and will." And that's the exact language I used in my Chicago speech, which the rest of it was a quote from. We decided to go ahead and include the whole quote. So that's something to take away and be prepared to comment on later.

Our first agenda item is a special topic discussion of a standing repo facility. As you know, this is an opportunity to exchange views on the topic and not a decisional discussion. Let's get started with a briefing from Laura Lipscomb, of Monetary Affairs, and Nate Wuerffel, of the Desk. Steve Spurry, of S&R, is also here to answer questions after the briefing. Laura, would you like to begin?

> MS. LIPSCOMB.[2] Thank you. A number of Committee participants have expressed interest in examining the possible role of a repo facility as part of the monetary policy implementation framework. The memo that you received in advance of this meeting examined different parameters of a potential repo facility—specifically, the rate set and the counterparties chosen—and discussed what effects

[1] The materials used by Mr. Laubach are appended to this transcript (appendix 1).
[2] The materials used by Ms. Lipscomb and Mr. Wuerffel are appended to this transcript (appendix 2).

those design choices could have with respect to achieving different monetary policy objectives. The memo also discussed intersections with other Federal Reserve programs as well as broader policy issues. These issues cut across monetary policy operations, market functioning, and liquidity risk supervision, and so this work stream has included staff across various functions, with the memo cowritten by Supervision, Markets, and Monetary Affairs.

Under the Committee's chosen ample-reserves operating regime, the active management of the supply of reserves, as practiced before the crisis, should not be necessary to control short-term interest rates. But there is some uncertainty about the supply of reserves needed to maintain an ample regime. The federal funds market is also smaller than in the pre-crisis period, and it's possible that unexpected shifts in the supply of, and demand for, reserves could put upward pressure on rates.

Against this backdrop, the memo examined how a repo facility could provide a backstop against unusual spikes in the federal funds rate and other money market rates or provide incentives for banks to shift their portfolios of liquid assets from reserves to securities. This could potentially allow the Federal Reserve to operate an ample-reserves regime with a smaller balance sheet, all else equal.

As Nate will point out, the design elements of the repo facility would have important implications for its effectiveness in achieving these different objectives. Put another way, the objective of the facility would dictate its design parameters, and, depending on the objective it was designed to achieve, the facility could look quite different. I'll turn it over to Nate to discuss key design parameters in more detail.

MR. WUERFFEL. Thanks, Laura. I'll be referring to the handout "Standing Repurchase Facility."

In the memo that we sent before the meeting, we discuss some of the key parameters of a facility, how those could be adjusted, and what the resulting effects might be. These parameters include at what level to fix the rate of a facility, to which financial institutions would have access, and the eligible securities.

By establishing a rough upper bound on the borrowing rate of firms eligible for the facility, the fixed-rate of a repo facility can have a strong influence on money market rates. The main consideration is where the rate should be set relative to IOER in the top of the federal funds target range. Given the normal dispersion and variability in money market activity, a facility that had a lower interest rate would dampen upward pressure on money market rates more frequently and would also have the highest chance of disintermediating private market activity. A facility that had a higher rate would have less chance of disintermediating activity and would provide a backstop for rates less frequently and only under more significant pressures.

As you can see in figure 1 of the handout, money markets are made up of a variety of different market segments, each with its own distribution of traded rates. The distributions in the figure are shown relative to the interest rate on excess reserves, which sits at zero on the *x*-axis. As an example, setting the facility rate at the top end of the federal funds target range, currently 15 basis points above the IOER rate—the hash mark there—would be still below the rate a number of private-sector borrowers currently face on non-month-end days. And, as you can see in figure 2, on reporting dates like quarter-end and month-end, money market pressures are higher and a much larger share of trading activity regularly takes place at higher rates. Accordingly, setting the rate at the top end of the target range could help guard against unexpected pressures that might take the federal funds rate outside the range but would likely result in more active Desk operations and significant take-up, especially on month-end, quarter-end, or year-end, displacing private market activity. If, instead, the facility was designed to serve as a less actively used backstop, the rate could be set well above the target range. Then the facility might only be used on quarter-end or year-end, or when there is significant funding pressure in the market.

Next, I'll talk about the parameter of counterparty type. The effectiveness of the facility in providing a backstop to rates would also depend on who the counterparties are and on which rates you were seeking to control most directly. A repo facility operated with primary dealers is likely to be quite effective in dampening pressures in the secured repo markets. The facility would tend to truncate the distribution of repo rates seen in blue in figures 1 and 2, because dealers are the main borrowers and intermediaries in these markets. But the federal funds market, the distribution in red, is an unsecured market in which the main borrowers are banks. Some arbitrage does occur across secured and unsecured markets, but, to guard better against unexpected pressures on the federal funds rate, the facility would likely need to be directly accessible by banks.

Having a repo facility with banks as counterparties may also influence the aggregate amount of reserves demanded by banks. At recent meetings, the staff have discussed estimates of bank demand for reserves, and how, in aggregate, it is much higher than it was pre-crisis. We gather information on the drivers of banks' demand for reserves through surveys like the Senior Financial Officer Survey and from outreach to market participants. Banks tell us that their immediate liquidity needs are a major factor in their demand for reserves. And the largest holders of reserves report that managing liquidity in stress scenarios, including as a part of resolution planning, is an important factor in their demand to hold reserves.

It's important to note that no specific regulation or supervisory program prescribes that firms hold a certain amount of reserves in their liquidity buffers. Indeed, as you can see in figure 3, an examination of the composition of large bank portfolios of high quality liquid assets (HQLA) and the share of their holdings in reserves shows heterogeneous approaches. These findings suggest that the approaches being taken are quite firm-specific. Our coauthor, Steve Spurry, can provide additional details if there are questions.

That said, a facility that allows banks to rapidly monetize their holdings of Treasury securities or other HQLA might create an incentive for them to hold fewer reserves and larger holdings of other types of HQLA in order to meet their liquidity risk management or resolution needs. This effect would likely be most powerful for the largest reserve holders, and, as you can see in figure 3, the eight global systemically important banks, or G-SIBs, in the United States hold over $800 billion in reserves. We also know from the Senior Financial Officer Survey that, with just an illustrative sample of 75 banks, we could have counterparties to an operation that currently account for over 80 percent of estimated reserve demand.

Adding less than 100 counterparties would be operationally feasible using the Desk's existing repo infrastructure but may subject the Federal Reserve to some criticism by other banks who desired access. As a point of contrast: The discount window has much wider availability, with over 2000 depository institutions currently pledging collateral. If policymakers wished to have a repo facility broadly available, a different trading infrastructure for the Desk would be necessary.

Lastly, let me mention eligible securities. A repo facility could accept only Treasury securities, or it could be broadened to include a broader range of the securities in which the Fed is allowed to conduct open market operations, or OMOs. In general, accepting a broader range of eligible securities would likely be a desirable feature to many counterparties, and repo operations before the crisis included other OMO-eligible securities like agency MBS. For a bank-focused facility, the inclusion of a broader range of securities, such as agency MBS, might cause them to shift their liquidity portfolio composition toward these higher yielding assets and reduce their demand for reserves. But, as Laura will talk about in a moment, whether a facility could reduce the aggregate demand of reserves by banks likely depends on the Federal Reserve's willingness to make a credible commitment to banks that the facility would be available to them in the times when it would be most needed for liquidity risk-management purposes, including periods of firm-specific stress.

MS. LIPSCOMB. Thanks, Nate. Nate has described how a standing, fixed-rate repo facility could support different objectives, depending on some key parameter choices. I will conclude our presentation by highlighting a couple of related policy considerations.

First, operations conducted through a standing, fixed-rate repo facility would be economically similar to the lending that the Federal Reserve makes to banks through the discount window, raising a number of related policy issues and, in particular, the ability to lend to firms in stress. As you know, a Reserve Bank may lend to a depository institution if the loan is "secured to the satisfaction" of the lending Reserve Bank, even if that institution is not in sound financial condition. Indeed, the secondary credit program is designed to deal with troubled banks. However, there are statutory limitations on the Federal Reserve's lending to undercapitalized and critically undercapitalized institutions. The Federal Reserve and the FDIC have provided guidance to G-SIBs on the limited and specific circumstances in which they can assume access to Federal Reserve credit in their resolution plans, consistent with statutes. The net result is that the largest firms are generally not factoring in access to Fed credit as part of their liquidity management in stress scenarios, and this is one possible contributor to reserve demand.

The extent to which a repo facility might reduce this demand is likely dependent upon the degree to which firms perceive that they have a commitment that they can access the facility when they are in stress. The New York Fed's counterparty policy regarding open market operations does not contemplate transacting with firms in such conditions, and, even when receiving HQLA against reserves in the transaction, the Federal Reserve could face counterparty exposures and complications were a firm to face insolvency. There might also be concerns about the Fed stepping ahead of other creditors and the FDIC by taking the bank's best collateral as its situation deteriorated. Further, if the facility were used by a large firm in stress, the Federal Reserve may come under criticism for the appearance of bailing out a large bank or dealer.

Our memo did not include an estimate of how much a repo facility might reduce aggregate demand for reserves. While the direction is clear, the size of reallocation away from reserves is highly uncertain and would depend on factors such as counterparty limits, breadth of access, the willingness of firms to use intraday credit, the relative returns on eligible securities versus reserves, and, as mentioned, the reliability of access. Moreover, as Nate mentioned, referring to figure 3, HQLA management is highly firm specific, and individual bank responses to the availability of a repo facility would also likely be unique. With some sense of the scope and terms of a repo facility offering, conversations with firms, as well as additional analysis of firm-specific data, would likely provide greater information about how a facility might change behavior.

Finally, I will conclude by noting that it is possible that any type of operation that offers "funding" from a central bank at a rate above market rates could suffer from stigma and thus become less effective. We provide some options in the memo to potentially adjust the terms of lending under discount window authority, and also note a System-wide improvement initiative, which could mitigate discount window stigma-related issues and perhaps achieve some of the objectives envisioned for a repo facility. In the case of a repo facility, price may help combat stigma. If the rate was set to a relatively low level such that it is more frequently "in the money," a repo facility is more likely to be used regularly and thus more useful in both normal and stressed conditions. But more aggressive pricing of a repo facility also means greater risk of disintermediation of private market participants, as Nate discussed. It could also mean a greater risk of stigmatizing the discount window. And we could see greater ongoing usage by counterparties that face the highest borrowing costs. More broadly, facility parameters would have important implications for take-up, and the resulting size and volatility of the Federal Reserve balance sheet.

Thank you. Nate, Steve, and I are happy to take any questions.

CHAIR POWELL. Thanks very much. Any questions for Laura, Nate, or Steve? President Kaplan.

MR. KAPLAN. I have one, which is probably unduly basic, but I want to make sure I understand. A framework in which there were tighter credit controls here, and in which it was not intended to be as available during periods of stress—those banks would then need to use the discount window, in that scenario. Why wouldn't that be a framework? Give me your analysis of that—the issues associated with that approach.

MS. LIPSCOMB. I think what we are pointing out is that if there was a desire to encourage banks to reduce their reserve demand through the availability of a repo facility, some of the biggest banks explained to us that they are holding reserves as part of their liquidity risk-management including in stress scenarios. And those are really chunky amounts of reserves. So if it's a stress scenario that is the binding constraint of reserve demand, the facility needs to be available in a large size in that scenario.

We also pointed out that they are currently not seeing the discount window as a key part of risk management in liquidity stress scenarios. So the discount window is currently not seen as an alternative. If the discount window is seen as fully available in those scenarios, you could expect that you would have less reserve demand, all else being equal.

CHAIR POWELL. President Bullard.

MR. BULLARD. Just to follow up on that, why would it not be available? I mean, in a stress environment—we just went through it, I guess, in the last crisis—it was available in size.

MS. LIPSCOMB. Yes. We have tried to provide some clarity to Global Systemically Important Banks (G-SIBs) about the limited and specific instances in which they can count on the discount window and Federal Reserve credit—which would include daylight credit, and some frequently asked questions (FAQs). But they are very specific instances, and we had to do that to be consistent with the Dodd-Frank Act, which limits the ability of the banks to rely on some sort of sovereign backstop when in stress. So, basically, for resolution planning purposes, the degree to which banks can assume access is highly specific. And the net result of that is that banks are not including the discount window as a key part of their plans.

MR. BULLARD. But strategically, for the Committee, we know what we're going to do in a crisis. So it seems like that should be part of the equation—that the discount window would be open and, not only that, probably the term auction facility (TAF).

MR. WUERFFEL. One of the things that—whether it was the term auction facility or the discount window, if you wanted to create an incentive for banks to reduce their demand for reserves, you probably would have to communicate publicly the Federal Reserve's readiness for them to change their resolution plans. It's really more about the resolution planning and their liquidity risk-management planning than it is in the actual event. So to change the demand now, you'd have to change the way that they go about their planning.

MR. BULLARD. Well, I'd hate to make a decision based on the idea that we're not going to lend at the discount window during a crisis. We are going to lend at the discount window during a crisis, and we are going to reopen the TAF, presumably, during a crisis. So if we need to communicate that further, we should probably do it.

CHAIR POWELL. President Evans.

MR. EVANS. Thank you, Mr. Chairman. The nature of the presentation and some comments that have already been made about resolution planning reminds me—entering this discussion, I'm a little uncomfortable or unsure as to exactly what we're talking about here or what issue we're trying to address. And so, from a monetary policy standpoint, I understand the questions about the size of the balance sheet and rate control and how we achieve our monetary policy objectives. The topic here wanders into financial stability issues, in not just a tangential way, when you start talking about resolution planning. That's not a topic that has been discussed really at this table at the FOMC level, so I'm unsure as to how much weight to give to that or to think about it. My own take on some of the financial crisis issues was that there wasn't enough risk pricing going on in a whole bunch of asset categories, so there was too much risk being taken on. Resolution planning was supposed to incentivize the largest banks to plan more carefully about that. Choices were made.

Now we're thinking about entering into that and offering opportunities to provide liquidity at a moment at which—I don't know how that alters how they think about risk pricing and whether or not it's more prudent or whether it encourages more risk-taking activity. So I guess any more additional commentary about the relative balance here or how to think about this—but that's my general level of sort of confusion about the entire topic. It seems kind of important to me.

CHAIR POWELL. Let me say that I think this exercise is one that's as much about raising questions as trying to get the answers. That's exactly the kind of feedback we need—we're going to want to come back to this issue after people surface those kinds of questions. President Kashkari.

MR. KASHKARI. You mentioned in the memo and in your presentation the risk of disintermediation in the private sector. I'm confused by that, because, in my mind—this is simplified, but just think about Treasury-only facilities for a moment. One option, as I think about it, is a bigger balance sheet, so the Federal Reserve owns more Treasury securities, no facility. Another option is a smaller balance sheet but a facility being provided. Why aren't those two equivalent in terms of disintermediation?

MR. WUERFFEL. I think, in the case in which you're using a repo facility, you would be altering the traded market. Depending on where you set the rate, you would be altering the markets that are trading in the private sector—the rates of the other traders in the private sector.

MR. KASHKARI. But if we step in instead to have a bigger balance sheet and we're buying Treasury securities from the private markets, aren't we having a similar effect on the pricing and the liquidity in the private markets, whether it's through—I just don't understand why these two are different.

MR. WUERFFEL. I think that outright purchases through the balance sheet at the time that you're conducting the purchases and the ongoing term premia effects of those certainly do have an influence on financial markets. I think a repo facility would also have an influence on financial markets, but on a more active day-to-day basis. I'm not sure that I would call the balance sheet "disintermediation," but I think you're making a good point about how either type of action involves an open market operation, and then there are financial market effects associated with those actions. And that's fair.

MR. KASHKARI. Okay. But I guess it isn't clear to me that one has a bigger effect than the other. Look, maybe I am oversimplifying it: a bigger balance sheet and no facility, or a somewhat smaller balance sheet with a facility. Again, this is Treasury-only, to keep it simple. It is not obvious that one is more disintermediating than the other is.

MR. WUERFFEL. I think if you set the facility rate in a repo facility very, very low, what you could end up doing is all of the private market transactions could instead be effectively intermediated by the Federal Reserve through those open market operations, so I think that would be the risk. However, it really would depend on where you would set the rate.

MS. LOGAN. I think the effects are slightly different. I agree with you, when you—once we—if we were to purchase the securities, we would then make them available for lending in securities lending. If we were involved in their repo market, it would have some effect on disintermediating in the repo market specifically. However, I agree that, in aggregate, they look somewhat similar. I think the specific effects in various aspects of the financial markets are a bit different.

MR. KASHKARI. Okay. Thank you.

VICE CHAIR WILLIAMS. Can I do a two-hander?

CHAIR POWELL. Governor—sorry. Go ahead. A two-hander from John.

VICE CHAIR WILLIAMS. I do think there is a difference here, and I think the chart about the distribution of rates of trades is actually highly relevant here. When you think about the general size of our balance sheet, that is a quantity out there. It obviously affects financial conditions in the way you have said. However, if we go in there with a ceiling facility, as Nate said, that is in the money, you know. It is low enough. We are actually setting an interest rate in the market, in effect. So it is a different—I think that gets at the disintermediation, that those trades that would be happening well above the ceiling rate we put in—those would be then coming through us. Therefore, I think there is a difference between how we set a quantity in the balance sheet and having us setting a rate itself.

CHAIR POWELL. Governor Brainerd.

MS. BRAINARD. In the case in which we do not make a clear *ex ante* commitment that this will be available to large firms in moments of stress because of 13(3) or other concerns, what kind of a reduction in desired reserves are we talking about? Is it $50 billion, $100 billion, $½ trillion, $1 trillion? I'm just trying to get a sense of how much balance sheet this really frees up if we don't want to cross some of those important lines.

MS. LIPSCOMB. I think that's a great question. We would have to do a substantial amount of additional work to figure that out. In the survey, when we asked banks to rank their primary sources of demand for reserves, they indicated that intraday payments is a key component of that. I think we need to, possibly in the next survey, dig into that a little bit more and understand if some of that demand could be met by the availability of a repo to, say, cure an intraday overdraft by end of day. You could exchange your Treasury securities for reserves and not have to worry about late-day funding markets that are rather anemic right now. That could be creating some precautionary demand for reserve balances. It's really hard getting firm answers when you ask banks to disentangle what component of their demand for reserves is related to that. But I think we can do further work and get some better answers.

MR. WUERFFEL. I would just add to Laura's point—the parameters that you had set could have an effect on how banks would think about their own reserve demand. So, for example, late-in-the-day availability could be one consideration. But the other parameters, like how available it is in stress, could also be some of the other features that would be important—the eligibility of collateral.

So each one of those factors could then determine how the banks would think about their demand for reserves in that scenario—which is one of the reasons why we didn't include an estimate in the memo—because, in the absence of knowing those parameters and being able to talk to the banks about, if it had these different features, then the banks might be able to give us a better sense of that.

MS. LIPSCOMB. Maybe to add—maximum counterparty size relative to bank's estimate of their deposit volatility would be relevant for how much they could shed in reserves.

CHAIR POWELL. President Rosengren.

MR. ROSENGREN. Could you talk a little bit more about the financial stability implications of this? The two that crossed my mind were, one, to the extent that the primary dealers have access, they do not have access to the discount window. They were some of the largest borrowers during the crisis. They still have some of the biggest needs for liquidity, and we'd need to define their access to the discount window with exigent circumstances. I thought the Bank of England created a facility like this at least in part from a financial stability standpoint. And, two, when we're thinking about financial stability at a time of duress, to the extent that only MBS and Treasury securities are available through this facility, it starts disadvantaging other assets that aren't nearly as liquid.

So those were the two financial stability elements that were most obvious to me, but I was wondering whether the staff had thought of others. Charlie Plosser and Jeff Lacker aren't around this table anymore. But there used to be a lot of concern about extending the discount window to nondepository institutions.

So, implicitly, we're taking a step that is allowing access to liquidity of organizations that are not depositories. That doesn't bother me, but it does seem like it should be something that we talk openly about—about how comfortable we are with that kind of access. So any comments you have on financial stability would be of interest.

MR. WUERFFEL. I think the issue you raise about nondepository institutions is certainly a consideration in the counterparty eligibility framework. The financial stability benefits or implications here—I think you highlight a good one, which is, at a time of significant stress in the money markets, you might expect counterparties to step back from each other, in which case the availability of Federal Reserve funding could be an attractive alternative to market participants in stress. So you could imagine, for example, lenders in money markets stepping away from primary dealers, and so then they would invest their cash in the Federal Reserve's overnight reverse repo facility. And, in turn, if a dealer were facing the need for financing its positions or for funding, it might then turn to a repo facility on the top end of a range for that kind of funding. So, in that case, it could provide some financial stability enhancement in that kind of funding market scenario.

MR. SPURRY. I think the Bank of England makes that distinction actually more on collateral than on counterparty: It is including dealers in its monetary policy facilities but then only taking Treasuries of very high quality.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Yes. I'm struck that almost half of the reserves are held by four banks. And, to the extent that one of our objectives is to reduce that, it just feels to me that, in whatever process is appropriate, doing some deep structured interviews with those four banks about which terms might or might not be relevant to reducing their balance sheet of reserves, and then we can make the call whether we're comfortable with those sets of elements. But it feels like a very targeted problem here, if your focus is on reducing the level of reserves.

MR. WUERFELL. We have had a number of structured dialogues with a whole range of banks—not about the repo facility specifically, but many of them raised the idea of a repo facility with us. I think in order to have the kind of parameter discussions that we're talking about, that would probably require us to be more explicit in public about our intention to go out and talk to these institutions about it.

MR. SPURRY. It is probably worth noting also, the point of your comment was more stark last year. And one of the banks that you're talking about actually did a very large rotation out of reserves and into Treasuries, so this chart looked even more stark last year.

MR. BARKIN. Yes.

CHAIR POWELL. President Daly.

MS. DALY. I just want to return to this idea of disintermediation, because I thought what Vice Chair Williams said was what I had in mind. But I had one other thing in mind, and I want to make sure I am right about it. I thought that one of the concerns about disintermediation is that, if we are the provider, then institutions lose their muscles for working with each other and other marketplaces. And we found historically, with the funds rate, those are hard to replace. They take some time. Is that what you have in mind as well, so that you're actually interrupting the relationships or the technology they have in place to do this?

MS. DALY. Okay.

CHAIR POWELL. Further questions? [No response.] Okay. Let's then begin the opportunity to comment, beginning with Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. The memo, the presentations, and the ensuing discussion have been very helpful in laying out some of the issues, clarifying some of the goals and thinking about how these different approaches could help achieve some of these goals, but they also highlighted a number of pretty significant challenges to achieving success.

I've just got a few thoughts and observations to add to this, given that, I think, a lot of the details are in the memos and maybe require further thought. First, let me start with interest rate control as a distinct goal. It's not clear that this facility is needed or will be needed, given the decisions the Committee has made. The Committee has strongly endorsed a floor system consisting of ample reserves. In this system, normal fluctuations in the demand for reserves could be absorbed by the supply of reserves, leaving relatively little imprint on the funds rate or financial conditions more generally. And, consistent with this regime, we need to make sure that we are regularly supplying ample reserves, as our communications of balance sheet normalization make clear. We need to be consistent in communicating to the public that some short-run fluctuations in the funds rate are not a concern in terms of our policy framework.

Indeed, the target range approach that we have adopted is a help in this regard—we've made it clear that we're comfortable with movements in the funds rate within the range. That said, there will be some unusual days, like at month-end, when the funds rate may momentarily breach the range to the upside, But, as long as those don't persist too long, I don't see this as interfering with interest rate control or our policy communications.

Now, second, I'm not convinced that a broad-based repo facility that included a large number of banks would be effective at significantly reducing the amount of reserves that banks wanted to hold, nor do I view this as a particularly worthwhile goal on its own. As noted in the memo and as the presentations highlighted—and some of the discussions dug into this—banks are concerned that such a facility may not be available to borrowers under stress, and that undermines, of course, their willingness to rely on this as a backstop source of liquidity.

In this regard, it is important to recall that we already have well-developed discount window policies that treat banks differently, depending on their condition. I cannot imagine that we could make an unconditional commitment to provide access to a repo facility to banks or institutions regardless of the state of the world or the institutions' conditions. I mean, this is already clear not only in the case of the discount window, but also in terms of our counterparty policies with open market operations.

We really have to think hard about whether this is, as we typically say, "time consistent." Is this a promise that we would actually be willing, or would it be appropriate, to carry out? And, again, these people we're talking about, these four or eight banks, will they understand this? And they are going to realize, from a point of view of a stress or a resolution kind of situation, that they are going to not be able to rely on a repo facility like this.

I also don't see the case for trying to drive reserves down to the smallest level possible through the creation of a repo facility. Even if it would work—which I doubt, as I mentioned before—at the margin, there are financial stability benefits associated with large banks holding reserves rather than marketable securities. Although our regulations allow institutions to make their own decisions regarding the composition of HQLA, the existence of a financial stability externality argues against us actively seeking ways for banks to economize on reserves. Thank you.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Mr. Chair. I am supportive of doing further work for a standing facility, but it might be worth being clearer about the problem we are trying to solve, as suggested by President Evans and President Williams. Decisions on how high a ceiling to impose, who should participate in the facility, and how extensively we want it used will depend on what we hope the facility will achieve.

I thought of five different goals that this could be trying to achieve, and I think it does make a difference which ones of these we're focused on. One goal of the facility could be rate control—specifically, helping to enforce a ceiling on the funds rate by using a facility that might not suffer from the stigma attached to discount window borrowing. A second goal could be to reduce the demand for reserves by providing a highly liquid and anonymous source of funds in the event of spikes in the repo rate. A third goal could be to move to a stronger corridor system for the repo rate so that the repo rate can, over time, supplant the federal funds rate as our focus in setting policy. A fourth and related goal could be to facilitate the migration to the secured overnight funding rate (SOFR) by making repo rates more controllable and more a focus of policy. A fifth goal could be to extend funding to broker-dealers that were a source of financial instability during the crisis. Which problems we are primarily seeking to solve might provide more clarity about the design of the facility.

My own view is that this facility should be focused on keeping the repo rate in a corridor that will eventually become the focus of monetary policy, supplanting the federal funds rate that has limited use in an abundant-reserves regime. My secondary goal would be to enhance financial stability. This second goal is more controversial. Some would argue that, by providing broker-dealers a new source of liquidity, we would be implicitly increasing the safety net to cover nondepository institutions.

My own view is that broker-dealers are critical to financial markets, and that their less stable funding model makes them a significant source of potential financial instability. Many of the facilities created during the financial crisis were intended to resolve the funding problem of broker-dealers, but already having a standing facility in place would have avoided starting up emergency facilities under tight time constraints. Thus, an ideal facility would broaden access as a strength, not a flaw. While the new facility would provide broker-dealers a vehicle for financing only those lowest-risk securities that are eligible for open market operations, the facility would not allow them to finance the riskier loans and securities that banks would fund through the higher cost discount window.

I have two potential concerns. Ideally, financial institutions of different sizes should be able to get funding on the same terms if they have identical collateral. In that regard, we should ensure that introducing the facility does not inadvertently raise issues of competitive fairness. Allowing primary dealers access to funding on terms that small banks cannot get through the primary credit facility would be problematic. If we provide access to the repo facility only to primary dealers and large banks, perhaps because the Desk does not have the capacity to facilitate repo transactions with all banks and dealers, we might consider changes to primary credit that would allow smaller banks financing on the same terms for the same collateral offered to the primary dealers. In essence, Reserve Bank discount windows would engage in repo transactions with small banks, involving liquid Treasury securities, and perhaps, if we so chose, government-guaranteed MBS at the same terms offered through the new repo facility.

A second possible concern relates to financial stability. During times of stress, the access to short-term funding for Treasury securities and MBS at a Fed facility will, on the margin, make bank loans that would not be fundable at the facility less attractive. So, although it would make financial institutions better able to liquefy positions, it would come at the cost of reducing banks' lending, because loans would not be as easily liquefied during a period of financial instability.

On balance, these potential costs do not seem to upset the actual benefits. However, the devil is in the details of such a plan. So I would encourage us to design a standing facility with much more clarity of purpose. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. I'd like to thank the staff for a detailed and, I think, very thought-provoking memo regarding this proposed facility. I do think it's a good starting point for discussions, and we will continue those discussions concerning a potentially important tool that can aid us in achieving reliable control of short-term interest rates and, as the memo says, likely reduce the demand for reserves.

Obviously, interest rate control is essential for the conduct of credible monetary policy. So, in thinking about the features and the goals, as President Rosengren laid out, that were brought up in the memo, I believe we should think of this facility primarily as aiding in interest rate control in an environment in which financial markets are functioning normally or close to normally. The facility's design should not be governed by crisis scenarios, although it would certainly be used aggressively in crisis situations. In a crisis, as President Bullard noted earlier, we will be able to augment the facility with other innovative solutions that are outside of our normal toolkit.

In that regard, the securities eligible for open market operations are appropriate. Using only eligible securities will help distinguish the facility from the discount window and reduce the chance that it's associated with any stigma. I do, however, share some of the concerns raised in the memo. One is that allowing a counterparty to conduct extremely large repo transactions could act as a subsidy to a financially troubled institution and could be perceived as a financial bailout, subjecting the Federal Reserve to political criticism. However, we want institutions to feel comfortable with relying on a facility for liquidity needs. So it would be useful to consider safeguards that prevent abuse but, at the same time, do not impair regular use.

The memo raises a couple of other issues that are central to the facility's design. One is the selection of counterparties, and the other is the rate at which repos will be offered. It will probably be unwieldy to include all primary dealers and depository institutions. But, at the same time, we should try, as others have noted, to avoid imposing competitive disadvantages on any particular bank. The issue of access is certainly one that will require much more discussion.

Now, the appropriate setting of the interest rate of the facility also needs careful thought, as it clearly is a key design parameter. With the facility in place, we will be trading off robust interest rate control with protecting the efficiency and depth of the broader repo market. Setting the rate too low could result in significant disintermediation of the private market, and setting it too high would render the facility ineffective. Thus, there is a careful balancing act that must be accomplished if we are to have an effective facility that does not impair financial market functioning. So, here, one idea is that an aggregate cap might serve a useful purpose in protecting financial markets from the possibility of significant disintermediation while simultaneously providing banks under idiosyncratic stress a reliable source of liquidity. I think that these latter two issues clearly deserve closer scrutiny. But, again, I found the memo quite helpful in clarifying my thinking in raising a number of carefully considered topics. Thanks again for the memo. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. I would like to thank the Board staff for their excellent summary and assessment of how a standing fixed-rate repo facility might work and to what end. I am sympathetic to the idea of adding a standing repo facility to our set of tools. I would like to emphasize that what is being proposed here is not experimental. Many central banks today, including the ECB, successfully employ standing facilities in seeking to achieve their mandates. In short, by doing this, we could meet an international standard.

My preference is for a facility that includes at least banks and primary dealers as counterparties. The set of eligible securities should, at the very least, include U.S. Treasury securities and agency debt. The applicable haircuts in interest rates should be sufficiently attractive to distinguish the facility from a discount window.

The primary benefits from a facility would, in my view, be twofold. First, the facility would provide superior interest rate control—in particular, a way to establish a reliable soft ceiling on money market rates. Second, it may encourage a reduction in the demand for reserves, in turn permitting us to achieve our goal of a minimally ample level of reserves needed to operate our desired floor system effectively and efficiently. If that's not our goal, we should restate that. This would be consistent with the Committee's normalization principles and plans that we have put out. Moreover, the establishment of the facility would likely eliminate the need to continuously estimate the minimally ample level of reserves over time through bank surveys or other methods. Systematic use of the facility would, by itself, provide the market signal that reserves may no longer be ample. Under the parameter settings similar to those used by the ECB, the facility is unlikely to be used very much. One possible exception to this could be during a stress event. In such an event, it seems preferable to me to maintain interest rate control at the expense of balance sheet size, especially as the balance sheet would potentially be much lower to begin with if the facility is in place.

There are a host of legal issues to be worked out in terms of how the facility may be used in times of distress. If the set of eligible securities is limited to U.S. Treasury and agency debt, the risk may be minimal and, hence, legally permissible. Banks and their supervisors should be encouraged to think about how resolution planning might be affected under the assumption that a standing repo facility will be available. If a standing repo facility renders Treasury and agency debt as cash equivalents, then such securities are likely to substitute for reserves in resolution plans.

We would like to encourage the staff to continue to develop plans for a facility that could potentially reduce reserve demand and deliver superior interest rate control. Also, I think it would be useful for the next report to include the experience of major central banks around the world and to make some recommendations for preferred parameter settings. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. First, I also want to thank the staff for the memo. At earlier meetings, several of us have suggested it would be useful to discuss the possibility of a standing repo facility, and I thought the staff memo was very helpful in laying out some of the considerations.

Of course, as we have been discussing, such a facility has the potential of putting a soft ceiling on market interest rates, money market rates, thereby perhaps eliminating or at least limiting spikes in the funds rate. It might also lower banks' demand for reserves, since they would be able to pledge eligible securities for reserves when needed if the Fed is a counterparty. This means the average level of reserves that the Federal Reserve would need to supply in its ample-reserves regime could be lower. But these potential benefits are offset by some potential costs, as everything in the world seems to be.

The Fed would be playing a larger role in money markets in normal times, thereby crowding out private-sector intermediation in the repo market, and our balance sheet would become more volatile. The take-up at the facility could become quite large at times of market stress or when a large firm faces a large liquidity need. Now, how one weighs the benefits versus the costs depends partly on the design choices of the facility, including pricing, the set of eligible counterparties, and eligible collateral. And, as the memo and the presentation today point out, if you set the rate too high, then the facility won't be used very much. This would limit our "footprint" in the market but also limit the facility's ability to put a ceiling on rates, making it a facility of last resort, along lines similar to the discount window. If you set the rate too low, then the Federal Reserve would be crowding out private-sector intermediation.

The set of counterparties also affects this cost–benefit analysis. If the purpose is to more directly influence banks' demand for reserves, then a set of counterparties has to be expanded from primary dealers to include banks. But opening a facility to all banks might be hard to administer. A middle ground would be to consider eligibility criteria similar to those used for the reverse repo facility. This would mean limiting the banks to those of a certain asset size or level of reserves. In the case of reverse repos, it is banks with assets of $30 billion or more and reserves of $10 billion or more. And, as President Rosengren said, we might want to consider other changes that, if we limited the repo facility, it would help alleviate the issue about the small banks not having access.

As a starting point, we might consider whether it would make sense to offer the facility to the same set of firms already available for reverse repos, but that's something to think through. If there are concerns about letting the firms participate whose financial health is harder to assess because we don't supervise them, one could have a narrow set of eligibility criteria so that the counterparty poses little credit risk exposure to the Federal Reserve—something that the memo suggests is a criteria in the Desk counterparty policy for open market operations. A reasonable place to start would be Treasury securities and perhaps Ginnie Maes, which count as level 1 high-quality liquid assets under the Basel III liquidity rules.

So I find the idea of a standing repo facility worth further study. There are three issues that I'd like to see more work on. As we think about the potential benefits of a facility, it would be useful to understand more about what's causing the upward pressure on the funds rate and high demand for reserves. As Vice Chair Williams said, some of the volatility in the funds rate—for example, at quarter-end—should be expected and shouldn't be viewed as lack of interest rate control. Regarding reserves demand, banks report liquidity management as a significant factor driving their demand, and some banks say resolution planning is a factor as well, even though the guidance doesn't suggest that reserves are preferred to Treasury securities. It might be that, with more experience and clarification of the regulatory requirements, banks would get more comfortable holding a lower level of reserves, which would lower one of the benefits of a standing repo facility. So it would be good to have more insight on this.

I would also like to better understand the tradeoff between having a Fed balance sheet that is smaller, on average, but subject to size spikes when the repo facility take-up is large, versus a larger but less volatile balance sheet we'd have without the facility. A rough back-of-the-envelope calculation suggests the average balance sheet size could be smaller by up to $500 billion. So this estimate is a combination of the possibility we could lower the $200 billion buffer the Committee has chosen to handle reserve demand uncertainty. And the estimate by Dave Andolfatto and Jane Ihrig published by the St. Louis Fed that a repo facility might reduce reserve demand by $175 billion to $300 billion. Would the Committee view a reduction of $500 billion as a meaningful increase in the scope for doing QE in the future? Can the staff get more precise estimates, in order to help inform the Committee?

Finally, it would be good to think through how we would handle market stresses that might last several days leading to very high take-up. We would be serving as a counterparty when markets aren't functioning well, which is one of our roles. On the other hand, this might have moral hazard and other unintended consequences that we should think through. If the benefits of the facility depend on its being available when a firm faces stress, we should know more about what this commitment would mean in various scenarios. And, as President Bullard mentioned, we might look at the experiences of other central banks that operate corridor systems for insights. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. I appreciate the Board staff memo and its role in facilitating this discussion. For me and for my team, I think it helped us understand that this is a much more complicated issue than maybe even we had realized, for a lot of the reasons that have just been given. And I'm supportive of doing more work—understanding, though, that we may not come to a resolution that's acceptable, in light of these various goals.

Having said that, I would just make a few comments. Number one, I like the idea of doing more work on this, obviously, as a number of you said, because if it gave banks the ability to readily and quickly monetize their nonreserve high-quality liquid assets and reduce the regulatory-associated demand for large quantities of excess reserves, I was hopeful this would allow us to implement our ample-reserves regime with a lower quantity of reserves, lower balance sheet size. I thought this could be a useful addition to our implementation framework in which we have a floor, implied by the ON RRP facility, as well as a ceiling, and which would help us ensure that the federal funds rate remained within the target range. And, in order to give the FOMC more direct influence on the interest rate that is expressed by our policy stance, I was certainly in favor of having counterparties that include both banks and primary dealers. And, certainly, in thinking about the rate, my view was that the rate should be closer to the upper end of the federal funds target range for the reasons that you all said, not to disintermediate market participants. I, on the other hand, don't want it to be above the upper end, because I didn't want it to create a stigma associated with the use of this facility.

Having said all of that, where we struggled in my conversations with my team in Dallas was on these issues of a stress scenario and also our counterparty risk. We had talked about the fact that, if we were going to do this, I would have thought we needed a good process for continually updating our bank and primary dealer counterparts and really pruning this counterparty list, certainly in the event of not just a stress scenario but when there are actual banks that are having credit issues. But I understand, especially when you talked about the administration today and some of the issues associated with having too many counterparties, and then we get into these financial stability issues.

I must admit that I will leave this discussion today with more questions than answers and that I am more uncertain, as I leave here, that we are going to figure out a way to do this than when I came in. But I think that's great, and I think this kind of memo and this kind of discussion is very, very useful from that point of view. Thank you.

CHAIR POWELL. Thank you. Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. Thank you to the staff for another informative and useful memo on an important topic. The memo outlines considerations associated with operating a standing fixed-rate repo facility and really two models for such a framework: one that would operate with primary dealers and be focused on the repo markets and another facility that would include banks that could be focused on funds rate control and potentially also affect the reserves in the system. A facility operated exclusively with primary dealers would tend to influence secured rates primarily and would not be expected to have much effect on unsecured rates or only indirectly.

I find myself in agreement with the comments we've heard by Presidents Harker and Bullard and, I believe, Kaplan in that, if I had to choose, I would personally prioritize a standing facility with banks as counterparties, with the potential benefit of reducing demand for reserves in the system and enhanced control over the funds rate. There are a couple of reasons for this priority if we had to choose. The Committee, of course, currently sets its policy with regard to a target range for the funds rate, so that seems to me a natural first priority. Obviously, it's important that other money market rates and repo rates are in alignment with our funds rate decision. But repo rates go up and down for a variety of reasons, and I, for one, would not prioritize eliminating spikes in repo rates as a priority. I am not saying others would, but typically those are the most dramatic examples of departures. And, importantly, I think a facility including banks would keep the Federal Reserve's role in financial markets more circumscribed than would be the case under a broader facility.

I do put a priority—perhaps because I've gone through Senate confirmation—on operating an ample-reserves regime with as small a balance sheet as is necessary. Obviously, there's not a playbook to follow, although I find some appeal from President Bullard's comments about using comparative analysis. In particular, in light of the discussion that we had a meeting ago about potential issues associated with our balance sheet or maturity extension at the next effective-lower-bound episode, if a well-functioning facility could reduce the demand for reserves by $300 billion or $500 billion—I am not saying that it would, but those numbers are out there—I think that is potentially a relevant consideration for us apart from others.

And so, as I said, I think that there is a lot more work on this, reflected in the range of views expressed around the table, and I look forward to further discussion about it. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. I want to, like everyone else, thank the staff for providing a thoughtful, well-balanced memo and presentation of the standing fixed-rate repo facility. I have to say, one of my long-term staffers remarked that this was the best memo that he had seen in 30 years. You should be quite proud of that fact. It's well done.

Like many of my colleagues, it's my view that, before we get into any discussion about the nuts and bolts of a standing facility—who the counterparties are, what the eligible securities will be, where the fixed rate should be set, and so on—we really have to come to some sort of agreement as to exactly what problem the standing facility is trying to solve.

The memo suggests three possible problems that a standing fixed-rate repo facility might solve. First, if we think of the size of the Fed balance sheet as too large, a facility may be able to reduce it by incentivizing banks to hold more securities and fewer reserves. Second, if we think there's excess volatility in overnight rates, a facility may provide superior interest rate control, by setting a sufficiently low ceiling with a fixed repo rate. And, finally, if we think that periodic spikes in overnight rates are disruptive, the repo facility can act as a liquidity backstop to mitigate the spikes. I would note that President Rosengren very early on added two other possible objectives or problems: One would be to facilitate a migration to SOFR, and then another one would be financial stability. So we've got five.

Now, each of the problems in the memo implies a different set of design parameters for a standing facility, which is why it is imperative that we agree on the problem that we are trying to solve. For example, if the problem is the size of our balance sheet, then the standing facility's counterparty should be banks, and the fixed repo rate should be set close to the prevailing money market rates. If, alternatively, the problem is periodic spikes in secured overnight rates, then the standing fixed-rate repo facility's counterparty should be primary dealers, and the fixed repo rate should be set somewhat higher than the nonstressed secured money market rates.

Now, even if the problem is clearly identified, it is not obvious that a standing facility is the answer. The memo points out that there can be unintended negative consequences associated with the setting of the standing fixed-rate repo facility design parameters. These unintended consequences may be sufficiently bad so as to negate the usefulness of the facility itself. So it is important that we both understand and can measure these negative consequence. And, in the same vein, we must have confidence in the assumptions that underlie the fixed-rate repo facility if we decide to move in that direction. For example, if the problem is the size of the Federal Reserve's balance sheet, it is critical that banks have the incentive to reduce their reserve holdings by increasing their security holdings. But the memo identifies a number of situations that put this assumed behavior in question.

Now, I am not so concerned about the balance sheet size issue, so I don't see this facility as solving a problem along these lines. Governor Clarida, maybe if I have to testify someday [laughter], I will have a different view, but that's not where I am today. And in the past, I have expressed views that the rate control issue might be better addressed by a shift from the current federal funds target rate to using overnight bank funding rate (OBFR) as the target rate. If the interest rate control concern is about periodic spikes in the secured overnight rates, then an alternative solution to a standing fixed-rate repo facility might be to announce that we are ready to conduct open market operations with primary dealers on quarter- and year-end days if need be.

On balance, I think that a robust discussion of this facility is both useful and warranted. I have an open mind regarding a standing facility, but, at this point, I'm not completely convinced that it would be warranted. I would like to see a deep analysis based on the consensus that the

Committee reaches, when it reaches that consensus, regarding what problem or problems it wants to solve before any decisions are made. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chair. I join with others in thanking the staff for this important analysis. From the standpoint of interest rate control, which I believe should continue to be our primary objective, I see little motivation to adopt a repo facility like this, since the Committee has already announced its intention to implement monetary policy in a regime with an ample supply of reserves. If we manage to achieve that objective, volatility should be the exception. Pursuing objectives beyond interest rate control, such as trying to incent banks to shift from reserves to securities, seems to introduce undesired side effects related to disintermediation, the private-sector activity, and a host of other policy considerations mentioned in the staff memo. Although I have been among those interested in looking at ways to reduce the demand for excess reserves, a standing repo facility does not seem to be the answer. Whether there are other ways to achieve this objective remains an open question for me. One consideration might be to lower IOER rates on excess reserves above a certain threshold.

Finally, as the U.S. payment system continues to evolve toward faster settlement options, there may well be implications for secured and unsecured lending markets. Under the current structure, trading in securities settles earlier in the day than the federal funds market, providing some motivation for banks to prefer excess reserves over Treasury securities. To the extent that real-time settlement changes the timing of transactions and when they're settled, it may be the case that the trading of securities expands throughout the day and itself contributes to lesser demand for excess reserves. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. I, too, just want to thank the staff for a very clear and helpful memo. In principle, I can support the establishment of a standing repo facility, recognizing that such a facility is part of the toolkit of many central banks around the world, and it can be useful in providing a soft ceiling on money market rates in exigent circumstances. But I think that we would first need to get much greater agreement on the desired purpose of such a facility. I, for one, don't particularly see the need or case for prioritizing the creation of such a facility in order to facilitate an approach that involves probing for the kink between the flat and steep portions of the demand curve for reserves unless it would greatly reduce the overall size of the balance sheet under reasonable parameters—which I doubt.

In that regard, my preferred approach to balance sheet policy would be to end the drawdown of the balance sheet in September, as we have announced, and to allow the balance sheet to resume trend growth after a relatively brief pause, perhaps as early as the first quarter of next year. Under such an approach, there wouldn't be any pressing need for a standing repo facility: we would stop shrinkage while reserves are still ample, and this would minimize the chance of inadvertently bumping into reserve scarcity.

Consistent with our indication that we would not want our policy instruments to work at cross-purposes, the case for ending balance sheet runoff cleanly in the third quarter without prolonging that runoff seems to have strengthened recently, with roughly half of the Committee now projecting a cut in the policy rate of about 50 basis points over the balance of the year. In my view, the benefits of shrinking the balance sheet further by a few tens of billions of dollars in the near term are likely to fall short of the costs, in terms of heightened uncertainty and possible market volatility at a time when market participants are trying to understand the shift in the overall FOMC reaction function, and the economy is being buffeted by crosscurrents.

Nonetheless, if the Committee chooses to establish a standing fixed-rate repo facility either to smooth the runoff process in the near term or to provide a backstop facility in the medium term, it would make most sense to establish one that has banks as counterparties rather than only primary dealers. To the extent that the reason for establishing such a facility would be to limit the volatility of the federal funds rate, as others have said, this is best accomplished through a bank-focused facility, whereas a facility focused on primary dealers would work only indirectly to influence unsecured rates.

One possible benefit of a broad-based bank repo facility could be to reduce banks' perceived comfortable level of reserve holdings by providing assurance that nonreserve HQLAs, such as Treasuries, could be readily converted to reserves on short notice. However, we will need to expand our surveys and outreach to better understand the order of magnitude of the resulting reduction in reserves. According to the information we have today, the amount of balance sheet reduction from this channel is highly uncertain, and it could turn out to be quite small. Surveyed banks indicate that a repo facility would enable them to reduce banks' steady-state reserve holdings if they had certainty they would have access to the facility to monetize securities holdings when they encounter funding stress. But statutory limitations in FDICIA, as well as existing guidance on resolution planning and on Federal Reserve Bank of New York counterparty policy, raise real questions about whether the System could commit ex ante to provide this access to institutions experiencing firm-specific stress, especially to the few large banks who currently account for the vast majority of reserves holdings. And I, too, take certain lessons from my interactions with congressional members, and I take very seriously the lessons we learned about the restrictions on 13(3) authority in response to its usage with respect to particular institutions.

In addition, there appears to be a tradeoff in the design of the facility between the degree to which the facility overcomes stigma and is readily accessed, on the one hand, and the Federal Reserve's "footprint" in the market, on the other. If the repo facility rate is set at a low spread over money market rates, repo take-up could be high and broad based, but this would come at the expense of disintermediating a greater share of private-sector activity. Whether there's a "sweet spot" that achieves stigma-free, moderate take-up and enables the facility to provide a useful ceiling on rates, while also limiting the Federal Reserve's "footprint" in the market, is an open question.

Given this set of considerations, on balance, I'm comfortable supporting further exploration of the design and potential usefulness of a standing repo facility, although I wouldn't view it as a pressing near-term priority. I, too, urge being clear among the Committee—not among the staff—as to what problem we're trying to solve. My instinct would be to explore the design of the facility for purposes of relieving broad-based funding market strains in exigent circumstances rather than to address the needs of institutions experiencing firm-specific stress. And to the extent that we are doing so, I would want to be clear about the specific purpose of that standing facility and how it might compare, for instance, with alternatives, such as the term auction facility. Thank you.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you. Like everyone, I want to thank the staff for a memo that was both clear and clarifying. It was exceptionally useful. As I thought through the discussion in the memo, I focused on a couple of things that I think are, fundamentally, what everyone has been discussing so far. First, what are the objectives we are trying to achieve, and how would a repo facility compare to alternative methods of achieving those objectives? That may sound like two things, but it's really only one. And, second, how do we prioritize our objectives, and how ought that to affect the design of the facility?

So, as to our objectives, the memo describes, to my mind, two principal ones, notwithstanding the varied additional potential objectives that some have mentioned: one, to provide a backstop against temporary spikes in the federal funds rate, and, two, to provide an incentive for banks to shift their portfolios from reserves to securities by guaranteeing them access to reserves during stress episodes.

So if those are the objectives, and I think they are, what are the costs and benefits of a standing repo facility relative to the alternatives? What other tools would we have for addressing temporary spikes in the federal funds rate or for meeting increased demand for reserves during stress episodes? There tend to be two principal options. First, we could engage in *ad hoc* open market operations to meet temporary increases in reserve demand, maintaining the price of reserves within the federal funds target range, or we could keep the level of reserves abundant enough to forgo the possibility that the price of reserves ever climbs appreciably above the IOER rate, even during stress episodes. In considering the repo facility, we should consider its costs and benefits relative to the costs and benefits of these alternatives, because these problems aren't going away simply because we don't adopt a repo facility.

Relative to ad hoc open market operations, a ceiling facility might be preferable in providing a systematic response to spikes in reserve demand. By providing some assurance that demand spikes will be accommodated, the facility could make it less likely that such spikes would occur in the first place. And relative to superabundant reserves as a method of addressing the question, my preference has been to operate with the smallest effective balance sheet, so I view the potential of a repo facility to lower reserve holdings as a major advantage.

That, then, brings us to the question of prioritization and the Tinbergen principle—one tool for one thing. While the memo describes this twofold purpose, it obviously suggests—and it's been a theme of the discussion around the table so far—that we may make different choices among the options for various design elements, depending on which of those purposes we value most. Are the participants only primary dealers? Are they only banks? Are they both? If they're banks, what kind of banks? How close do we set the repo facility rate to prevailing market rates? Will agency securities count as acceptable collateral or only Treasury securities? Each of those choices might be different depending on whether what we want most is to affect rates or to affect reserve demand.

As a Committee, then, the threshold question that we face in providing guidance to the staff in continuing to work through these design questions is to prioritize these purposes in recognition that, as we were taught by Isaiah Berlin, the ends that we pursue and the goods that we value cannot always be combined into one harmonious whole.

With respect to that threshold question, my priority is on reducing banks' reserve demand in order to allow us to maintain a smaller balance sheet than would otherwise be possible and to reduce the temptation that a large balance sheet will present to future bright policy whiz kids with more ideas than funding.

Obviously, the two goals are related. A smaller balance sheet will, other things being equal, increase the likelihood of temporary spikes in the federal funds rate that the facility could ameliorate. But where there are choices to be weighed in the balance, I would put a thumb on the side of the scale that reduces reserve demand. In part, that's because I think there is significant scope for us to reduce that demand. We currently estimate long-run reserve demand at $1.2 trillion. As I think I've mentioned in this group before, and as I'm sure I will mention again, the ECB currently estimates the long-run demand for reserves in its system at €400 billion—roughly the same size banking system; roughly the same regulatory liquidity requirements; estimate arrived at in roughly the same way, via surveys of senior financial officers, interpolations to account for unsurveyed banks, adding on a cushion for good measure. Yet we're projecting a level of demand that is three times that of the ECB. At the very least, that reinforces the view that I think many of us hold that there is great uncertainty associated with these estimates. And I believe it suggests as well that even modest incentives for banks to substitute other HQLA for reserves could have big effects. That would allow us, once we freeze the size of the balance sheet, to hold it steady for a longer period of time as it continues to shrink as a percentage of GDP. This is an objective that many of us have said we would like to achieve.

In regard to the parameters of the facility discussed in the staff memo, I have a few questions and thoughts on the choice of counterparties. The paper argues that a disadvantage of a repo facility with only banks is that it might not have immediate direct effects on the broader repo markets. But, given my prioritization, I share the view of Governor Clarida that it's unclear to me why this is a disadvantage, as I believe the primary aim of the facility ought to be to affect the price of reserves to banks, not to manipulate the broader repo market.

The memo also notes that there are indications that to make the facility as effective as possible in reducing reserve demand, it would need to be available to banks in stress situations in ways that primary credit under the discount window might not be. I would be supportive of that design feature, guided by my prioritization of the objective of reducing reserve demand when possible. Similarly, I'd support a relatively broad range of acceptable collateral for the facility, including agencies, as a way of further increasing the attractiveness of alternatives to reserves to satisfy HQLA requirements.

The staff note mentions that promoting regular use of the facility might prevent stigmatization, but then it also points out that the more the facility is used, the more likely that the Federal Reserve disintermediates private-sector activity, particularly as the Federal Reserve is likely to be both a regular borrower and lender of reserves. Okay. On the question of private-market disintermediation, I am supposed to be the big private-sector guy: limit the scope of government. *Reason* magazine—Robert Nozick—the "night watchman" state: When I've had plenty of sleep, I can go the whole nine yards. So this is a question that I want to understand more, but my initial, not-fully-tutored reaction to the memo is that it wasn't immediately clear to me what private-sector activity would really be disintermediated by a repo facility that prioritized reducing bank demand for reserves. The federal funds market is a pretty anemic market, concentrated in a handful of suppliers and users in a way that may not be particularly stability enhancing. So I will welcome additional work on the disintermediation question so we understand its implications better as we continue to think through this issue. Thank you.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. I am sympathetic to the idea of such a facility. I see three benefits: The first is rate control, the second is smaller balance sheet, and the third is financial stability benefits.

I am inclined at this point to lean toward a Treasury securities-only portfolio. I think it's easier to explain. I am inclined to have as wide a range of counterparties as possible, both banks and broker-dealers. And I think if it's Treasury securities-only, it really helps to answer the possible criticism that we're bailing out banks and broker-dealers—we're just lending against their highest-quality assets, so it doesn't feel like a bailout to me. I would encourage haircuts and spreads as small as possible to make it such that Treasury securities are as fungible *vis-à-vis* reserves as possible.

There are two areas in particular in which I'd like to see more work. One is on the disintermediation question. I listened to the comments and the responses to my question. It strikes me that there is only disintermediation if, in fact, we are achieving better rate control. If we're not achieving better rate control, then there is no disintermediation. So those seem like they are two sides of the same coin, so I'd want to understand that. I actually do think achieving better rate control is one of our goals. And if the cost of that is somewhat more disintermediation, it may be worth it. But I want to better understand that.

Second, all the discussion about lending to stressed counterparties, to me, goes back to the fundamentals of the lender of last resort. When I think about the lender of last resort, it's lending against illiquid assets that nobody wants in a time of stress. Here we're talking about, do we want to lend against Treasury securities in a time of stress? It just strikes me that we should want to lend against Treasury securities in a time of stress.

I also think about the examples on this chart that the staff has. Just to pick one, say J.P. Morgan has $250 billion in reserves—it looks like $250 billion of Treasury securities. If we introduce this facility and J.P. Morgan instead had $400 billion of Treasury securities and $100 billion in reserves, and then it got into trouble, and then it put some of those Treasury securities to us and it ended up with more reserves, it isn't obvious to me that we're worse off because of this facility.

A lot of the discussion has been that this facility introduces this new stuff, and maybe there's downside risk. But we have to compare it against the alternative of a big balance sheet today with a lot of reserves. It is not at all clear to me that the Federal Reserve is taking on more risk by introducing this facility versus just having an always bigger balance sheet. So I need to see more work done on some of these downsides, but I'm generally supportive. And, like everyone else, I thank the staff.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. I'll be the 13th to say "Thank you" to the staff. The memo was very helpful in organizing my thoughts and making me think hard about this.

I'm actually very pleased that we're having these discussions now. I have an open mind about this. And I think as banks continue to adjust to a lower level of reserves—and, importantly, we grapple with what the supply will be in order to maintain interest rate control—this is exactly the kind of conversation we should be having. It's prudent to develop tools and contingency plans to maintain interest rate control. And I guess it's fortunate I'm sitting right across from Governor Quarles, but if I had the scale of reducing reserve demand versus interest rate control, my thumb is heavier on the interest rate control. But those are the things we need to be debating.

As the memos and discussion highlight, quantifying the costs and benefits and balancing the various tradeoffs that were outlined and discussed here will be critical to designing an effective ceiling facility. I'm not going to say anything that others haven't said, so I'm just going to emphasize things that were important to me in my thoughts. But, as others have said, deciding on the problem we're trying to solve will be crucial to deciding what the parameters should be for the facility. But I would also emphasize, it's going to be important to decide whether a facility is the right way to treat the problem. And on this point, I'm not sure. I haven't thought about it or seen enough material about reducing reserve demand to know that the best way to do it is to have a ceiling facility. Or maybe we could think about what President George mentioned or—more importantly, perhaps—think about whether our supervisors are in fact not discouraging this idea that reserves are a better and more-liquid asset than holding Treasuries. So those are all things that we would have to think carefully about if we're going to put our thumb on the reserve demand part of the scale.

Should we move ahead, though, I would be particularly focused on ensuring that any repo facility avoids the challenges we currently face with the discount window—a tool that banks are reluctant to use because of stigma. And as a member of the credit risk management (CRM) committee, we've thought a lot about this, and there seems to be difficulty getting out of that situation.

One solution, of course, would be to set the rate on the repo facility very close to money market rates. But, as everyone has mentioned, this is not without cost. There are political risks, I think, to increasing our footprint in financial markets, and it may introduce disintermediation that will be hard to unwind. Like President Kashkari, I'd like to see more work on that.

As the memos detail, our choices on the interest rate and the rules governing access to the facility will not be easy. A low-cost repo facility—boy, those are hard words to put together—that is readily available during times of liquidity stress can encourage risky behavior by those who become reliant on that insurance. And this is the classic moral hazard problem. And setting the facility at a penalty rate higher than market rates can lower moral hazard but at the risk of stigmatizing the facility and then reducing its effectiveness, at least for interest rate control.

As we assess the benefits of policy control versus the costs of running a facility efficiently, I, like President Bullard and President Mester and I think others, really think we should look to other foreign central banks that have done these types of things and then ask, what has been working for them, what hasn't? I know when I was looking over the materials myself—the Bank of Canada has just released an entire report about the costs of moral hazard and how to think about those. So there are a lot of useful examples out there that are outside our country that might indicate what we should be doing as we go forward.

At the risk of wrecking the staff's summer, I think it would be helpful to see additional analysis quantifying the costs of various facilities—some simulations, like what if we chose this variety of parameters versus those, and then how do we balance off the political risks of a larger balance sheet? And I was struck by the opening remarks by Vice Chair Williams and Governor Brainard—we need to really know how much reserve demand reduction we're going to get and then compare that to the tradeoff of the volatility that we're going to have. And I think President Mester said that most concisely: It's the volatility versus the ample size. So I don't know how to square those two things, but those are going to be important.

In closing, I find it to be very good practice, whether we adopt a facility or not, for a central bank to have contingency plans for the range of risks that might interrupt the execution of policy and, in this case, interest rate control. But for now, I'd say our strategy of adjusting the IOER rate appears to be working, at least on the interest rate control side, and this gives us plenty of opportunity to assess the tradeoffs and design, if we should choose to adopt it, of an effective and durable facility.

So, with total conclusion, I will say that, as we go forward, I would like to see this conversation be in the context of running a larger balance sheet. I'm sitting across from all the Governors, so I feel the press of how important that is for many people in the Congress, but that's going to really depend on how much reserve demand reduction we're going to get if we take up this facility. Thank you.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chair. As my earlier question and comments indicated in the discussion here, I think about this in terms of the monetary policy side and the financial stability side.

Coming at it from a monetary policy side, I remain comfortable with our decision to implement monetary policy in a regime of ample reserves. The key benefit of this regime is that it provides a floor system and greatly simplifies our operations. The memo and the discussion I had with my staff led me to conclude that while a repo facility might, in principle, improve rate control at lower levels of reserves or reduce the demand for reserves, this would come with considerable cost in terms of complexity. And there are large uncertainties about how well it would even work. So I continue to think that our best option is simply to operate with ample reserves and stop the reduction in reserves sometime soon.

In thinking about some of the financial stability issues that have been raised though, I think it's all very complicated. It's not a discussion that we particularly have at this table, except in terms of trying to characterize the state of financial stability. And I wonder if a repo facility is the better way to proceed.

Now, it's gotten caught up in the arguably monetary policy side of the desire for a lower SOMA balance sheet. To the extent that doesn't get in the way of our dual-mandate objectives, I can kind of appreciate that, but I worry about that.

Again, I think President Mester had a good list of costs and benefits, and one thing I believe I heard her mention was that when it comes to the resolution planning side, Treasuries can be just as good for banks as reserves, and so perhaps other outreach efforts or education or emphasis at levels not at the FOMC level could help improve that. And if that changed the demand for reserves and allows a lower SOMA total, that can be very good. Thank you, Mr. Chair.

CHAIR POWELL. Thank you, President Evans. And thank you, Nate, Laura, and Steve, for an excellent memo presentation and for starting a valuable discussion. I would like to congratulate you on tying the record of being thanked [laughter] and I believe setting a new record for raising quite difficult and subtle questions on something that appeared a lot more straightforward a few months ago when I started thinking about it.

Like others, I see two main potential attractions to this facility, leaving aside some of the others for the moment: avoiding spikes in the federal funds rate and keeping reserves as small as possible while still being ample. In a textbook world, borrowers would never pay private lenders more than a facility's administered rate, so market rates would have a hard ceiling. Firms would also be less eager to hold reserves as a liquidity buffer when they know they can rely on the facility as a source of liquidity during a stress event. That would enable us to run a smaller balance sheet.

But we don't live in a textbook world. The frictions of the real world mean that we would have to grapple with a host of truly daunting questions before we're ready to make a decision. I'll mention four questions and then have a comment at the end.

First, with this facility, do we set the administered rate high or low? A lower rate, all else being equal, makes for a more effective ceiling. It also means that the Federal Reserve would be intervening in markets more often. A higher rate would do the opposite: fewer interventions, but a less effective ceiling. I did not have a strong prior. After reading the memo—and nothing I heard today led me to a clear answer as to which of these is preferable—I think there are difficult tradeoffs there.

Second, in setting a list of counterparties, do we include big banks, small banks, broker-dealers? Who do we include? My initial reaction is, if you're going to create that facility, wider is better. A narrow approach would limit the efficacy for controlling rates. There's a fixed cost in effort and public reaction to opening and explaining a new facility, and my inclination would be to make it as effective as possible if we do it. But before making that decision, I'd want to know the extent to which different-sized institutions with different business models would find the facility useful. In fact, I hope that additional systematic outreach to a range of potential counterparties could help answer this question as well as many of the other ones that have been raised.

Third, stigma. Will stigma prevent firms from using the facility? And I lean fairly strongly, certainly, toward probably "yes" on this one. The track record of the discount window and the anecdotes we've heard from banks and dealers are not encouraging. Money market participants won't want to use the facility if doing so makes it look to their bosses or their regulator or the market that they made a mistake or are in trouble. We could try to mitigate that stigma risk by playing with the parameters of the facility. If we make a facility attractive enough by setting the rate low, perhaps using that facility would make the manager look smart rather than caught out, but it would also involve greater disintermediation.

Fourth, will banks actually want to hold fewer reserves in normal times if we don't guarantee that the facility's doors will always be open, even for troubled banks? And here I'd lean toward "no." If we're not prepared to give assurances on this, and that would be a reasonable position for us to take, then that would significantly weaken the case.

As I look at maybe the three main purposes of these—one, rate control; two, size; and three, a range of financial stability concerns—I'm not at all sure that any of them is actually highly likely to be advanced. So regardless of how you prioritize them, I see real questions about advancing them.

Let's turn to financial stability issues for a minute. There would just need to be quite a lot more thinking. This is an area in which we've required very high liquidity on the part of these institutions, and we've been pretty careful to avoid moral hazard in those things. We've taken a very different path than the Bank of England, as some of you pointed out, and I just think those are deep waters, and it would take quite a lot of careful thinking to want to change what we've done.

I do share the view that we could have done more. For example, I think the idea of very large broker-dealers that don't have access to the discount window or any facility—if you're going to have those dealers and allow them to exist, maybe you need to have liquidity facilities. But these are big, difficult, deep issues that we'll need to be thinking about.

So the bottom line for me is, I think there's a lot more work to be done. I'm still open minded about this. I sense, at this stage, that there are a lot more questions and even concerns than there is support for the idea. But notwithstanding that, I think it's worth further work, and there's a lot more to do. So I'll stop there and thank everybody for your great comments on that topic.

It is now noon. If there are no more comments on this, it's lunchtime. So I'm going to call the lunch break now, and we'll come back at one o'clock, according to that clock over there. Thanks very much.

[Lunch recess]

CHAIR POWELL. Okay. Let's turn to the Desk briefing. Lorie, would you like to begin?

MS. LOGAN.[3] Thank you, Mr. Chair. I'll be referring to "Material for Briefing on Financial Developments and Open Market Operations." Financial markets moved substantially over the intermeeting period. As shown in panel 1, equity prices ended the period modestly lower, on net, while interest rates fell notably, extending a longer-term trend.

Today I'll review the significant moves over this period and what they tell us about market participants' economic outlooks and policy expectations. I'll focus on three questions. First, what has driven the sharp moves in prices of risk assets and interest rates over the period? Second, how have market expectations about monetary policy evolved? And, third, to what extent do policy expectations reflect differing views among market participants on the outlook for trade and its economic effect?

Starting with the first question, over the intermeeting period, the escalating trade conflict led many market participants to take a more pessimistic view of the risks to the economy. Returning to panel 1, the markers show that equity prices and interest rates fell discretely on the announcement of higher tariffs on Chinese imports in early May and again with news in late May that tariffs might be imposed on Mexican imports to address non-trade-related objectives. In addition, incoming economic data fueled investors' reassessment of the outlook, with markets reacting negatively to data that pointed to a weakening inflation environment and slower growth in the United States and abroad. In response to these developments, Treasury yields fell sharply. This may have helped stem the decline in prices of risk assets.

More important for risk assets, comments by Federal Reserve officials in early June marked an inflection point. Market participants viewed Federal Reserve communications as implicitly acknowledging the possibility of a rate cut this summer. The S&P 500 index increased immediately following Chair Powell's remarks on June 4, and the standdown in tensions with Mexico a few days later further lifted risk markets.

The Desk surveys, which asked about moves in the 10-year Treasury yield, support this interpretation of events. Panel 2 summarizes respondents' views on the importance of factors in explaining changes in the 10-year Treasury yield over the period. Respondents overwhelmingly rated changes in international trade policy and trade policy uncertainty as the two most important factors.

Against the backdrop of heightened concern over downside risks from trade policy, markets appear to have become more sensitive to incoming negative news about the outlook for global growth and inflation. As shown in panel 3, the likelihood that survey respondents attach to a U.S. recession, shown on the left side of the chart, or global recession, shown on the right side, occurring in the next six months has increased since the April surveys after having remained relatively stable for some time. The median probability assigned to moving to the zero lower bound

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

between now and the end of 2021 also increased, rising 5 percentage points to 30 percent.

Additionally, far-forward measures of inflation compensation, shown in panel 4, have fallen significantly in the United States and abroad. Forward inflation compensation in the United States has fallen to around 1.73 percent—near the trough observed in late 2018, but still above the all-time lows reached in 2016.

The drop has been even more acute in the euro area, shown in light blue, in which measures reached all-time lows. Market participants increasingly believe that further monetary policy accommodation will be needed in the euro area, and these expectations appear to have been validated in remarks by President Draghi overnight, in which he noted risks to the ECB's inflation mandate and that the Governing Council will deliberate further action in coming weeks. Contacts thus far have noted that his comments raise the chances of further easing at the July or September meetings. Cross-asset price action has been consistent with this expectation, and contacts have suggested that both the sharp downward moves in euro-area peripheral spreads to German equivalents and the rise in far-forward inflation compensation point to heightened expectations of further asset purchases.

Now, I'll turn to my second question—how have monetary policy expectations evolved in response to these developments? Panel 5 shows the magnitude of expected changes in the effective rate this year and next, as measured by implied rates on federal funds futures contracts. As shown by the dark blue line, the reassessment of the extent of policy rate declines in 2019 has been significant, with futures implying 68 basis points of easing by year-end and a further 31 basis points of easing in 2020.

Sizable changes in the anticipated path of the policy rate were also reported in the Desk surveys. As shown in panel 6 on your second exhibit, respondents now assign the highest average probability to the FOMC's next policy action this year being a target rate decrease. At 58 percent, this average probability is well above the 16 percent assigned to this outcome in the April surveys.

Consistent with the most likely next policy action being a rate decrease, the median of respondents' expectations regarding the most likely level of the target rate now implies two 25 basis point cuts in 2019, at the September and December meetings. While no survey respondents have a modal projection for a change at this meeting, a sizable minority—18 of 53—now see a rate cut by the July meeting as most likely, and 5 of these respondents expect a cut of 50 basis points.

Amid the rapidly evolving outlook, markets have become more uncertain about the interest rate path, and views have become more dispersed. Panel 7 shows that short-dated option-implied interest rate volatility increased sharply to levels not seen since 2010.

Additionally, measures of interest rate forecast dispersion rose. In the most recent Desk surveys, the standard deviation of respondents' modal expectations of the target rate four meetings ahead, shown in panel 8, more than doubled from its consistently low level over the past several years.

As shown by the distribution at the top of panel 9, nearly all respondents to the April surveys predicted that the policy rate would be unchanged at year-end. The distribution in the bottom of the panel shows the broad disagreement today, with some respondents continuing to expect a flat rate path, others expecting two rate cuts, and a few expecting three or even four cuts by the end of the year.

So what is the underlying cause of this disagreement, and—my third question—to what extent does it reflect differing views on the outlook for trade and its economic effect? The Desk surveys asked respondents about their expectations regarding trade policy, and their responses suggest that differing outlooks for the near-term evolution of the conflict could explain a significant share of the differences in policy rate expectations. Panel 10 plots survey respondents' modal expectations for the degree of rate cuts this year. Respondents are sorted into three categories based on their expectations of how U.S.–China trade policy will evolve: a phasing-out of tariffs, maintenance of the *status quo*, and the implementation of additional tariffs. Respondents are roughly evenly split between these three outcomes. As we move from left to right across the chart, representing worsening expectations regarding tariffs, respondents also generally expect a lower policy rate at year-end. Buy-side respondents overall, shown as the red dots, hold a more pessimistic view on the trade outlook, consistent with their expectations for greater near-term easing.

As market participants continue to weigh the potential effects of trade tensions on the outlook and the path of the policy rate, they have highlighted several watch points, including the upcoming G-20 meeting. Desk contacts also note a variety of data points and developments beyond trade that they will be monitoring—such as Brexit, the Italian fiscal situation, and rising geopolitical tensions with Iran.

As I noted earlier, while no change to the stance of policy is expected at this meeting, as summarized in panel 11, survey respondents do expect FOMC communications to indicate that the Committee is closely monitoring risks and uncertainty to the outlook and will act as appropriate to sustain the expansion. Specifically, many Desk survey respondents expect the FOMC statement to highlight downside risks to the outlook, including those posed by trade-related developments. Some also indicated that the Committee may change the forward guidance section of the statement by altering or removing the language referencing a "patient" approach to future adjustments in favor of language emphasizing flexibility or even signal a readiness to cut rates.

With regard to the SEP, the median survey expectation is for no change to the median of FOMC participants' projections of the federal funds rate at year-end, but for the year-end 2020 and 2021 median "dots" to decline 25 basis points from their March levels. These expectations imply that the median SEP numbers will indicate no net change to the target rate through 2021. The median survey respondent expects no change to the SEP median longer-run target rate projection. Respondents generally assigned downside risk to their own expectations for the median dots, and many expect that one or more FOMC participants' dots would indicate rate cuts by year-end 2019 or 2020.

I'll turn now to recent money market developments, summarized in panel 12 on your third exhibit, and then conclude the briefing with two operational updates. After rising in the last few weeks of April, money market rates generally stabilized at lower levels over this intermeeting period. As shown in panel 13, the distribution of federal funds trades shifted lower, with less activity occurring at 5 basis points or more above the IOER rate, shown in orange and peach, and more activity at or around the IOER rate, shown in red and pink.

There were two main drivers of this shift. First, as shown in panel 14, the technical adjustment was effective in lowering money market rates 4 to 5 basis points. Second, as shown in panel 15, reserve balances increased more than $100 billion to roughly $1.6 trillion, returning to levels seen before the April midmonth tax date. As expected, the elevated repo rates and increase in unsecured rates associated with tax season flows were transitory.

Within this broad context, we continue to witness some trends in reserve conditions to note. First, consistent with the idea that we may be on a gentle slope in the demand curve for reserves, the volume-weighted average federal funds rate continued to exhibit modest sensitivity to daily changes in aggregate reserve levels. However, this modest rate sensitivity to changes in reserves appears to be limited to the federal funds market, with no discernible direct effect on Eurodollars or repo rates.

Second, while we aren't seeing direct effects of daily changes in reserves on repo rates, market participants have reported seeing more pass-through from repo to federal funds on days when there is heightened firmness in repo, as shown in panel 16. This year we have seen a persistent pattern of increases in repo rates on month-end and, more recently, around midmonth Treasury settlement dates. Market participants attribute these periodic increases in repo rates in part to elevated net dealer inventories of Treasury securities, which dealers finance in the repo market. As shown in panel 17, primary dealer inventories continued to increase over the intermeeting period, reaching a new historical high.

To look ahead, panel 18 shows the Desk staff's current reserves projection over the remainder of the year. First, as denoted with marker A, preliminary data suggest reserves declined roughly $100 billion yesterday as a result of the midmonth corporate tax payment date and Treasury debt issuance. This outflow of funds from bank deposits and the associated change in reserve balances are similar to those witnessed around the April tax date. These deposit outflows, along with the rise in repo rates associated with the Treasury settlement, contributed to a 2 basis point increase in the EFFR yesterday.

Reserve balances are expected to rise over the summer as the Treasury reduces bill issuance and manages the TGA to a lower level in order to comply with debt ceiling legislation. This reduction in the TGA balance will gradually build up reserve balances, with only a brief drop around the midmonth September tax payment date. The timing of the debt ceiling resolution remains uncertain, but a range of estimates for when it could become binding and when a resolution could materialize are shown by marker B.

Rising reserves due to a decline in the TGA balance over the summer will mask somewhat the underlying drain on reserves arising from ongoing SOMA redemptions and gradual growth in nonreserve liabilities. After runoff of the Treasury securities portfolio concludes at the end of September, sharp increases in the TGA balance and an uptick in currency growth, reflecting seasonal demand for currency, are likely to drive significant reductions in reserve balances later in the year. As shown by the area marked “C,” reserves are currently projected to fall to level of about between $1.3 trillion by December—the lowest level since March 2011.

Although these are only forecasts, which are based on certain assumptions and subject to uncertainty—particularly with respect to debt ceiling dynamics—the projected range of reserves lies just above market participants’ median expectation of the lowest weekly average level of reserves taken from the Desk surveys. The median respondent’s estimate for the lowest weekly average level of reserves between now and 2025 has increased to $1.2 trillion since December, and the dispersion of estimates has narrowed, as shown by the compression of the blue boxes in panel 19.

Reflecting the current distribution of reserves across institution types, shown in panel 20, a significant share of the reserve declines would be expected to come from U.S. G-SIBs and FBOs, as these categories of banks are currently holding the largest surpluses. However, if these firms continue holding similar amounts of reserves and other banks do not reduce their minimum reserve targets at current rates, there is the potential for declining reserves to place upward pressure on the distribution of rates paid in federal funds and other overnight money market rates toward the end of the year.

In addition, these dynamics could occur in the context of a flat or inverted yield curve, which makes the rate paid on reserve balances attractive relative to other forms of HQLA. Panel 21 shows the current yield curve relative to the IOER rate. Amid the significant shift down in rates on Treasury securities, some large banks have suggested a shift in their preference toward maintaining higher reserve balances in managing their portfolios of HQLA and away from holdings of Treasury securities.

I’ll conclude by providing some context about two operational developments. First, in light of the substantial decline in Treasury yields over recent months, the Desk began reinvesting MBS principal payments again in May. On the basis of current market rates and prepayment forecasts, the Desk expects to reinvest modest amounts over the coming months and again next summer, as shown in panel 22. The

$20 billion cap thus is serving its intended purpose of stabilizing the reduction in MBS holdings and preventing an overly rapid removal of support from the housing market when rates decline.

Second, following the May FOMC meeting, the Desk released a statement and FAQs regarding plans to reinvest principal payments from agency debt and MBS up to the $20 billion cap into Treasury securities starting in October. There was limited market attention to the release. The full schedule of projected reinvestments into Treasury securities is shown in panel 23. That said, in recent weeks there has been increased focus on whether the FOMC may pull forward its plan to end redemptions should it decide to cut rates at this meeting or in July. Although we did not ask a question about this on the Desk surveys, some respondents volunteered views on it, and others have discussed it in published commentary. In particular, of the eight dealers that expect a rate cut at the July meeting, three indicated expectations of an earlier end to runoff, one indicated that its baseline expectation was for the balance sheet normalization plan to remain unchanged, and four did not express a view. Finally, our plans for upcoming small-value exercises are summarized in the appendix. Thank you, Mr. Chair—that concludes my prepared remarks. Patricia and I would be happy to take questions.

CHAIR POWELL. Thank you, Lorie. And any questions now for Lorie or for Patricia? President Kashkari.

MR. KASHKARI. Thank you, Mr. Chair. Lorie, can you just spend another minute on this inverted yield curve and how it's related to reserve balances? I hadn't thought about that before. I'm trying to understand why somebody would buy a two-year Treasury or a three-year Treasury security at such a low yield as opposed to reserves, for which they get a better return. It just strikes me as odd.

MS. LOGAN. So that's exactly, I think, what we've been hearing here—the conversation that we've heard from some banks is, as they're thinking about the composition of their HQLA portfolios, given the inverted yield curve and in view of the liquidity preference for reserves relative to Treasury securities, they're thinking about shifting more into reserves relative to holding longer-dated Treasury securities.

MR. KASHKARI. That makes sense when you explain it that way. I'm just wondering, how does the curve then invert? Why isn't the IOER rate a floor? And why is it taking this long for markets to react to that?

MS. LOGAN. Because the curve is projecting a lowering of the IOER rate with the expected rate cuts that are being shown up in market prices. It's reflecting the expected path of the policy rate.

MS. ZOBEL. I would also note there are other considerations that banks take into account when they're looking at the construction of their HQLA portfolios. This would certainly give you more incentive to hold reserves than they otherwise would, absent this yield advantage of reserves. But there are asset liability matching constraints and other things that they're taking into consideration as they construct that. I think that this is one factor that is, right now, increasing a few banks' reserve holdings over other funds of HQLA.

MR. KASHKARI. Thank you.

CHAIR POWELL. Other questions? President Evans.

MR. EVANS. Exhibit 2, chart 10, "Year-End 2019 Decline in Modal Path, by Trade Expectations." I've got a question about whether or not the market commentary—if they said anything more about the additional tariffs or the size of the additional tariffs you had in mind when you asked them that question. I was talking to one business contact who does business in Mexico, China, and Europe, and he indicated that if European tariffs are imposed, it was going to be shockingly larger for their business. They're not in the automobile industry themselves; they're in the heavy-equipment industry. So, are these large European tariffs anticipated, or—

MS. LOGAN. This material comes from some of the qualitative questions in the survey, and most of what we saw in that commentary was the 25 percent on all the Chinese tariffs.

MR. EVANS. Okay.

MS. LOGAN. But I think the broader uncertainty about tariffs as a political tool beyond just trade policy was probably implicitly in some of the discussion as well.

MR. EVANS. Okay. It sounds like Europe would be larger still.

CHAIR POWELL. Any further—President Rosengren.

MR. ROSENGREN. Just an observation that I would be interested in your reaction to. The June 2019 survey in panel 9 is bimodal and looks a little bit like the SEP, and I guess I would have expected your panel 10 to be split a little bit closer to the way that bimodal distribution looks. Do you have other views on why it's so bimodal in panel 9 but seems more dispersed based on tariffs in panel 10?

MS. LOGAN. Two points I would draw out. One, I think our categorization here is based on our own assessment of some qualitative responses. So I would be a little bit cautious in reading too much into the specific delineation in the chart. But, second, I think there are two things: One is the probability of these events, and the other is the economic effects of the events, and so that may play out differently when you combine both points in chart 9 than what I'm showing here in a way that is categorized. The other thing is, we did do chart 10 also by recession probabilities, so it looks very similar. So for those who are to the right of this chart, their recession probabilities were higher than the ones over to the left. So it played out in other ways as well.

CHAIR POWELL. Further questions? President Kaplan.

MR. KAPLAN. Just one more. From reading these exhibits, although they don't say this, the bulk of the change on panel 9 from April to June has to do with weakness in the economy, trade uncertainty. Do you have a sense—and this would have to just be anecdotal—

how much of this change in distribution has to do with lagging inflation or expectations that the FOMC may use inflation as a reason to lower the target funds rate? Do you have a sense of that, just on the basis of some of your conversations?

MS. LOGAN. If you go back to exhibit 1, panel 2, I would say, from the qualitative review of the survey responses and the discussions that we had in the market, I would focus, first, on the trade discussion, as you said, and, second, the underlying backdrop of weaker global growth in the United States. But we tried to get at the other question you had in the FOMC's reaction function. So you can see there was some weight on that one—it was much more dispersed than the trade story. And I think that trade came out much more predominantly in the qualitative responses.

MR. KAPLAN. Okay. Thanks.

CHAIR POWELL. If there are no further—Governor Brainard.

MS. BRAINARD. You said that there's also a lot of correlation between the responses on trade and recession probabilities. Can you talk a little bit more about that?

MS. LOGAN. We did the same exercise, same buckets, and then did the recession probabilities that I talked about in the earlier panel.

MS. BRAINARD. Yes.

MS. LOGAN. And it's not perfect in the way that the chart looks, but it gives you the same sort of impression.

MS. BRAINARD. The same kind of distribution.

MS. LOGAN. One thing we also looked at is the probability of hitting the lower bound in this way and that didn't show up as clearly. One thing we were thinking about, although we'd have to spend more time looking at it, is maybe if the idea was the FOMC would react preemptively, then maybe the lower-bound probability wouldn't have gone up. So that same pattern didn't show up when we looked at the probabilities of the ELB.

CHAIR POWELL. Okay. All right. If there are no further questions, we need a vote to ratify domestic open market operations conducted since the April–May meeting. Do I have a motion to approve?

VICE CHAIR WILLIAMS. So moved.

CHAIR POWELL. All in favor? [Chorus of ayes] Thank you. Next we will turn to the review of the economic and financial situation. Jeremy, would you like to start, please?

> MR. RUDD.[4] Thank you. I'll be referring to the packet with the cover sheet titled "Material for Staff Presentation on the Domestic Economic Situation." Panel 1 updates our near-term GDP projection. After the Tealbook was closed, we received the retail sales report and *Monthly Treasury Statement* for May, both of which came in stronger than expected. As a result, our current-quarter GDP growth projection, line 1, now stands at 2.3 percent; this is ½ percentage point above our June Tealbook forecast and 0.3 percentage point above our April forecast, line 2. Given our read of fundamentals, we made only minor adjustments to our second-half GDP projection, which continues to be weaker than in April, mainly because of our more pessimistic outlook for business fixed investment, lines 7 and 8.
>
> Over the medium term, we anticipate that average output growth will run about in line with potential, implying a relatively flat trajectory for the unemployment rate, the black line in panel 2. The slightly lower level of output in this projection led us to nudge up the path of the unemployment rate; even so, it remains nearly a percentage point below our unrevised estimate of the natural rate.
>
> We also received the May CPI and PPI reports after the Tealbook was closed. Although the May core CPI was softer than expected, the components of the PPI that enter the core PCE price index came in higher. Our estimate of the monthly change in core PCE prices in April and May therefore still rounds to 0.2 percent in each month, which is a faster pace than what was seen earlier this year. We estimate that the 12-month change in core PCE prices, the red line in panel 3, was 1.5 percent in May and expect it to reach 1.7 percent by late summer. In contrast to April, headline inflation, the black line, is now expected to run a few tenths below core inflation, reflecting a larger anticipated decline in consumer energy prices this year.
>
> Core inflation, the black line in panel 4, is expected to remain below 2 percent over the medium term. This outcome largely reflects our view that underlying

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

inflation, the gray bars—which we define as the rate of PCE price inflation that would prevail in the absence of slack, idiosyncratic relative price changes, or supply shocks—will remain constant over the next few years at 1.8 percent. High rates of resource utilization, the red bars, are expected to put upward pressure on core inflation, but the contribution is small.

These two elements of the inflation projection are explored further on the next page. First, the staff's expectation that underlying inflation will remain fixed at just below 2 percent is informed by empirical estimates of inflation's long-run trend. Panel 5 shows one such estimate, the red line, which is obtained from a small VAR with time-varying parameters. This trend has changed little—and has run below 2 percent—since the late 1990s.

Second, the limited contribution of resource utilization to inflation over the medium term reflects a Phillips curve that is currently quite flat by historical standards. This flattening is illustrated in panel 6, which plots the response of core inflation following a shock to the unemployment gap at different points in time. In terms of inflation's peak response, the current effect of a reduction in the unemployment gap, the red line, is less than two-thirds what it was in 1985, the blue line, and roughly a third of what it was in 1975, the black line.

With a flat Phillips curve, the influence of slack on inflation will often be difficult to discern—even on a year-to-year basis—given how variable inflation's other determinants can be. Panel 7 demonstrates this point with a VAR-based decomposition. For this exercise, I am using market-based PCE prices—so the erratic nonmarket component is absent—and I'm looking at four-quarter changes. The black line plots actual inflation, and the solid red line plots the estimated effect of shocks to the unemployment gap. Movements in the unemployment gap over this period have had a noticeable low-frequency effect on inflation. But their influence is often obscured by the effect of other shocks. For example, even as the gap was closing, inflation remained persistently low from 2013 through 2016. As shown by the red dashed line, which adds in the effect of import prices, the model attributes much of the weakness in inflation over that period to this source. Likewise, inflation dipped lower in 2017; the model attributes much of this swing to idiosyncratic shocks, such as that year's plunge in wireless services prices. It's worth pointing out that, with the exception of import prices, these non-slack-related influences on inflation are unlikely to have much connection to changes in the stance of monetary policy.

By contrast, the wage Phillips curve does not appear to have flattened very much. The current estimated response of labor cost growth to changes in the unemployment gap, the red line in panel 8, is similar in magnitude to what it was 35 years ago, the blue line. In addition, comparing panels 6 and 8, which are plotted using the same scale, reveals that labor cost growth is more sensitive to slack than is price inflation. This finding is noteworthy because it suggests we can't explain the flattening of the price Phillips curve in terms of developments in labor markets—for example, a reduction in worker bargaining power over time that would make firms' labor costs less responsive to slack. Instead, developments in product markets—for instance, changes in firms' pricing behavior—would appear to be behind the weakening of the relationship between resource utilization and price inflation.

The next set of exhibits reviews some of the considerations that inform our judgmental assessment that the level of real activity is currently well above potential. An implication of a flatter Phillips curve is that price inflation is no longer very informative about the economy's cyclical position. One way to deal with this problem is to bring additional information to bear, in the form of other relationships—such as Okun's law or a production function—or other variables that might tell us something useful about slack. This information can be exploited in a relatively unrestricted way with a time-series model; alternatively, one can impose restrictions implied by theory in the context of a structural model, such as a DSGE model.

Panel 9 reports output gap estimates from seven time-series models maintained by the Board's staff. The range of model estimates is given by the green shaded region, and our judgmental gap estimate is plotted as the black line. In broad terms, the various estimates move rather similarly; right now, most of the models point to a little less tightness in resource utilization than what is implied by the judgmental estimate. The main "takeaway," though, is that the range of estimates across these models is wide, even without taking into account statistical uncertainty.

Panel 10 presents output gap estimates from four DSGE models that are maintained across the System; our judgmental estimate is again given by the black line. The range of gap estimates implied by these models is currently a little wider than that for the time-series models—though it's narrower than it has been in the past—and it includes the judgmental estimate.

The fact that the wage Phillips curve remains relatively steep suggests that it might be possible to augment a time-series model with a wage equation in order to more precisely tie down the output or unemployment gap. Panel 11 plots the natural rate of unemployment from the Board's benchmark time-series model, the blue line, together with its 70 percent confidence interval and, for comparison, our judgmental estimate of the natural rate, the black line. In panel 12, the time-series estimate, the red line, comes from a version of the model that incorporates a wage equation. The contour and level of both model estimates are similar; additionally, incorporating the wage equation narrows the confidence interval about ¼ percentage point.

The interplay of slack and compensation growth is explored further on the next page. We interpret recent compensation growth—in particular, its having mostly remained below its pre-recession pace—as about what one would expect given our view of the unemployment gap, expected inflation, and the rate of structural productivity growth. Hence, a simulation from a model that incorporates these influences, the blue line in panel 13, tracks actual compensation growth, the black line, tolerably well since the previous business cycle peak.

By contrast, some have suggested that current compensation growth reflects a larger margin of labor market slack that is better captured by broader measures such as the employment-to-population ratio, shown in panel 14 to the right as the orange line. The employment-to-population ratio does remain below its pre-recession level. However, the staff's view is that demographic and other factors have, on net, put downward pressure on this ratio, implying a declining trend, the black line. Moreover, if one uses this trend to define a gap measure that is then used in a wage equation instead of the unemployment gap, the resulting model yields values for wage growth, the orange line in panel 13, that don't track the data quite as well.

Of course, one might question whether our judgmental trend measure—which incorporates our view of the natural rate of unemployment and trend labor force participation—yields a reasonable estimate of the employment-to-population ratio gap. The black line in panel 15 plots the cumulative change in our judgmental natural rate estimate since 2005, when we view activity in the labor market as close to equilibrium. Since that time, we see the natural rate as declining, on net, 0.6 percentage point. This decline is greater than what would be implied by the estimated effect of changes in the age and sex composition of the labor force, the blue line, and is about the same as what would be implied were we to also account for changes in the educational attainment of the workforce, the red line. Hence, demographic factors alone don't yet provide much justification for a further reduction in our assumed natural rate, especially given other indicators of labor market functioning, such as the position of the Beveridge curve and estimates of matching efficiency.

What about the participation rate? Our judgmental estimate of the trend participation rate, the solid green line in panel 16, incorporates the effect of the changing age–sex composition of the labor force, the dashed red line, together with our assessment of the trends for each age-sex group. As you can see, the age–sex composition effect—which most would view as relatively uncontroversial—accounts for the bulk of the decline in the judgmental trend.

As I noted earlier, the Tealbook projection assumes that the rate of underlying PCE price inflation is fixed over the medium term at 1.8 percent. Some of the empirical estimates that we use to inform that assumption are shown on the next page, in panel 17. Now that you have your reading glasses on, if you look at the table, almost all of these estimates have edged down since late 2007, though in most cases by only a tenth or two. The staff's judgmental assumption is near the top of the range of current estimates, whose equal-weighted average is 1.7 percent.

In economic terms, the staff interpret the behavior of underlying inflation as reflecting well-anchored long-run inflation expectations on the part of wage- and price-setters. The evidence for this view is largely circumstantial, however, and basically consists of noting that survey measures of longer-term expected inflation, the black and red lines in panel 18, and statistical measures of inflation's long-run trend, the blue line, have similar contours.

Let's assume this interpretation is correct, and long-run inflation expectations are anchored at a level that implies 1.8 percent underlying PCE price inflation. If policymakers care equally about maintaining inflation at 2 percent and keeping real activity at potential, this situation is problematic, because—under the staff's view of the Phillips curve—it implies that achieving 2 percent inflation will require pushing activity above potential indefinitely. Say, however, that agents were to start updating their long-run expectations in response to observed inflation outcomes. Over time, as policymakers acted in accordance with their 2 percent inflation goal, agents' long-run inflation expectations should move up to 2 percent. But during this time, the economy will also be subject to various sorts of shocks, which it will now have to face without the benefit of anchored inflation expectations. In particular, without anchored expectations, shocks will have more persistent effects on inflation; inflation control therefore becomes more costly, inasmuch as policymakers must engineer larger or more persistent movements in real activity to offset the effects of the shocks on inflation.

Assuming policymakers do seek to stabilize both the output gap and deviations of inflation from 2 percent, are unanchored expectations likely to be preferable? I explore this question with a simple model in which long-run inflation expectations are either fixed at 1.8 percent or derived from a forecasting rule that agents fit to recent data. Outcomes of simulations of the model are evaluated with a loss function, which summarizes numerically how well policymakers' stabilization goals are being met; smaller values of the loss function imply better outcomes.

Panel 21 describes the model, which is related to one used by President Williams and Athanasios Orphanides in a 2005 paper. The model has an expectations-augmented Phillips curve, in which expectations are generated by a simple forecasting rule. The coefficients of this rule are updated each period using a rolling window of recent data; if the window is wide, then the rule updates less when new data are received, and vice versa. The policy rule reacts to deviations of actual inflation from a specified target level, which need not be the same as policymakers' true inflation preference, which is always for 2 percent. The assumed loss function is similar to the one used by the Tealbook's optimal control simulations. It implies that the best outcome is one in which inflation is at 2 percent and the economy is at full employment, defined here as a zero output gap. Finally, inflation and the output gap are subject to random shocks.

I first consider how the size of the loss depends on how much agents revise their forecasting rule when they receive new data, which can be thought of as a proxy for how unanchored expectations are. These loss values, which I express relative to the loss that obtains if expectations remain completely anchored at 1.8 percent, are plotted in panel 22. As agents' sensitivity to incoming data rises—that is, as fewer years of data are used to estimate the forecasting rule—the loss increases at an increasing rate. In addition, all of these relative losses are larger than 1, so in this model, having expectations remain anchored, even at a level a little below the policy goal, is preferable to having them become unanchored.

It turns out that it takes more than 20 years for long-run expectations to converge to 2 percent for every case shown in panel 22. One way to speed up this process would be to raise the target inflation rate in the policy rule—that is, to engage in a form of overshooting. The effects of doing so are shown in panel 23, in which I assume that agents have an intermediate degree of sensitivity to incoming data. If, for example, policymakers act as though their inflation target is 2.3 percent instead of 2 percent, they can push up long-run expectations to 2 percent after about 14 years. One person noted that's about the term of a Governor—that wasn't intentional, but it was too late to change the charts. [Laughter] However, this approach yields a larger loss relative to a policy that just aims for 2 percent. Intuitively, aiming for a level of inflation that's too high relative to the policymaker's actual preference—which is always for 2 percent—results in additional costs that are only partly offset by the benefit of having expectations rise to 2 percent more quickly.

I would emphasize that this is an extremely stylized and simple model that ignores many potentially relevant considerations, such as the presence of the ELB and anything related to policymaker credibility. It is therefore not clear that these results would obtain—even qualitatively—with a richer specification or in a model that made different assumptions about how expectations are formed. In addition, the analysis is premised on the notion that it's somehow possible to induce agents to start revising their long-run expectations—which might, in practice, require something like a regime shift, and which might have additional consequences such as leading to a change in the slope of the Phillips curve or a widening of term premiums. Nevertheless, questions such as how inflation expectations are formed, how they come to be anchored or unanchored, and how they influence actual inflation seem highly relevant to the discussions of alternative strategies you will be having later this year. Steve will now discuss the international outlook.

MR. KAMIN.[5] Thank you, Jeremy. I'll be referring to the materials in your next packet labeled "Material for Briefing on the International Outlook." Over the intermeeting period, the staff in the International Finance Division have been seeking the answers to three questions. First, is the global economy on track for a sustainable recovery from its recent soft patch? Second, what will the future bring as far as trade policy, and how will that affect U.S. and global growth? And, finally, how do you pronounce "Huawei"? [Laughter] I'm happy to say we have an answer to one of those questions—it's pronounced "Wa-way," so the *H* is silent, like my New Yorker wife would pronounce "yoo-man" for "human" or "Yoo-ston" for "Houston." But, unfortunately, convincing answers to the first two questions have been harder to pin down.

Let's start with global growth, shown in your first exhibit. Total foreign growth, the black line, appears to have bottomed out at about 1½ percent in the fourth quarter, well below our estimate of 2½ percent potential growth, and looks to have remained depressed in the first quarter. When we wrote down our forecast for the April Tealbook, indicated by the dashed line, we were moderately upbeat about prospects

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

for recovery. Chinese growth had picked up sharply; European indicators, while not quite as ebullient, pointed to stronger activity than we'd anticipated beforehand; and a number of key risks—trade policy, Brexit, and Italy—had been at least put off for the time being. Since then, however, data from abroad have been generally disappointing, and as you are well aware, global risks are back with a vengeance. In consequence, as you can see on the right, after having revised up our forecast for total foreign real GDP growth in April, we're back to marking down our forecast for growth in the current round, mainly in the EMEs. We are also less confident that the fairly rapid convergence toward potential we have in our outlook will materialize.

Your next slide dives deeper into our global forecast. In the euro area, first-quarter GDP growth actually came in a little stronger than we'd predicted in April, with growth rising to 1½ percent. However, still-gloomy manufacturing indicators point to some slowing for the remainder of the year, and downside risks have clearly increased: Prime Minister May's stepping down means that a disruptive, no-deal Brexit is more likely, while Italy and the EU are back to feuding about the budget.

In China, data for April and May came in demonstrably weaker than we and most analysts were expecting. In consequence, we've written down a sharper slowdown from the first-quarter spike than in the April Tealbook. The reemergence of trade tensions also restrains China's outlook, both as a direct result of the tariff hikes and as uncertainty weighs on investment. Lower Chinese growth, in turn, will pose some drag to the rest of emerging Asia, the bottom-left panel.

Finally, the weakest area of the global outlook is Latin America. First-quarter GDP contracted in Mexico, Brazil, and Argentina, and it flatlined in Chile and Colombia. No single factor explains this extraordinary weakness, which likely reflects some combination of domestic and global political uncertainty, the continuing slump in global trade and manufacturing, and still-low prices for some commodities. In the absence of strong reasons why the region should stay depressed, we have growth picking up starting this quarter. However, given Latin America's recent track record, conviction in this pickup is weak, which is especially unfortunate as it accounts for much of the rise in global growth we're predicting for the near term.

As indicated by the declining PMIs in the left panel of your next exhibit, the failure of the global economy to achieve a more concerted revival is related to the continued weakness in manufacturing and exports, even as the service sector has held up better. Exactly what accounts for this ongoing slump is difficult to pin down. Historically, both trade and manufacturing have exhibited outsized responses to movements in aggregate demand, and this could explain the sharp downturns in these measures during 2018. But it's harder to explain why they weakened further this year, even as GDP growth has seemed to bottom out.

One widely cited factor, of course, is the emergence of trade tensions. As Lorie mentioned, this was heavily emphasized in the primary dealer survey and is also evidenced by the recent increase in trade policy uncertainty, or TPU, shown on the right. The actual rise in tariffs over the past year has probably exerted only a modest direct effect on trade and output. But in principle, a rise in trade policy uncertainty could depress investment spending and economic activity to a greater extent. Indeed, the rise in TPU in early 2018 does seem to coincide with the decline in trade and manufacturing PMIs.

Our econometric analysis, however, suggests that, at least for the United States, the run-up in the TPU should have had relatively small effects. Moreover, as shown in the left panel of your next exhibit, sectors of the U.S. economy that are especially exposed to import costs, as measured along the *x*-axis, don't seem to have experienced a more pronounced decline in the growth of investment this quarter, measured along the *y*-axis. Similarly, as shown on the right, sectors with high export shares haven't experienced unusually large declines in cap-ex growth either.

Trade policy uncertainty might have exerted larger effects abroad, of course. Those effects presumably would have been concentrated in economies that were most at risk from trade protection. However, as shown by your next exhibit, this doesn't seem to be the case either. The panel on the left shows that economies with a high share of exports to the United States (on the *x*-axis) don't seem to have experienced greater declines in investment spending last year (the *y*-axis). The chart on the right shows that countries with a high dependence on exports in general—not just those to the United States—also show little evidence of suffering greater slowdowns in investment spending.

All told, we're having trouble identifying a specific link between trade tensions and the global slowdown, but, considering how much smoke this issue is generating, we think there must be at least some fire. And while the role of trade policy uncertainty in the global slowdown is, shall we say, uncertain, nearly all observers agree that an intensification of trade tensions would be damaging.

Your next exhibit identifies three scenarios for future trade policy. In our "good deal" scenario, we assume that at some point soon—maybe the G-20 Leaders Summit in Osaka at the end of this month—the United States and China reach a deal that rolls back most of the tariffs each side has levied on the other over the past year. Additionally, we assume not only that no tariffs are imposed on Mexico or on imported autos, but that ongoing discussions between the relevant parties significantly diminish fears of such actions—I wouldn't bet my nest egg on this, but I suppose it is possible. As indicated by the blue lines in the panels below, such an event would be a positive surprise to markets, would raise U.S. real GDP growth, and would be worth about one extra rate hike on the federal funds rate.

Our baseline outlook, indicated by the black lines, is underpinned by a somewhat gloomier scenario: The United States and China don't reach a deal that would roll back past tariff hikes; instead, a "ceasefire" ensues in which tariffs are kept at their present level but no further hikes take place. We don't assume tariff hikes on Mexico or autos, either, but continued uncertainty keeps markets and businesses on edge. This scenario seems close to the center of market expectations, so we don't foresee a significant equity response as this arrangement becomes apparent.

Finally, the red lines trace out the effects of an "escalation" scenario in which all remaining imports from China are tariffed at a 25 percent rate, and so are all imports from Mexico, as the trade truce breaks down. We do not think this is the most likely scenario, but it seems much more than just a tail risk. To summarize the results: not good.

Given the profound uncertainties posed by the global outlook, foreign central banks are likely to keep interest rates low for years to come, as shown in your next slide. And that tendency will be reinforced by the continued quiescence of inflation, shown on the right. Indeed, just today at the ECB conference in Sintra, Mario Draghi signaled the possibility of offering more stimulus. These prospects raise the question of whether, if the global economy does manage to avoid trade policy catastrophes or other disruptions, low-for-long interest rates will pose financial stability risks. This concern may apply particularly to the corporate sector, an area that has received considerable attention of late.

To set the scene for a discussion of corporate trends abroad, let me first briefly review developments in corporate leverage in the United States, shown in your next slide. Starting at the top left, as you know, U.S. nonfinancial business debt as a share of GDP is at peak levels. This borrowing is not to finance soaring investment, which has remained range-bound, as shown in the top middle panel. And it's not because companies are hurting for cash: the top-right panel shows that net lending—broadly speaking, the excess of profits over investment—remains positive. Instead, corporations appear to be borrowing to fund share buybacks (on the bottom left) and M&A. And this has pushed up corporate leverage, the ratio of debt to the book value of assets, shown in the middle panel. In principle, higher leverage suggests there are less income-earning assets to support debt service, less value to recover in the event of default, and thus greater sensitivity to adverse shocks. However, U.S. leverage ratios have been flat for the past few years, and, as shown on the right, in the current favorable environment defaults remain very subdued.

Do we see concerning increases in corporate debt and leverage in some of the major foreign advanced economies, in which interest rates have remained even lower than in the United States? Let's turn to the next slide. They said I'd never be able to squeeze all six foreign G-7 economies into one slide . . . and maybe they were right. [Laughter] But there is little evidence of corporate excess. Of the countries shoehorned into the top row, only two of them, Canada and France, have experienced significant increases in corporate debt levels (the black line) since the GFC, and only one of them, France, has experienced notable increases in investment spending (the red line). In the bottom row, only Canada has witnessed significant increases in corporate leverage.

Therefore, to conclude, a world of low-for-long interest rates may be expected to encourage corporate leverage and risk-taking. However, looking at the major foreign economies, we haven't seen it yet, perhaps in part because corporate caution and limited spending and borrowing may be one of the factors keeping interest rates down in the first place. So, for now, you can go back to worrying about trade policy, but we'll be keeping an eye on the foreign corporate sector as well. I will now pass the baton to Sean.

MR. SAVAGE.[6] Thanks, Steve. I will be referring to the exhibits in the packet labeled "Material for Briefing on the Summary of Economic Projections." Let me start with a few headline results. Almost all of you lowered your projections for both headline and core inflation in 2019, and most of you did so for 2020 as well. A majority of you lowered your projection for the unemployment rate in each of the three years, 2019 to 2021. Meanwhile, the medians of your real GDP growth projections were little changed from the March SEP. While the median of your assessment of the appropriate level of the federal funds rate was unchanged for 2019, the vast majority of you reduced your assessments of the appropriate level over the projection horizon. As a result, the medians of these assessments for 2020 and 2021 declined 50 basis points and 25 basis points, respectively. As we heard in your earlier comments, many of you saw increased downside risks surrounding your projections for real growth and upside risks to your projections for the unemployment rate as reasons for these revisions, with some of you also pointing to increased downside risks to your projections for inflation.

Regarding exhibit 1, while many of you increased your projections of real GDP growth this year, the median projection was unchanged in 2019 and little changed thereafter. This contrasts with your projections for the unemployment rate, shown in the second panel, which most of you reduced in all years in the projection period, resulting in a modest shift down in the medians for all years. The median of your projections for the longer-run unemployment rate also declined modestly; some of you now see the longer-run unemployment rate as 0.1 to 0.4 percentage point lower than in the March SEP. The vast majority 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, both the median and the range of your projections for headline and core inflation have come down notably in 2019; indeed, all of you reduced your projection for headline inflation, and almost all of you did so for core inflation. Most of you revised down your projections for inflation for 2020 as well, and the medians for both headline and core inflation declined 0.1 percentage point in that year. A number of you pointed to higher uncertainty or risks associated with inflation—including the risk that inflation expectations will drift lower—as reasons for the downward revisions to your inflation projections. A number of you also mentioned the effect of lower energy prices. All of you project that headline inflation will be in a range from 1.9 to 2.2 percent in 2021.

Exhibit 2 reports your assessments of the appropriate path of the federal funds rate. As indicated by the red lines in the top panel, the median of your projections for 2019 is 2.38 percent, unchanged from the March SEP and consistent with no change to the target range for the federal funds rate this year. But while many of you see no change in the federal funds rate before the end of this year as appropriate, some of

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

you would call for the federal funds rate to be 50 basis points lower by year-end. Relative to your March SEP submissions, the vast majority of you now consider a lower path of the federal funds rate throughout the projection period to be appropriate, in part reflecting your view that the risks to GDP growth and inflation have shifted to the downside, and the risks to the unemployment rate have shifted to the upside. Muted inflation pressures, trade developments, and weak business fixed investment were cited as reasons for downward revisions, as were developments abroad and risk-management considerations. Almost all of you judge that the appropriate level of the federal funds rate in 2020 and 2021 will be below your individual assessments of its longer-run level, a notable change from the March SEP.

The green diamonds in exhibit 2 show the median prescription for the federal funds rate based on the Taylor (1993) rule, taking as inputs your individual projections for inflation, the unemployment gap, and the longer-run federal funds rate. The use here of the Taylor (1993) rule marks a change from the March briefing, when the projections shown were based on the Taylor (1999) rule. The Taylor (1993) rule does not act as aggressively to push up the unemployment rate toward estimates of the natural rate and therefore tracks closer to your projections than does the Taylor (1999) rule. That said, even with its more restrained response to the unemployment rate gap, the Taylor (1993) rule prescribes a notably higher path of the federal funds rate than almost all of you consider appropriate. The discrepancy suggests that the Taylor (1993) rule omits something that you regard as important in your consideration of appropriate policy. Your narratives indicate that trade-related uncertainties, risk-management considerations, and foreign developments may be factors informing your views of appropriate policy.

Exhibit 3 presents your judgments about the uncertainty and risks surrounding your projections. As shown in the left panels, most of you view the uncertainty about real GDP growth and inflation as broadly similar to the average over the past 20 years, while your views on uncertainty about the unemployment rate are roughly split between those who see similar levels of uncertainty and those who see higher uncertainty. In addition, a few of you see higher uncertainty about real GDP growth and several of you see higher uncertainty about the unemployment rate than was the case in March. As illustrated in the right panels, most of you generally judge the risks to the outlook for real GDP growth as weighted to the downside and for the unemployment rate as weighted to the upside, a substantial shift since the March SEP. Six more of you now see the risks to both headline and core inflation as weighted to the downside; none of you see them as weighted to the upside. And at the risk of sounding like a broken record, in your narratives, trade tensions and softer business investment—which a number of you saw as related to those tensions—were mentioned as sources of uncertainty, or downside risk to the growth outlook and upside risk to the outlook for the unemployment rate. And, again, developments abroad were mentioned. For the inflation outlook, the effect of trade restrictions was cited as an upside risk, while softer inflation expectations, the potential for a stronger dollar, and weaker domestic demand were cited as downside risks. I'll end my briefing here and we'll be happy to take any questions you have.

CHAIR POWELL. Thanks very much. We have an opportunity for Q&A. Are there any questions for our briefers? President Daly.

MS. DALY. I want to start with the briefing from Jeremy. I've been thinking about these charts on page 2—basically, the response of core inflation to the unemployment gap shock, and basically the price Phillips curve, the wage Phillips curve, and all of the subsequent material you presented. We stare at the same figures, and the question I get asked and I can't answer is, if the wage Phillips curve is exactly as it always has been, why don't we see wage growth outpacing trend, which we see in almost every other expansion that we've witnessed? And so either we have the gap wrong, or the Phillips curve looking the same isn't quite right. How do you think about that? How should I think about that?

MR. RUDD. Well, on page 4, panel 13, we have a model that does seem to track pretty well, as long as you take into account trend productivity. So the pass-through of lower rates of structural productivity to wages seems to be what's holding compensation growth back in the face of a pretty tight labor market, and that's been the way the staff has tried to square the circle of, okay, why aren't we seeing a faster pace of compensation growth, given how tight the labor market is?

MS. DALY. Can I follow up? This is often the case, though, that wage growth is lower than productivity growth plus inflation in the early stages of an expansion. It then hits trend, and then it exceeds trend, because employers are saying, "Well, I need workers, and so I'm going to raise wages past what is true for trend productivity growth and inflation." And so, over time, that squares. And, in fact, it runs a little bit below those two variables. But the time dynamics seem different in this expansion, and I'm not sure how you square that. You can absolutely get it in the residual of productivity growth, but how do you think about why the time dynamics have changed?

MR. RUDD. Well, another key factor is that this is using anchored price expectations—which also is a departure from the past. So there's a couple of things that seem to have changed, since probably the '80s, about the wage-price process. Most important is that you don't see wage-price spirals anymore.

It looks like both wage growth and inflation are anchored by similar stochastic trends or similar long-run trends. That's another piece, or maybe a shred, of circumstantial evidence that there's some sort of expectations mechanism that is influencing both. But, for whatever reason, those two things seem to be holding. And it doesn't seem to be the case that actual price inflation is feeding through to wage growth so much as wage growth is being determined by, say, long-run expectations which are, again, relatively stable.

So that's, again, a departure from past experience, which would lead to equations fitting over historical periods not working as well in recent periods. This equation here, again, is taking the staff's view and trying to put it into a model. And the interesting thing is that what we assume is a relatively slow rate of productivity feed-through—in the sense that we have a long moving average of something that's already a trend—and yet that seems to work pretty well. If I had to guess, I think that one thing that may be going on is that the trend in productivity growth is feeding through into wages a little faster. So when productivity growth is weakening, that might be a faster drag on wage growth. But I can't prove that. The only evidence that I have is when I did similar work with time-varying models with a colleague, we found that these equations are surprisingly stable if you just use trend unit labor costs, which is what the vector autoregression (VAR) systems are using. In other words, you don't allow for this longer moving average.

Now, the problem is that all of that is really hard to pin down. The other problem, too, is that you're imposing a restriction on these models, which is, in the long run, real wages are growing at the trend productivity rate, with real wages defined relative to this price expectation measure that may or may not be—I've experimented with relaxing that assumption. We're trying to pin down better what the productivity feed-through is, those sorts of things. It's hard to get any sort of good answer. What is true is that the model that I'm showing you outperforms a lot of other models that either use alternative slack measures or relax that restriction on the long-term real wage–productivity relationship.

MS. DALY. Thank you.

MR. RUDD. But I really want to say that this isn't dispositive in any way. I think this is really just saying that we don't see an obvious way that our story is wrong. But that doesn't mean that it's right. That just means that we don't see a really good reason to change it right now.

MS. DALY. Okay. Thank you.

CHAIR POWELL. Great. Vice Chair Williams.

VICE CHAIR WILLIAMS. The first of my questions is for Jeremy. First of all, I appreciate and want to recognize your deep knowledge of the literature. [Laughter]

MR. RUDD. At first mention, you didn't wake up, so—[laughter]

VICE CHAIR WILLIAMS. I want to get back to this question of what the natural rate of unemployment is. And I really like this presentation, kind of digging into the different models and different equations and all of that. And, of course, the error bands are wide, but I'm trying to understand what I see as some space between the staff's view and the view of myself and many around this table and just trying to understand that a little bit better.

So the staff view is, the natural rate of unemployment is 4.6 percent, and my view would be closer to 4 percent. And when I look at figure 9 on your page 3—so, the green band—one of the things you see there is that you have seven statistical models. The judgmental estimate—now, I know we're in the output-gap space here. First of all, the output gap—the staff view is in the high end or near the high end of those models. So I'm curious about how you think about what the other models are telling you.

I really want to go to this question of, when I look at the Brookings paper that economists from the New York Fed and Dallas did and former New York Fed colleagues did, they went very carefully through these demographic factors as you did in chart 15 on page 4. And I think they come to the same conclusion—that age, sex, educational attainment can explain something like a ¾ percentage point decline in the natural rate since, say, 2005. And then I'm trying to understand—they get an estimate, and it's roughly 4 percent for the natural rate, and your argument would be, it's closer to 4½ or 4.6 percent. And so one of the things I realized, looking at this, is that the starting point actually matters. You start with roughly, in your charts, it looks like a 5.2 percent natural rate before the recession. You take off ¾ percentage point, and you get to something like 4½, 4.6. A lot of the estimates in the work I have seen suggest that the natural rate back in 2005 was closer to 4¾. You take ¾ off that, and you get 4.

I'm curious about how much of this debate is—we actually agree on a lot of the fundamentals. We agree on the demographics. We agree on a lot of these things. But in the end, we just have kind of a different starting point of what the natural rate was a decade ago, and it gives us a different answer today, because, again, looking at the Brookings paper, we're going through a very similar analysis that you do—and, coming to, in many ways, similar conclusions. We get this essentially ½ percentage point difference. I'm just curious how you think about that.

MR. RUDD. The Brookings paper you're referring to is the paper by Crump, Eusepi, Giannoni, and Şahin of the New York Fed.

VICE CHAIR WILLIAMS. Yes.

MR. RUDD. I guess the first point I'd make is that our judgment is—at the time I last looked at this literature extensively, I thought it was a reasonable conclusion that about 5¼ percent was a reasonable estimate of the natural rate before the Great Recession. But maybe that's not true anymore. Maybe people have, over time, as they have gotten more evidence and more data, revised it down. I don't know. But if you look at these models, in panels 11 and 12, that natural rate estimate is slightly above the staff's, and the starting point is slightly above 5.2. So it's not clear to me that it's necessarily—the question I don't think is super well settled. These two models will give you different answers.

The Brookings paper, I think, is trying to do exactly the same exercise that we're doing, which is just trying to bring additional information to bear on the question of, where is the natural rate? It's hard to use price data. Wage data help, but not a lot. So what other data can we bring to bear?

The state-space models that are shown in panel 9 are bringing information about the labor market to bear—things like relationships between labor market variables. The Brookings paper is trying to do the same thing with job flow data. If you just look at the raw job-flow data, I think you do get an answer similar to 4.6. I think that that trend implies something like 4½ percent for the natural rate. Then they add additional information—in this case, a forward-looking expectations-based price and wage model.

And so, again, that's more information you can bring to the question that might help you pin down these things more precisely, but I think that what I'd want to do before I was really sure that that was where I wanted to take my estimate is check things like how robust is it to different specifications, how robust is it to changes in the type of data that I use to measure those concepts, things like wages or prices. That's a lot of what these models are doing, and it gives rise to a pretty wide range. And so you want to understand how well the mechanisms that you think are at play are actually giving you the results that, in this case, would differ from the 4.6 estimate that the staff uses as a judgmental estimate.

VICE CHAIR WILLIAMS. One clarifying point—this difference in the view of underlying inflation is actually pretty important in their model, as it is in yours. So they do talk about if you have a 2 percent anchor versus 1.8—I still say, with the kind of point I make, I think we're all seeing the same factors, but the lines are just a little higher or a little lower. I guess one of the problems with latent variables is, it's pretty hard to know. Is the underlying number—there's a lot of uncertainty about that. I guess my positive point is that it seems like we've all looked at this data in different ways and come to the same conclusions about the factors that brought the natural rate of unemployment down. But we're still left with this residual, maybe, disagreement across models about what the level is. I guess that's really what I was asking about.

CHAIR POWELL. Thank you. Governor Clarida.

MR. CLARIDA. Okay. Well, I can be brief, because Mary and Vice Chair Williams made similar points—Governor Daly. President Daly. Sorry, I'll get there. [Laughter]

MS. DALY. I'm getting promoted every minute I sit here! [Laughter]

MR. CLARIDA. Sorry, nervous here—it's my ninth meeting, and I'm nervous. Okay. Page 1, chart 4—so, underlying inflation is at 1.8 percent. I think that number makes sense. We've discussed that. But in the out-years, the red shaded parts of the bar graph are showing a positive contribution of resource utilization to inflation. But in the logic of the presentation, where does that come? Because we haven't seen that yet, right? So wages are in line with productivity and underlying inflation, and the staff's estimate of the natural rate of unemployment is 4.6 percent, so, at some point, this is just going to kick in even though we haven't seen it yet—is that basically the story?

MR. RUDD. No, wages are in line with those factors and the unemployment gap. So wage growth is in line with the degree of tightness that we see in labor markets. The model that I was showing on page 4 has the staff's unemployment gap in it. So the degree of labor market tightness that we think is currently present is what's helping keep employment cost index (ECI) growth where it is.

As far as the price component, my point in chart 7 is that it is going to be really hard to discern the influence of slack on inflation. So this decomposition in panel 7 is saying, yes, there is an important low-frequency role played by resource utilization. And into 2019, that was putting a bit of upward pressure over time on inflation.

But compared to the kind of variability that you get from other factors like, say, import prices, or even just idiosyncratic price movements, it's kind of hard to see that. Just like in panel 4, it's a bit hard to see the contribution of the red bars doing much to the contour relative to more important factors, like where the trend is or some of these yellow bars, which give the contributions of idiosyncratic factors that we can't explain in terms of the other fundamentals. Those dwarf the resource utilization contribution in some years.

MR. CLARIDA. And we can probably follow up on this more later, because there's a lot going on, but on page 6, the thought experiment here is—and I understand number 23. It's really chart 22. So the story here is, people have expectations for underlying inflation of 1.8 percent, and the central bank would like to get that up to 2 percent. And the idea is, this is going to be a function of the window, or the length over which they're running this. So I think I understand that. Is the argument that the central bank that is trying to get underlying inflation up to its target is going to have a welfare loss versus the case where people just stay at 1.8 percent forever? Is that the way I read this ratio?

MR. RUDD. Yes. In this particular case, in this particular calibration—

MR. CLARIDA. Yes.

MR. RUDD. —and under these assumptions, what is happening is that if you just stay at 1.8 percent, even though your target is 2 percent and your preference is for 2 percent, if people's expectations were to stay at 1.8 percent, what you're doing then is, you're balancing your two goals. You're trying to run the economy a little bit hotter than you would otherwise in order to get inflation a little bit higher than it would be otherwise. You are not going to perfectly match your zero output gap and be at 2 percent inflation, but you're trying to get as close as you can, given those two competing goals.

It turns out the situation is worse if you instead move to a world in which people begin updating their expectations, and they begin to drift up to 2 percent over time. That process takes a long time, and during that time inflation expectations are unanchored, which makes inflation control more difficult. So inflation stabilization is really easy when inflation stabilizes itself, and inflation basically stabilizes itself when expectations are anchored, and that situation, in this particular case, turns out to be better.

That's not going to be generically true. So if expectations were anchored really, really low, you could imagine, okay, that might then mean it's better to just unanchor them and try to get back to 2 percent than to have them pegged at 1 percent. And that is, again, ignoring any considerations that might be really relevant, like the presence of the effective lower bound (ELB) or something like that.

CHAIR POWELL. President Rosengren.

MR. ROSENGREN. I don't know if Charlie and Mary were going to keep on the same theme, because I was going to change the topic. So if they want to get onto the same thing—

MR. EVANS. I have one on Jeremy's theme just now.

MS. DALY. And I am just emphatically participating in the discussion.

MR. ROSENGREN. Oh, okay. [Laughter] I thought you were really rushing to get into the conversation.

MS. DALY. No, that's just my excitement. Go ahead.

MR. EVANS. Well, I realize I haven't been following the literature as well as I should, because I'm not that familiar with the framework that you—

MR. RUDD. There's apparently all sorts of rubbish out there nowadays. [Laughter]

MR. EVANS. I have to admit, I continue to be struck by a question that Senator Toomey asked the Chair during a recent *Monetary Policy Report* testimony. I think the context was that he was saying, "I understand that the Fed is talking about inflation averaging or overshooting." And he asked you something along the lines of, "Now, if inflation goes above 2 percent, aren't you going to lose control of the price level?" It's just like, 1.8 percent is okay; 1.9 percent is okay; 2 percent, I guess, is okay; 2.1 is death—total loss of control.

And yet, in your analysis, Jeremy, if I'm reading this right, in the overshooting, which is the awful outcome that a lot of people think of, it's going to take 14 years for inflation expectations to get up to 2 percent when people don't know that we're targeting 2.3 percent. I guess I'm not quite following all of the losses. I get the formulas for the loss function, but is it the case that inflation variability is dramatically higher in this case?

MR. RUDD. Well, you have a very flat Phillips curve, for one thing, which means inflation control is inherently kind of difficult, and you've got reasonably large shocks that are hitting inflation. But the reason why it takes so long is simply that people aren't updating very fast. So, in other words, this intermediate case corresponds to what's, in effect, the 13-year estimation window. So you're using a rolling 13-year regression—

MR. EVANS. Are they getting to experience, say, 3 percent inflation very often, or—

MR. RUDD. They're getting it temporarily.

MR. EVANS. They are?

MR. RUDD. Well, there's enough volatility in inflation that it kind of is going—

MR. EVANS. I guess if I were going to think about this case more, I'd want some additional statistics, like, what is the variability of inflation? What do some of these shock things look like? Especially when you describe, "Well, we get stuck at 1.8 percent, so now I'm going to benchmark it against"—you know. It's easy if they get "1.8. I can do inflation control." We're just lucky we're not at 1¼ percent, where we'd be even worse off on one side.

MR. RUDD. So I did actually try some experiments where, for example, you're at 1 percent, let's say.

MR. EVANS. Yes.

MR. RUDD. Leaving aside how crazy the simulations look, that is a case in which there is a relative improvement to trying to unanchor expectations to get back to 2. In other words, if expectations are anchored low enough, then, at least in this model, it can make sense to have expectations become unanchored for a while—

MR. EVANS. At the effective lower bound? You've got the zero lower bound at work?

MR. RUDD. No, that's not present in this model. That's a serious shortfall of this model. The other shortcoming of this model is that there is nothing that even hints of rational expectations here. People are using very simple extrapolative rules to forecast inflation. They're not trying to suss out what the Fed's inflation goal is. They're not trying to anticipate or evaluate what future policies will do. So, I think, for evaluating more sophisticated policies—like, say, average inflation targeting—you need a much better model.

What this model is really just trying to say is, okay, let's say that people—in the old days, we thought that the lagged inflation terms in Phillips curves reflected people using extrapolative rules in order to forecast inflation. And those extrapolative rules, you can imagine, would be updated over time as you get more data. But if you're an econometrician and you're doing that, then three observations, or four observations, aren't going to have much of an effect on your coefficient.

Even if you have a reasonably small rolling window—say, 10 years—it's still going to take time for these underlying parameter values to update and, therefore, for you to realize that, okay, my average inflation expectation should be 1.9, 2.0 percent. And that's really what this is capturing. But the key is that if this process is occurring and if it occurs slowly, then it is less of a problem. But if it occurs rapidly, it is more of a problem, because that means that any shocks that hit the economy are then also going to be used—you're going to look at those data when you

try to update your rule, and then you're going to just become, essentially, more confused. It is going to take more time for your parameter values to settle down to something.
And that's sort of what's going on here. Plus, it makes it harder for you, as a policymaker, to maintain inflation control, given the flat Phillips curve and the kinds of shocks that hit the economy.

What you're doing by having expectations becoming unanchored is basically putting more persistence back into inflation. You're going back to the old days when things were more like an accelerationist model, and with that you can control inflation, because eventually you get back to where you need to be. But it also means that you have to do so by pushing against the economy a lot harder. You can't just rely on things to wash out and go back to some anchored level. You have to actively do something in order to keep it there, and that might require you to jerk the output gap around in a way that you don't find very good from the standpoint of your goals.

MR. EVANS. Thanks.

CHAIR POWELL. President Bullard, then President Kashkari.

MR. BULLARD. Okay. To beat on the dead horse here, I'm still on panel 22, "Outcomes under Unanchored Expectations," page 6. This says that the relative loss increases with years of data in the estimation window. My interpretation of this was that this is a Phillips curve model, so what you're going to have to do is run unemployment below the natural rate longer. That's going to be a negative, in terms of loss, so this is what's going to make the loss go up even though all you're really trying to do is get inflation back to target.

Plus, I didn't really get what you were saying before, because expectations move so slowly here that you wouldn't think that the volatility of long-run expectations would have anything to do with the loss, because it's just inching back over 14 years.

MR. RUDD. Again, one of the things that the original Orphanides and Williams paper shows is that, once you start having this updating process, you are increasing inflation persistence by a pretty noticeable amount. So inflation shocks now have longer-lived effects, because even if they're entering a little bit, they're entering pretty persistently into your updating process.

Now, it is true that the assumption of this model is that you would care about a situation in which you had to deviate from your output gap goal of zero to push inflation up, and you might not—

MR. BULLARD. Well, that's why I wanted to talk about asymmetric loss functions, because, in that scenario, the Committee would probably be pretty happy. You'd be moving inflation back to target, and unemployment would be lower, and eventually inflation would get back to target. And we'd all consider that, I think, a better situation.

MR. RUDD. What I would point out here, though, is, even though I've got the same balanced loss function that the Tealbook assumes, so I'm assuming an equal weight on deviations of unemployment—or, in this case, deviations of the output gap from zero, let's say—and deviations of inflation from the 2 percent inflation target. In a sense, because the Tealbook optimal control loss function uses a four-quarter change in measuring inflation and the current level of the unemployment gap, it actually implies you're much more inflation-sensitive than you are output-sensitive. So you are much more worried about the inflation shortfall than you are about the output shortfall, especially in this model, which is couched in terms of the output gap and the period-to-period movements in inflation.

MR. BULLARD. And I just want to make sure—on panel 17, column 4, you've got the 2019:Q1 estimates using all these different models of underlying core PCE price inflation. This is a measure of long-run expectations derived from all these different models. Is this correct?

MR. RUDD. This is a measure of the—

MR. BULLARD. I think what's interesting about this—and I guess this is your "takeaway"—is, no matter how you cut it via these different types of models here, you're going to come up with something that's less than 2 percent.

MR. RUDD. Yes, I think that's the basic "takeaway." And, just to be clear: This is telling you what the inflation rate would return to if the gap were closed and there were no other shocks hitting the economy.

MR. BULLARD. Yes.

MR. RUDD. And, yes, everything is pretty much below 2, according to these estimates.

MR. BULLARD. Right.

MR. RUDD. And these were all of the estimates that I could scare up. I'm not hiding any. [Laughter]

MR. BULLARD. Thank you.

CHAIR POWELL. President Kashkari.

MR. KASHKARI. This is more of a comment than a question. I don't know what the process is, how you decide what goes in the Tealbook in a box. You've got lots of very interesting boxes. It's my humble opinion that something like this would have been great in a box to give us a chance to read it in advance and then talk about it with our staffs. It's just harder to understand fully what you're presenting to us here in real time in the meeting. But I appreciate your doing the work.

CHAIR POWELL. Back to President Rosengren.

MR. ROSENGREN. My question is on trade. So, Steve—

MR. KAMIN. Really? [Laughter]

MR. ROSENGREN. As I listened to your presentation, it seemed that what you showed was that the tariffs to date don't seem particularly related to leaving a big trace in the investment data. That seems consistent with the stock market remaining fairly high. It seems consistent with the Tealbook forecast that, between March and now, has actually gone up from 1.8 percent for real GDP growth to 2.1 percent for this year. It seems consistent with the median SEP forecast of real GDP growth that's unchanged at 2.1 percent from those same two dates. What it seems inconsistent with is the earlier charts on finance that include a 120 basis point decrease of the 10-year rate. So as you think about Lorie's presentation and charts and the 10-year Treasury going down by 120 basis points and those other sets of observations that seem more consistent with your story, how would you square those things?

MR. KAMIN. Well, for starters, the easy response to your question is that the huge decline in yields in response to these concerns has provided offsetting support to the economy in response to this perceived negative shock.

I'm just saying that that must explain part of it. The markets, confronted with this adverse shock to trade policy, which they viewed as having these large, pernicious effects on the economy, expect more accommodation, which they are getting not just from the Federal Reserve, but from all over the world, and that provides some offsetting support. So I'm just saying, that's part of the story, but I don't know that that's the totality of the story, and so we're just doing all we can to look at these linkages and find a connection.

MS. TEVLIN. So I think when you just compared it to the 1.8 percent, you were talking about March. Is that right?

MR. ROSENGREN. Yes.

MS. TEVLIN. Okay. One thing to keep in mind is that, between March and April, we changed the federal funds rate path.

MR. ROSENGREN. Changed our forecast, yes.

MS. TEVLIN. And so we got a much stronger real GDP path this year. If you just compare the GDP growth rate between where we were at the April FOMC meeting and where we are now, we're down two-tenths. We have a reasonably strong first half of the year, so we actually took down the second half of the year pretty considerably. And the kind of information that Lorie was talking about and a lot of other things we've seen on investment, in terms of business sentiment, orders, profits, all that kind of stuff, that's what informed that comparison. So it's just the March/April thing—because we changed the federal funds rate rule, it kind of confuses the issue a little bit.

MR. ROSENGREN. Just a follow up. That's a very fair comment, and the second half is weaker, but it's interesting it doesn't persist very long. So your forecast hasn't changed that much for next year, and neither has the SEP. It's just interesting that it would be so short lived if it was--and it may be that tariffs get reversed. There are a lot of explanations. But it's interesting that it's not leaving that much of a trace in the data, which, again, gets a little more consistent with Steve's comments.

MS. TEVLIN. Right. I mean, I think, as Steve said, we have this sort of cease-fire baseline, and so there will be an effect on investment but it's not going to keep dragging us down into a recession. We're going to see a real slowing in investment, but we have consumption and the labor market hanging in there. His other scenarios are much worse, but our baseline for trade policy isn't that bad.

MR. KAMIN. What's difficult is just, there is this tremendous cacophony, right, of views expressing concerns about trade policy. It's hard to know how much of that is reflected in actual and current cutbacks in spending. It's hard to know how much of that is actually a reference to downside risks in the future. So that's why we're trying to do as much work as we can to try to line up objective measures of exposure to trade policy with outcomes, and we're not finding too much.

So, for now, our baseline doesn't have more escalation of trade measures. We have only marked down our foreign outlook a touch in reflection of increased trade tensions and worries. But if there were an actual escalation of trade tensions and we were able to see it more concretely in cutbacks in investment and other spending, then we would probably be marking down our forecast by more.

CHAIR POWELL. President Barkin.

MR. BARKIN. Maybe just one thing to add, and then a question. I just think, in the real economy, business fixed investment on this kind of topic works with some lag. And so, your regressions—they're four-quarter lagging—I just think what the Tealbook does, which is mark down the second half of this year, makes a lot of sense to me, in terms of how this stuff affects the economy. Things are pre-committed. Buildings are already under way. Things were in budgets. It takes a while to actually pull stuff back. So I just offer that.

A question for Sean. On the Summary of Economic Projections, I like the chart that Lorie did, in terms of people who took rates down 50 basis points had one view of the world and people who kept rates the same had a different view of the world. Did you see the same thing when you went through our responses?

MR. SAVAGE. I would preface by noting, maybe, the same caveat that Lorie did, which is, it's obviously qualitative. But I think that there was some flavor of folks who mentioned the trade tensions in a sense of "I'm cognizant of the risks associated with these. It hasn't shown up tremendously in data, and, therefore, I'm going to continue to watch it." And perhaps those people were a bit skewed more toward one end of the distribution. And then the folks that were a little bit more inclined to see uncertainties regarding trade as more present and accelerating and likely to persist—a few of those, I think, made some comments. But it's a little difficult to say quantitatively without—some people didn't elaborate with respect to trade uncertainty versus the path.

MR. BARKIN. I just think it might be helpful to the Chair, in his press conference, to have clarity. That that would be a good way to characterize it?

MR. SAVAGE: Yes, I would agree.

CHAIR POWELL. Further questions? If not, we're going to go ahead and take our coffee break, and we'll come back at 3:00 sharp. Thank you.

[Coffee break]

CHAIR POWELL. Okay. Let's get going again, and let's begin the go-round on the economy with Governor Clarida.

MR. CLARIDA. Well, thank you, Chair Powell. I'm going to begin with a snapshot and then talk about the outlook and then talk about risks to the outlook. After all, what we have are existing data. The rest is forecast and opinion.

Over the most recent four quarters for which we have data, GDP growth has averaged 3.1 percent, I think, with the revision. Over the past year, the unemployment rate is at 3.8 percent, and the most recent reading, at 3.6, is near a 50-year low. Average monthly job gains, on average, are still in excess of the pace needed to find employment for new entrants; wages are rising broadly in line with productivity and underlying inflation; there is no evidence of cost push pressure; and, obviously, inflation is muted—probably more muted than we would like.

Despite the disappointing labor market report that we received in May, I think what I just mentioned remains an accurate snapshot of where the economy is today, but snapshots are really for speeches and interviews. Because of long and variable lags, monetary policy decisions we make at this and each meeting must be based on an outlook and assessing risks to the outlook.

So let's talk about that. I think the data on momentum and important components of U.S. demand that we have received since our previous meeting, especially on capital spending and trade and manufacturing, have been soft. And I agree broadly with the staff's assessment to revise down the outlook for second-half growth. I think they are currently at 1.7 percent, which is more or less in line with their estimate of trend growth.

The economy does appear to be slowing, at least in GDP terms, and slowing faster than we might have thought seven weeks ago. In particular, the slowdown in terms of private final domestic purchases has been actually ongoing since the third quarter of last year. And as others have pointed out and I'm sure will point out, the drop in business fixed investment projected in this Tealbook is especially something to pay attention to: essentially no contribution from business fixed investment in the second half of the year in the projection.

Now, of course, not all of the news since our previous meeting has been on the downside. In fact, household consumption, which is 70 percent of the economy, is certainly robust, and the recent data do indicate a pickup from the soft Q1 data on consumption. And, again, unemployment is, of course, at a 50-year low, but I note that in the staff projection, the unemployment rate does begin to pick up and move up toward the various estimates of $u*$. In sum, the baseline outlook under more or less current policy sees the economy transitioning from above-trend to trend growth and inflation rising reassuringly in the projection toward, but ending up somewhat below, our 2 percent objective.

So isn't this the soft landing that any central banker should seek to achieve? And while I'd like to answer "yes," I believe the correct answer is that it is too soon to tell. And, quite frankly, I was more optimistic on a soft landing seven or eight weeks ago than I am now. To me, in contrast to what I thought after our previous meeting, I believe the risks to the outlook are tilting to the downside. And as a result, risk-management considerations should encourage us to assess the full distribution of future outcomes and not just the mean or mode of this distribution.

And I would cite three factors that give me more cause for concern about the downside risks to the outlook than they generate excitement about upside surprises to the forecast. First of all, when we get back to Steve Kamin's presentation, the outlook for the global economy continues to be marked down not only in Tealbook, but also in outside forecasts. I went back and looked. A year ago, the Tealbook projected global growth of 2.7 percent for this year, and that's down to 2 percent now. Moreover, I think the recent escalation of trade tensions, regrettably, is no longer just a crosswind but is now becoming a headwind for the economy that may not dissipate over the policy-relevant horizon. Sluggish global real growth, of course, is a headwind for U.S. exports, and trade policy uncertainty cannot be a positive for business investment.

Second, although PCE inflation is projected to rebound from its muted pace at present, the staff does not see it returning to the 2 percent target over the forecast horizon. Financial market signals of expected inflation have declined about 20 basis points since the new round of China tariffs was announced in early May and are now close to the depressed levels that we saw in late December.

And although this is about tomorrow, I am glad to see acknowledgment in the statement that we will discuss tomorrow highlighting this move in inflation compensation. One of the reasons I see this as a downside risk is that I believe that the output gap is much smaller than does the staff. And, as a result, I see less upward cyclical pressure on inflation than they build into their forecast.

My personal estimate of u^* is 4 percent. And if I weren't partial to round numbers, I might be at 3.9 percent. Recent work cited by others this morning—Crump, Eusepi, Giannoni, and Sahin, the paper presented at the Brookings conference—estimates a u^* of 3.9 percent and, of course, with a standard error range that encompasses 3.5 percent to 4.5 percent. And so, importantly, with u^* at 4 percent, or conditional on u^* being 4, and a traditional Okun's law coefficient, the output gap would be less than half of the staff estimate and could well be close to zero.

I'll conclude with one observation about markets. Although a lot of attention has been paid to the slight inversion of the yield curve that has happened since our previous meeting, I myself am more focused on the decline in five-year-forward TIPS yields over the same period.

At the time of our December rate decision, five-year TIPS yields five years forward were about 1 percent, and as recently as April, they were around 80 basis points. As of last Thursday, when I prepared these remarks, they were about 50 basis points, which is the lowest they have been since 2016.

Together, falling forward real yields, in conjunction with falling breakeven inflation, suggest that the market's expectations for growth and inflation have been marked down since our previous meeting. Of course, as always, there is noise as well as signal in financial market prices, but the direction, if not the magnitude, of these moves is consistent with concerns about downside risk, and I think it should be factored into our analysis. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Chair Powell. I wanted to start with wet conditions and flooding in the Eighth District. I think this is a very serious situation. The agricultural sector is definitely struggling. Generally speaking, farm income has not been great over the past couple of years. A lot of agribusiness was hoping for a better year in 2019. That isn't happening. This is not abating.

And then trade uncertainty is weighing on this sector as well—soybeans in particular, but other areas as well. So this is an exceptionally acute situation. We're in mid-to-late June here, and it is really not abating. So I think that's a sector that's not doing well during 2019 that we should keep in mind.

Another factor that's influencing my thinking is the following anecdote from an Eighth District contact with global manufacturing assets. This contact called the U.S. economy "a mess" because of newly imposed tariffs, threats of additional tariffs, and elevated uncertainty in the global trade environment. This firm has capital expenditure and hiring plans on hold, and they're in a wait-and-see mode to see what happens on the trade front.

Comments like this one have convinced me that the ongoing global trade war is unlikely to be resolved over the forecast horizon. The "new normal" is persistently higher trade regime uncertainty. Future tariffs are unknown and could disappear or reappear at any time. In turn, I think this new, highly persistent, uncertain trade environment will be associated with slower global growth than otherwise over the medium term, which will likely also damp U.S. growth.

I was in Hong Kong during part of the intermeeting period. My sense from there is that few expect an agreement between the United States and China in the near term or in the medium term. In addition, even if there was an outline of a deal, the odds of actual adoption and lasting implementation are close to zero.

The narrative at this table during 2019 so far has been that trade tensions may soon abate, allowing more investment globally and, hence, faster growth. I'm suggesting replacing that with a new baseline narrative of persistently high trade-regime uncertainty feeding into slower U.S. real GDP growth.

District contacts during the intermeeting period generally confirm the idea that 2019 growth would be slower than in 2018, as has been long forecast by this Committee. Now, with elevated trade uncertainty, there's a distinct risk that the 2019 slowdown will be sharper than previously anticipated.

It's true that backward-looking indicators like past labor market performance and Q1 real GDP growth seem to suggest that the economy will continue to perform well. Unemployment, for instance, is at a 50-year low. However, I do not think that backward-looking indicators will serve the Committee well in the current environment. If the sharper-than-expected slowdown actually materializes, unemployment will ratchet up disturbingly quickly, and it will be too late to effectively offset the downturn.

Forward-looking indicators, which effectively take into account persistent trade uncertainty and other risks over the forecast horizon, seem to suggest significant trouble ahead. Disconcertingly, the 10-year/3-month Treasury rate spread is meaningfully inverted. This suggests that the market expects less real GDP growth and less inflation in the period ahead than are currently contemplated by the Committee. The 2-year/10-year spread is not yet inverted, but that's because markets have priced in rate cuts by the FOMC over the next two years. If these forecasted rate cuts do not materialize, this spread will likely invert as well.

Recession-prediction models based on the term structure of interest rates show an elevated risk of recession ahead. The term structure models—which attribute almost everything to noise—are not useful in this environment when trying to interpret this market-based signal.

The 10-year and the 2-year are both down 45 basis points during the intermeeting period. This is an extraordinary move in the bond market. Similarly, and to echo Governor Clarida, the 5-year TIPS breakeven has fallen below 1½ percent in recent trading, strongly suggesting that the Committee is unlikely to achieve the inflation target over the forecast horizon. Some of the movement is definitely due to oil prices, but oil prices can be a barometer of global demand as well. In the current situation, oil prices have fallen despite events on the supply side that normally would have caused substantial increases in prices, not decreases.

Actual PCE inflation is running below target by a preferred measure. I think it is unlikely that this is due solely to idiosyncratic factors. If anything, we would prefer to be overshooting our target in the current circumstance, given our serial misses to the low side since 2012.

The Dallas Fed trimmed mean does give some comfort on this dimension. I would welcome a discussion at the Committee here if we wanted to switch to the Dallas Fed trimmed mean as our preferred measure. We have not done so, so far. If we're sticking with core PCE inflation, then that's hurting our credibility if we don't get that back to target. I would also base things on inflation expectations more than on a backward-looking measure of actual inflation.

In sum, I think the Committee is a little bit out of position for the current circumstance. In tomorrow's discussion I will suggest that we cut sooner rather than later, in particular at this meeting. I would like to re-center inflation and inflation expectations at 2 percent. As we discussed with the staff presentation, it is clear that longer-term inflation expectations are running below 2 percent. I think we can also take out insurance against potential trade uncertainty risks. If the trade-induced slowdown does not occur, it won't be a problem, because all we'll be doing is re-centering inflation and inflation expectations back at 2 percent more quickly. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Rosengren.

MR. ROSENGREN. Thank you, Chair Powell. Because the outlook seems more bimodal at this time, my SEP submission was more difficult than usual to prepare. In one case it is assumed that concerns with trade disputes are positively resolved and markets are likely buoyed by the resolution of this key risk factor. Note that consumption has held up quite well, especially with a strong May retail sales number last Friday, which supports the notion that the economy may continue to be fairly robust. In the other case, a 25 percent tariff that directly affects U.S. consumers is placed on $300 billion of Chinese goods. China retaliates in ways that harm vulnerable U.S. firms, and markets likely react quite negatively.

In this latter scenario, it is entirely possible that appropriate policy would entail possibly significant easing. Because the decisionmaking process determining tariffs is somewhat opaque, assigning probability for these two outcomes is quite difficult. As a result, in my SEP submission, I have made the assumption, rather than the forecast, that no additional tariffs are imposed, budget negotiations are not disruptive, and geopolitical problems do not heat up. Under those assumptions, the outlook is quite benign: Unemployment falls to 3½ percent, wage growth picks up, inflation gradually rises to above 2 percent, and there's no need for a reduction in interest rates. And, if anything, the risks might be reasonably balanced. However, a negative outcome is much more than a tail risk. So while I'm not using this as a base case, it has a high enough probability that I view my forecast of a more benign outcome as having substantial downside risk.

A similar problem arises in interpreting recent market movements. The decline in 10-year Treasury yields is quite striking. Over the past year, the rate has been as high as 3¼ percent, and, at only a little over 2 percent now, it is currently at its lowest point since 2017. If bond market participants see the risk of further trade deterioration as quite high, perhaps even higher than I do, then investors will seek to hold more long-term Treasury securities. After all, Treasury securities would likely appreciate in the event of a negative trade shock, particularly if that is accompanied by easing of monetary policy.

On the other hand, equity prices are only somewhat depressed, sending a less clear signal of trade concerns, potentially because they assume a monetary policy response. Overall, this reckoning also seems roughly consistent with a stock market that is modestly down in the United States, more significantly down in China, and exhibiting a lower yield on U.S. Treasury securities. In effect, financial markets, especially bond markets, are even more concerned about the likelihood of a trade meltdown than most macro forecasters.

Discussions with my contacts in the District seem interestingly bifurcated as well. When I talk with small businesses, they concede that trade is a risk but seem to be taking little action. Instead, they are acting as if any trade disruptions will be temporary. Their major complaint is the scarcity of labor rather than the risks from trade.

On the other hand, larger firms are being more proactive, assessing their supply chain exposure to China, diversifying their supplier base, and preparing for a rockier outlook. Most of these larger firms are viewing the heightened uncertainty surrounding the discourse on trade as having the potential to fundamentally disrupt their global supply chain regardless of how the China negotiations play out in the near term. To them, trade disruptions for noneconomic reasons, such as were threatened with Mexico, further raise the level of uncertainty regarding the outlook for trade and for supply chain management.

I fear that the actions taken by larger firms to manage their supply chains will have some unfortunate economic consequences. Diversifying across suppliers to minimize tariff exposure implies choosing suppliers that will likely not be the most efficient, leading, over time, to more expensive goods. Restrictions that prohibit the use of equipment from certain technology suppliers could lead to communication security standards that vary significantly across countries, which may also make the global economy less productive over time.

While in the past I had trouble visualizing what large negative productivity shocks look like in an advanced economy, recent events are making that much easier to envision. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. Since our previous meeting, the headwinds buffeting the U.S. economy have increased. Deteriorating trade negotiations between the United States and China and the politicization of tariffs in the negotiations with Mexico have rattled the nerves of many of my contacts, and we're very exposed to trade in the 12th District.

But I heard similar anxieties on the other side of the Pacific. During my recent trip to Singapore, East Asian business leaders expressed concerns that the foundational trading relationships and the basic supply chains underpinning the global economy are under stress. As President Rosengren mentioned, they were very nervous that people are already unwinding or moving these basic relationships in an effort to offset predicted trade negotiations. So both here and abroad there is a growing sense that trade policy uncertainty will be with us for a while—a new normal, as President Bullard put it.

As I noted in January, such uncertainty acts like a negative demand shock, depressing both economic growth and inflation as businesses and consumers pause on investment and spending plans. And in the 12th District, I am definitely hearing this from my business contacts who are being cautious, tabling more risky ventures, and generally getting prepared for slower growth ahead. This precautionary behavior likely explains some of the recent weakness in U.S. business investment, although, as Steve Kamin put it, we don't see it in the data, we're already starting to see it in marginal projects.

So the counterfactual that it could have been faster is something we don't observe, but my business contacts say that they are doing it. More importantly, it may signal further loss of momentum in the domestic economy. And, notably, I think, from my vantage point, these uncertainties come at a time when global growth is already slowing and financial market conditions are tightening. So many headwinds are blowing against the U.S. economy and, overall, are stronger than they were when we last met. These headwinds are showing up in projections of downside risks to the outlook. And two separate work streams or analyses by researchers at the San Francisco Fed focus on trying to quantify these downside risks by measuring how financial markets price the risk of returning to the effective lower bound.

The first one examines interest rate options, and the authors there find that the probability of monetary policy being constrained by the ELB three years out has doubled over the past month. Another reading on this type of tail risk comes from the San Francisco Fed's term structure models. This analysis indicates that the risk of hitting the ELB has risen about 17 percentage points during the past nine months and is near 25 percent today. And that's somewhat higher than Tealbook estimates but somewhat lower than the estimate that Lorie reported, but it has all kind of moved up over the past several months. This suggests that the recent fall in yields is not simply a shift in the risk premium, but also reflects an assessment of higher real-world tail risk probabilities.

So if I could step back and put all of this together, I now expect real GDP growth to slow in the second half of this year and growth for all of 2019 to come in just above or at trend, and this is concerning.

Now, slower growth to trend is not, on its own, worrisome. As Governor Clarida said, "This could be the soft landing that we all wanted." But headline and core PCE inflation are running at just 1.5 percent over the past 12 months, and slowing growth only serves to lessen upward pressure on future inflation.

So if I take this into account and I revise down my inflation projection for this year, then slower growth, softer global inflation, declining oil and commodity prices, an appreciating dollar, and prices and wages that show few signs of accelerating all give me pause and have lessened my confidence that we're on track to achieve our 2 percent inflation goal.

Now, notably, the recent weakness in inflation that we've been discussing for the past seven years runs contrary to the idea that the economy has large output and unemployment gaps. So in preparation for this SEP round, the San Francisco Fed team revisited our estimates of both the growth of potential output (g^*) and u^*. On g^*, evidence from standard growth accounting models continues to point to a potential growth rate of about 1.7 percent per year, reflecting 0.5 percentage point labor force growth and 1.2 percent trend productivity growth. So we didn't revise that, and we're at the lower end of the SEP—but right in line with the Tealbook.

Thinking about u^*, there I think things are more challenging, as I indicated in the question period. If we rely on our standard methods that estimate long-run u^* on the basis of demographic changes in the labor force and the historical matching function—the relationship between firms and workers—it's actually quite hard to generate estimates of u^* below 4.5 percent even when you move the starting points around or you use different window lengths, as Jeremy noted in his presentation.

But this concept of a very long-run and highly backward-looking u^* may not be useful for calibrating monetary policy in this world. And this point is evident, I think, in the continued misses on inflation, as many in the room have mentioned. So San Francisco researchers considered an alternative model that borrows from the techniques of Thomas Laubach and Vice Chair Williams to uncover the natural rate of interest, r^*. Using a suite of alternative specifications of state-space models, the San Francisco Fed staff concludes that the noninflationary rate of unemployment, a different concept than the natural rate, has been on a downward trend during the entire expansion. And this finding is in line with the assessment in a recent Brookings paper by the staff from the New York Fed and the Dallas Fed, and in all of those cases, they find this downward trend.

Based on these estimates, I have lowered my *u** to 4.2 percent. But, frankly, the structural factors that underlie the downward trend have their own momentum and may very well continue to push *u** down. So, for me, it was a complete judgment call whether to go to 4.2 percent, which was the estimate that the state-space models are coming up with right now, or go to 4, or even go further down. So the confidence bands around these are wide, but the risks of being wrong, to me, are all tilted to be lower, not higher. The bottom line is that unemployment gaps do not appear as large when you think about a noninflationary rate of unemployment as they do when you think of a classic natural rate of unemployment. And I think that's worth us taking into consideration as we think about monetary policy.

Now, it's also possible, and many around the table have mentioned this, that ongoing realizations of inflation weakness may, in fact, be transitory. But I would argue that, with years of continued misses and models that are very far from perfect at distinguishing permanent from transitory, we might want to consider whether the temporary factors that we keep counting are in fact, unmeasured, more permanent changes in the dynamics of the economy that we've just simply failed to uncover right now. And that's really worth us thinking about.

Whatever the cause, persistently weak inflation readings run the risk of softening inflation expectations. And while I still have them anchored at 2 percent in my outlook, incoming data on expectations are worrisome and give me pause. So, given the landscape I just described—growing global headwinds, slower domestic growth, tighter financial conditions, and especially softer inflation—I have revised down my policy rate path to be more accommodating in support of our goals.

And, notably, when you look at the SEP and you see that I haven't revised down very much my outlook for real GDP growth, it's because I have a more accommodating policy rate path that supports that growth. And that's how I get to 2.1 percent real GDP growth and inflation that continues to move back to target. I will describe this revision in more detail tomorrow. Thank you.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chair. Most of my contacts continue to describe their current domestic business as relatively solid, but there has been a noticeable change in their tone about the outlook since the previous round. Confidence has declined even among some executives whose businesses currently are doing well. For example, I heard from two CEOs of large global manufacturing corporations that there has been a dramatic drop in sentiment among their peers since the first quarter. This increased nervousness has not yet translated into softer activity for their own business lines, although one indicated that activity had not yet declined because the firm was working through order backlogs.

In contrast, a major steel maker has already seen a rapid deterioration in sales and in pricing for its products. Energy was the only sector in which their demand remained good. However, not all manufacturers were downbeat. One major automaker was fairly optimistic, as solid light vehicle sales in May and a healthy backlog of orders for medium and heavy trucks had made them more comfortable about the domestic outlook for the remainder of the year.

Of course, increased trade tensions and slowing growth prospects abroad are the major sources of the general trepidation we are hearing. Several directors reported delays in shipments and supply chain disruptions, particularly with regard to China. And one said that trade uncertainty had led to some large urban-area logistics and distribution center construction projects being put on hold.

We are beginning to hear about more nontariff responses to trade tensions. Some directors reported a backlash in China against American brands and increased regulatory scrutiny of American firms operating there. Some of this seems kind of ticky-tacky, like suddenly being cited for small business regulatory transgressions that were never cited before in China. But my contact thought that it was intentional, and that the temperature was rising.

Another director who is in higher education described a further slowdown in the flow of international students to U.S. colleges. Notably, we have heard that the Chinese government is now actively discouraging study in the United States. She also noted that the policy environment has led to an erosion of engagement between the Chinese and American research communities.

Perhaps some of these reactions will be tempered now that tariff threats against Mexico have faded, at least for the moment—that's among the business community. However, several contacts noted that trade policy has a Whac-A-Mole feel: One problem goes away, and another pops up. Moreover, many CEOs appear to have little confidence that tensions with China or the slower growth risks in Europe will end anytime soon, and they may well extend beyond 2020 into 2021.

To summarize, businesses are still operating in an economic environment with good fundamentals, and their business reports seem consistent with an economy growing around 2 percent. However, there has been a notable decline in sentiment that seems different this round and, should it persist, would be an important source of downside risk to growth.

With regard to wages and prices, the sparseness of commentary this round was telling. Despite seemingly tight labor markets, I don't recall any reports of faster wage gains. A large temporary help agency mentioned that wage growth is stable and perhaps even slightly decelerating. This stabilization comes after many consecutive reports of rising year-over-year wage increases for temp workers.

Regarding prices, I heard only sporadic reports of changes in materials costs, and these tended to be on the downside. There were no accounts of downstream price increases other than the pass-through of tariffs. This is a marked change from early in the year when there was much more commentary about building wage and price pressures.

For the national outlook, my growth and inflation forecasts have not changed much from my March SEP. That is because I am now conditioning on more accommodative monetary policy, much for the reasons cited by President Daly. I have two rate cuts before the end of 2019. I see real GDP expanding by around 2 percent this year and next. I then expect a moderate slowing in growth in 2021, largely reflecting a declining impulse from fiscal policy. Later in the projection period, my forecast has the unemployment rate beginning to increase gradually, but at the end of 2021, unemployment still remains about ½ percentage point below my 4.3 percent estimate of the long-run neutral rate.

For inflation, I marked down my 2019 forecast for core PCE ¼ percentage point. Compared with the Tealbook, I am now assuming somewhat more persistence to the past few months' disappointingly low readings on core inflation. However, I am projecting that inflation will move up to target in 2020 and will overshoot by two-tenths in 2021. This is an explicit design feature of my forecast, as it has been for some time. I feel that some modest overshooting is necessary to bolster the credibility of our symmetric inflation target. If I forgot to mention it, I am SEP submission number 4.

In light of this year's weaker inflation developments, I now feel the need for two rate cuts in my policy rate path for 2019 to generate this inflation overshoot. I will discuss this rationale for the change in more detail tomorrow, but, in short, given where inflation pressures are today, I believe more tangible accommodation is likely to be needed to communicate strongly our commitment to a symmetric 2 percent target, lift inflation expectations, and achieve some modest overshooting within the current forecast window. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. Overall, the reports from District contacts tell us economic activity in the Fourth District continues to grow at a modest pace. The contacts have become more concerned about downside risks. The Cleveland Fed staff's diffusion index, which measures the difference in the percentage of business contacts reporting better versus worse conditions, was 17 in June, in line with readings seen so far this year.

Some manufacturing firms, especially those that have global exposure, reported softer demand, and freight contacts have seen slower shipments this year but said this might be an offset to shipments that were pulled forward last year to avoid tariffs. Announcements of potential new tariffs on imports from China and Mexico have weighed on business sentiment but have not yet resulted in much pullback in activity. Retailers are particularly concerned about the expansion of Chinese tariffs to consumer goods.

District firms with plants in Mexico are particularly concerned about possible Mexican tariffs, as it's not just a question of their reorienting supply chains in response. One of our directors from a major auto company is very skeptical that tariffs on Mexican imports will result in more jobs in the United States: Given the wage differentials, the labor-intensive work would remain in Mexico, and if any work did return to the United States, it would be highly automated.

Some manufacturers indicated that new tariffs will compress their profit margins more than the earlier tariffs did because they have limited ability to raise prices, especially if demand softens. Indeed, price pressures in the District have eased since last summer, with the majority of firms reporting they haven't changed prices in recent months. Even firms not directly exposed to the tariffs expressed concern that the renewed uncertainty will weigh on sentiment and investments. Some contacts are beginning to reassess pending capital projects, and some smaller firms are holding off on acquiring financing for new projects because of the uncertainty surrounding trade policy and tariffs.

Despite firms' concerns, District labor market conditions remain strong. The unemployment rate edged down again in April to 4.2 percent, its lowest level so far in this expansion and well below the Cleveland staff's estimate of its longer-run normal level. Year-over-year growth in payroll employment remained at about ¾ percent in April, well above the Cleveland staff's estimate of its longer-run trend. District firms continue to cite the difficulty in finding skilled workers as their primary challenge.

Regarding the national economy, incoming data over the intermeeting period were mixed. So far, the economy appears to be slowing toward trend as anticipated, but some of the data raise the possibility that the slowdown may be more significant. In my view, the most likely outcome remains that output growth and employment growth will slow toward trend over the forecast horizon, and that inflation will gradually rise to 2 percent. But downside risks for this forecast have risen, and I now believe the risks are weighted to the downside.

Output growth has slowed in the second quarter after stronger-than-expected growth in the first quarter. While the monthly readings have been volatile, the overall data suggest that consumer spending and sentiment remain solid. On the other hand, business spending has weakened, and manufacturing activity has been soft. While earnings are supportive of continued growth, data on new orders and shipments do not point to a pickup in investment in the near term.

Now, the labor market readings are consistent with continued expansion. Since our previous meeting, the unemployment rate has fallen to 3.6 percent, its lowest level in nearly 50 years, and the broader U-6 measure fell to 7.1 percent, its lowest level of the cycle. These readings are well below my revised estimate of the longer-run unemployment rate. My estimate had been 4½ percent, but, given that inflation has remained stable and wages have not greatly accelerated, I now estimate the longer-run unemployment rate to be in the 4 to 4½ percent range.

Monthly payroll job growth has averaged about 150,000 over the past three months. This is a step-down from last year's strong pace of over 220,000 jobs per month, but it's well above trend. As output growth slows toward a more sustainable pace, I expect job growth to slow as well but to be strong enough to absorb those entering the labor force, keeping the unemployment rate low. The question is whether job growth is slowing more than anticipated, and we'll need to see more data before we can tell.

The recent inflation readings have been soft. The headline inflation numbers were held down in part by declining energy prices, which will further weigh on inflation in the near term. Both headline and core inflation readings also reflect some idiosyncratic and likely transitory declines in selected components, including apparel and imputed prices of financial services.

In April, the year-over-year change in the Dallas Fed's trimmed mean PCE inflation measure edged up to 2 percent, and the Cleveland Fed's experimental median PCE measure moved up to 2.6 percent. The Cleveland Fed median and trimmed mean CPI measures were 2.7 and 2.2 percent, respectively, in May, in line with their levels for most of the year.

Now, recent inflation expectation readings have been mixed. Five-year, five-year-forward inflation breakevens declined since the previous FOMC meeting, but the Cleveland Fed's five-year, five-year-forward measure was little changed in June. There was a softening in the latest reading from the Michigan and New York Fed survey measures that bear watching.

In light of all these data, I revised down my inflation forecast for this year. My modal forecast assumes that inflation expectations will remain relatively well anchored and, coupled with strong labor markets and output growth slowing to trend, that will support inflation rising gradually back to 2 percent over the remainder of the forecast horizon. But I am now less confident in this forecast.

With the revision I've made to my longer-run unemployment rate, the labor market is somewhat less tight than I previously thought. This, combined with softer-than-expected inflation readings, suggests that the trajectory of the federal funds rate path over the forecast horizon will need to be somewhat shallower than I had in my previous SEP submission, although my modal forecast still incorporates two increases in the funds rate over the forecast horizon: one next year and one the following year.

This path reflects what might be called an "opportunistic approach" to inflation. So long as output is growing at trend and the labor market remains solid, we would be tolerant of the inflation undershoot we've been experiencing and not take deliberate action—that is, cutting interest rates to reinflate the economy. We'd allow the funds rate path to remain shallow to support rising inflation and not take deliberate action to curtail inflation overshoot so long as inflation doesn't rise too much above 2 percent. In other words, we take advantage of supply shocks that lead to increases in inflation.

Given the level of the funds rate, which is low but appears to be near neutral in my modal economic outlook, this type of strategy would seem to balance the risks to achieving our dual-mandate goals. But the downside risks to my modal forecast have risen. The recent softness in business investment and manufacturing, the slow global growth, and increased uncertainty caused by trade policy and threats of tariffs all suggest greater possibility of a weak growth scenario in which economic growth slows more significantly, the unemployment rate rises, and inflation remains low for long.

The declines in longer-term Treasury yields and other sovereign debt yields are consistent with investors placing a higher likelihood on this scenario. And in this scenario, the economy's short- to medium-term equilibrium interest rate would move down, and we would need to move the funds rate down as well in order to sustain the expansion and foster achievement of our longer-run goals of maximum employment and price stability.

Now, at this point, I'd prefer we take the time over the summer to gather more information on the economy and continue to assess our outlook and risks before making any adjustments in our policy rate. If we see a few more months of weak job growth, further declines in manufacturing activity, indicators pointing to weaker business investment and consumption, and declines in longer-term inflation expectation readings, I would view this as sufficient evidence that the base case is shifting to the slower growth scenario, and the Committee needs to act as necessary.

On the other hand, over 2014 to 2016, the economy proved to be resilient to the slowdown in global demand, decline in oil prices, and appreciation of the dollar that caused a dropoff in investment and manufacturing activity, and the FOMC was patient. The economy could prove to be resilient again, and patience might again prove to be the best policy choice. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. Thank you, Mr. Chair. Regarding the forecast, I'm in general agreement with the staff's near-term forecast of economic activity, but I'm less certain that deviations of inflation from our target will be merely temporary.

Persistent undershooting of our target is a significant downside, and this deviation appears to be influencing expectations of inflation, as others have mentioned, as measured in financial markets. So, as you can imagine, the behavior of inflation and market-based inflation expectations is influencing my stance on policy, but I'll defer that discussion until tomorrow.

The downgrade in the staff's projection is in line with the weaker sentiment that contacts are expressing in the Third District and is consistent with my own forecast as well. I also believe the risks to my forecast are weighted to the downside, and this weighting is in part due to our most recent manufacturing survey that will be released this Thursday. The current activity index will be roughly zero, a very significant drop, and recent readings are almost as weak as they were in 2015. Further, expectations of future activity remain at levels well below this time last year. Numerous firms express concerns about tariffs and the negative effects they are having on their businesses. Interestingly, one trucking firm indicated that freight activity is now consistent with the expansion ending over our forecast horizon, and many firms indicated that much of the tariffs will be passed on, inducing a subsequent decline in demand.

I'm actually placing a little less weight on the latest survey, however, for a number of reasons. Surprisingly, there's a large discrepancy between those who responded early to the survey and later respondents. The latter group still indicates that our manufacturing sector is solidly in expansionary territory. And so, actually, the timing within this survey was different, which tells you how volatile the situation is right now and what these firms are facing and the opaqueness of the process.

As well, if you look at the data, the plans for future employment and capital expenditures in the survey still appear relatively solid. I think there are mixed signals when you get under the hood of what our respondents are saying, even though the headline number comes out weak.

In terms of the labor market, as of April, the labor market in the region appears quite healthy, with employment growth of around 1 percent and an unemployment rate that fell to 3.8 percent, the lowest rate in our District for the expansion. Particular strength was shown in the "eds and meds" and in leisure and hospitality. Supported by strong fundamentals, consumption activity has picked up a bit, with car dealers reporting a higher volume of sales and service-sector firms indicating modest growth. The District's consumers remain confident as well.

So, to summarize, the District's economy is growing modestly, but that growth is almost entirely driven by the consumer, which is, I think, in line with what we're seeing nationally. Thus, the expansion seems to be resting on somewhat shakier ground. As a result, I have slightly revised my forecast of economic activity and unemployment. And the staff forecast and mine are pretty similar. I now envision 2019 growing at 2.1 percent and 2 percent in the succeeding two years. I have downgraded my inflation projection to 1.8 percent on core PCE, and, as I've mentioned, I'm concerned that there are significant downside risks to that assessment.

In keeping with the tenor of my forecast, I now anticipate no fund rate increases over the forecast horizon and have lowered my assessment of the neutral federal funds rate to 2.5 percent. While I'm not currently forecasting a rate cut, I view that possibility as within the planning horizon, and the probability of that occurring has increased. More on that tomorrow. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. I see real strength in the consumer part of the economy, confirmed by last week's retail sales report. For color, two weeks ago, I had a session with the CFOs of six of the country's largest consumer companies and talked to two of the country's largest credit card companies. They couldn't have been clearer. After a slow start to the year, they are seeing very healthy consumer spending, and that spending is continuing. And a strong consumer, of course, makes sense, given the strength of the job market. For example, the Richmond Fed's national Non-Employment Index continues to be at all-time lows, and our Fifth District manufacturing wage index hit its all-time high.

Like you, I am less positive on business investment. Nationally, shipments and orders for nondefense durable goods continue to weaken, and manufacturing IP has been falling since the beginning of the year. In our District, the regional manufacturing survey has weakened considerably. As you know, like President Daly described, I believe business confidence is critical for growth, for investment, for pricing, and for employment. At our previous meeting, I was hopeful that the uncertainty around the beginning of the year had started to fade. Unfortunately, the latest developments in trade, both in China and in Mexico, have hit business confidence hard.

The Duke CFO survey, which is soon to be partnered with the Atlanta and Richmond Federal Reserve Banks, has a significant drop in business optimism from last quarter and across-the-board drops in expected investment spending to levels closer to its December expectations rather than those in March. What is happening? I want to argue that business uncertainty has become business certainty. On China, my contacts tell me, like they are telling you, that they are now convinced that trade conflict will last. After a year of wait-and-see, they are now taking action, moving production to other countries.

International companies who export from the United States say they are doing the same. In many cases, this will take a year-plus. Supply chain reengineering is complex and costly, and lead times can be long. This shift could constrain domestic investment and reduce corporate profits as transition costs are incurred, operating costs increase, and quality potentially suffers. They worry that the tariffs won't be as inflationary as we might presume. They see industry overcapacity as the stranded facilities continue to manufacture under a different brand. They see retailer and competitor response limiting pricing power. And they see end-customer price elasticity affecting demand or driving trade down.

But the rubber truly hit the road on Mexico—or maybe I should say, the axle hit the road. Yes, tariffs have been avoided for now, but the reality that the rules of trade will be volatile for some time, as tariffs are used as a negotiating tool, will deter investment.

It is difficult to plan expansion when the assumptions aren't clear. I hear my business contacts saying they will hold pat until this cloud passes. As an example, I have heard multiple contacts tell me their strategy now is to manage the customer mix rather than expand the customer base. And this type of strategy may protect short-term profits but doesn't support growth.

As a result, I am very supportive of the Tealbook downgrade of prospects for business investment and would go even further toward the scenario outlined in the Risks and Uncertainty section. Accordingly, I have marked down 2020 real GDP growth in my SEP submission, and, in common with the Tealbook, my balance of risks is tilted to the downside. I am watching particularly closely investment in both equipment and structures, two sectors identified in a recent NBER paper by Richmond and San Francisco Fed economists and Mark Watson as having an outsized effect on the economy.

On inflation, I do recognize its recent weakness, but I'm hopeful that April was a signal of renewed strength. If I may transfer the word from the previous meeting's policy statement, we should be patient here. First-quarter uncertainty damped pricing power. Some of the tax cuts have been passed on to consumers as I was reminded when I got a recent refund from my electric utility.

And we should remember that we pivoted our rate path quite a bit at the beginning of the year, and that effect could well take some time to be realized. That's why in my SEP submission I still have inflation returning to 2 percent. And, in the interim, I don't feel we are so far from target. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. The regional economy continues to expand at a moderate pace, but firms' perceptions of general business conditions and their views of the outlook have certainly weakened. This isn't a big surprise, given that Texas is a large exporting state and is somewhat even more levered than other Districts to global logistics and supply chain arrangements and the health of the global economy. While most of our business contacts are relieved by the avoidance of increased tariffs on Mexico, it is clear that that threat created trauma that has not yet gone away and may even have created some bit of a psychological tipping point that, to some extent, wore people out, and they haven't recovered from it yet. They are still concerned about a ratcheting up of tariffs for China. While many of the contacts I speak with are hopeful, they almost universally are making contingency plans to prepare for downside scenarios.

The net effect of all of this uncertainty is to create some chilling effect on cap-ex, other expansion plans, and to generally raise the overall belief that surprise policy events now are more likely either related to trade, related to FTC or Justice Department reviews of certain industries, or related to other policy decisions which could materially change the business outlook for specific industries. I think in response to all of this, most of the contacts I speak with are thinking more about how to, again, create more scale and are again renewing their examination of M&A activity so that they can be competitive.

Our real GDP growth forecast for 2019 at the Dallas Fed is now approximately 2 percent. That compares to about 2¼, 2½ percent just six weeks ago. The Dallas trimmed-mean measure, as many of you have mentioned, is currently running at approximately 2 percent, and we expect it to end the year at approximately 2 percent. Evan Koenig and Jim Dolmas, who is here with me today—both are colleagues at the Dallas Fed—have written a paper that suggests the Dallas trimmed mean rate is still a good indicator of future headline PCE price trends. And on that basis, we continue to expect headline PCE inflation to drift up toward the end of this year, although still below our 2 percent target.

We expect unemployment and other measures of labor market utilization to essentially move sideways for the remainder of 2019. Obviously, business uncertainties due to heightened trade tensions, as well as decelerating rates of global growth, are severe risks to the downside and bear watching. The question I have is whether these uncertainties will be persistent and translate to a more persistent material negative change to the outlook, and my own view is, it's too soon to say. I think, as I said earlier, the psychological effect is here with us. It is still, though, our discussions suggest, a likely case in our conversations that trade tensions may actually improve. But, right now, the business community is looking at the glass half empty, not half full. That's a pretty significant change, and it really just happened, we think, in the past six or seven weeks. We think we would need to see some material positive surprises to change that psychology, and so my own view is, we need to give this situation more time.

On the positive side, we expect the consumer to remain strong in 2019, although we note that consumer durable spending has been somewhat weaker and bears watching. The manufacturing sector is notably sluggish. We think this is consistent with a weakening of foreign growth. I'm cognizant that 45 percent of S&P 500 revenues come from outside the United States, and slowing rates of global growth help explain why S&P earnings per share are flattish to down from 2018 even with substantial amounts of accretive share repurchases.

Regarding the labor market, average payroll gains the past three months have been 150,000 per month, drifting closer to the range that we believe would be consistent with job growth near the rate of population growth, leading to roughly stable rates of unemployment. We have been expecting this moderation in job growth, and we don't think we should be surprised that it is finally happening. We view 60,000 to 120,000 new jobs a month as consistent with a labor market that is "strong," and we believe the labor market is at or past full employment, although we do share the views a number have mentioned about the paper from Richard Crump, Marc Giannoni and others that estimates the natural rate of unemployment to be approximately 4 percent. Again, due to aging of workers, of firms, and increased women's attachment to the labor force, we expect those trends will continue, and we think over the next few years the natural rate of unemployment is going to be in the neighborhood of 3¾ percent. It will continue to drift down, because these trends are continuing.

Last comment: Most businesses I speak with note, having said all of this, that the cost of capital is historically low, and that access to capital is historically high. Credit spreads are extremely tight. They worry much more about trade and overall policy uncertainty and a lack of pricing power, worker shortages, and they worry much more about technology and technology-enabled disruption than they do about monetary policy. Many note that the disruptors they face in their industries are enabled, to some degree, by the historically low cost of capital and capital markets that are willing to give high valuations to companies based on prospective volume gains, often with little prospect of near- or medium-term profitability. They also note that the low cost of capital is contributing to the high level of activism in shares of public companies who are actively pushing for more share repurchase and more leverage. In this regard, more than maybe in most of my previous rounds, many of them are noting they are hopeful that the Federal Reserve will be judicious and patient and allow this current trade situation to unfold before we take action. They worry more about other non-Fed-related issues and are somewhat fearful about stress created by the further lowering of the cost of capital. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. Over the past two meetings at least, my narrative of the economy has not much changed. My expectation, which has been fully in line with the consensus of the Committee, has been that solid real GDP growth and healthy employment gains will continue. The seeming disconnect between this outlook and financial market developments, along with a new ramping-up of trade and tariff tensions, raises the obvious question of whether my outlook needs to be revised. In making our business contact and director rounds over this intermeeting period, we pushed hard on this question, paying special attention to whether sentiment was changing as trade policy and market developments became more worrisome late in the cycle.

And I'll note that the timing of our Branch and main office board meetings was particularly helpful in this regard, as we were able to take the temperature of most of our 44 directors over the past two weeks. The response was pretty clear. Overall business sentiment in the Sixth District has remained positive, and most firms continue to expect solid demand growth in 2019. This relatively upbeat outlook prevailed throughout the cycle despite more prevalent concerns about trade policy that translated into additional downside risk among some contacts.

Paraphrasing one of my directors who was channeling Pink Floyd, with respect to trade noise, businesses have, for now, become "comfortably numb." I do not want to create the impression that all firms have shrugged off the recent tariff escalation or escaped without a scratch. Some entities in the direct crosshairs of policy shifts have noted delays and holds placed on potential projects. One of my directors is an international manufacturer of cellulose products. China accounts for roughly 40 percent of his sales, and he has seen a direct hit from retaliatory tariffs and restrictions. So far, his company is pumping the brakes to contain costs through measures such as travel bans, capital spending deferment, and limiting 2019 merit increases.

But his experience does not appear to be representative of U.S. firms we've been in contact with. And nobody should take this message to suggest that the recent uncertainties are completely innocuous. A director told me that the current economic and policy environment has him, and I quote, "putting positive probability mass on previously inconceivable events."

But though I think firms are having to think hard about contingency plans in this environment, I do not think they have, *en masse*, executed a retreat. This relatively sanguine outlook was consistent with our latest Survey of Business Uncertainty. While the May survey closed prior to the announcement of tariffs on Mexico, the survey was live in the field to capture the escalation on Chinese imports. And despite that intensification, our business expectations index rebounded from weakness earlier this year to a level well above its average since 2015. And this is just a step-down from its high toward the end of last year. It is important to note that this index is constructed from firms' subjective probabilistic beliefs about their own employment, capital spending, and sales growth expectations over the year ahead. One particular concern in the recent data is the softness of equipment and structures investment. A reasonable speculation is that firms are already pulling back the reins in the face of heightened uncertainty, and the most recent groundswell will only serve to exacerbate the slowdown.

The information I'm gathering is at odds with that sentiment. Most employers are not yet willing to substantially alter capital spending plans as a result of trade uncertainty, and the results of our national survey showed that capital expenditure growth expectations have improved over the year. And this improvement holds for the manufacturing sector as well, which is most vulnerable to disruptive international trade conditions. But I do take the cap-ex picture onboard as a risk to my outlook.

On inflation, interpretation of the recent data, in my mind, is more a matter of philosophy. The detailed May PPI and CPI data suggest that core PCE rose at an annualized rate just below 2 percent last month, and an exercise my staff ran to nowcast a trimmed mean PCE measure similar to the Dallas Fed's approach yielded a 2.3 percent annualized increase for the month. So at this point I'm not inclined to abandon the position that the underlying inflation trend is consistent with gradual achievement of our 2 percent goal. The upshot is that I don't see any reason to change my basic outlook either in response to incoming data or in response to signals coming from my contacts operating in the real side of the economy. I'll return to this point tomorrow in my comments on policy. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chair. Our 10th District contacts remain generally positive about the outlook for the economy even as they observe signs of slower momentum and growth. Recent surveys of our District manufacturers and service providers show that activity continues to expand. While the pace of growth picked up in the services component, growth in manufacturing softened, mostly driven by firms with direct international exposure. District exports are down 5 percent year-over-year. Employment growth in the District remains modest, with contacts continuing to report challenges of finding workers across numerous industries and occupations. Despite the tight labor market, most sectors had job gains the past few months, and real wages continue to trend higher.

Growth in the District housing market has softened even as home prices continue to rise. Construction of new homes has weakened in most District states. In Colorado, for example, housing starts have declined by 35 percent relative to a year ago, in contrast to a 35 percent increase at the same time last year.

District energy activity also has edged lower. The number of active oil and gas rigs continue to decrease, including a drop in active oil rigs in New Mexico, Oklahoma, and Wyoming in recent months. Reports have also come in that fracking crews are now being laid off after being idled a few months ago, and plans for capital expenditures are being cut back. Finally, challenges in the ag sector persist due to both supply and demand factors. Even with planting delays due to a wet spring and significant flooding, initial projections suggest production and inventories of major agricultural commodities will be high again this year. And exports have declined at a faster pace than a year ago because of a sharp reduction in shipments to China.

Turning to the national outlook, incoming information since our last meeting suggests the U.S. economy has lost momentum. While I've been expecting growth to slow this year, there are indications that growth may be slowing sooner and by more than I had anticipated. Taking into account a further weakening in global growth, I have revised my SEP submission at this meeting to show real GDP growth moving down more quickly to its trend rate. My outlook calls for consumer spending to anchor output growth amid steady job gains in the service sector. Along these lines, I see the U.S. economy having similar contours to the 2015 global growth slowdown. During that episode, as manufacturing activity declined and investment spending stalled, consumption growth proved to be resilient. With a bit of déjà vu, I'm expecting a similar dynamic ahead, as I anticipate weakness in manufacturing and business investment, while consumer spending is supported by a solid labor market.

This forecast for consumption is largely supported by the high levels of consumer sentiment reported in the University of Michigan Surveys of Consumers. My staff decomposed this index, which is near a 15-year high, into its three components: personal finances, business conditions, and household durables buying conditions. The recent strength in sentiment is driven by the personal finances component and the business conditions component, each of which is near its cyclical high. These readings indicate that consumers remain very optimistic about their own financial prospects as well as the broader labor market.

The downturn, however, in the durables buying conditions component of this consumer sentiment index since March of last year highlights a risk to my outlook posed by ongoing trade developments. Last year, around the time that tariffs on washing machines went into effect, durables buying conditions turned lower and have continued to decline as import tariffs have broadened and increased. The recent increase in the tariff rate on Chinese imports and the lingering threat of tariffs on more consumer-oriented goods risk a broader pullback in consumer spending. Although durable household equipment only accounts for 2 percent of the PCE basket, the risk that trade tensions lead to declines in other aspects of sentiment bears watching, as all three of these components tend to move together through the business cycle.

Trade tensions also are likely to weigh on inflation. While higher tariffs could lead to a short-lived increase in inflation, I see the more persistent effect of escalating trade tensions as disinflationary. Increases in tariffs have contributed to upward pressure on the foreign exchange value of the dollar as they slow global growth and amplify the degree of U.S. economic divergence. My revised outlook for inflation is informed by growing evidence that global factors are shaping both inflation and inflation expectations. My staff analyzed how consumers surveyed by the University of Michigan adjust their inflation expectations in response to various factors. This research finds that consumers don’t revise their longer-term inflation expectations in response to a lower-than-expected core CPI inflation release.

On the other hand, an unexpected decline in energy inflation leads to a persistent and meaningful downward revision to consumers’ longer-term inflation expectations. These findings imply that the decline in consumers’ inflation expectations over the past five years may be partly driven by the downward trend in energy prices since 2014. As energy prices are dictated by world markets, this analysis reminds me to be cognizant of the global influences on inflation, and it also reminds me of how little we understand about the way the public incorporates these elements into their inflation expectations.

Finally, I continue to see risks as tilted to the downside. These primarily relate to global factors, although sectors that are not directly exposed to the global economy have also shown some signs of weakness. Residential construction activity, for example, is slowing both in my District and nationally, as permits and starts are edging lower. I will be monitoring trade developments and incoming data to determine whether these risks will take a further toll on growth in a way that warrants recalibration of monetary policy. Thank you.

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Mr. Chairman. The economy has remained on solid footing so far this year, but since our last meeting, concerns about global economic conditions and international trade have continued to increase, and the risks they present for economic activity here in the United States warrant our careful consideration. In addition to ongoing uncertainty surrounding trade negotiations, the continued slowdown in growth in China, increased uncertainty regarding the United Kingdom and Brexit, and renewed worries about issues in the euro area are all factors weighing on the economic outlook. Domestically, there is also still uncertainty regarding U.S. fiscal policy.

Although the effects of these factors on U.S. economic performance thus far appear to be limited, the longer they persist, the greater the potential for economic headwinds. One of the primary channels for these effects is the business sector. Evidence that the uncertain outlook is beginning to have an effect can be seen in the latest readings on business sentiment, which have deteriorated in recent months. That said, the current levels are still within the range of values that are generally consistent with positive growth in business activity.

Data on orders and shipments of capital goods have also softened in recent months, as has information on expected earnings for domestic producers of capital goods. Therefore, while I expect that business fixed investment will continue to expand this year, my outlook for the sector is more guarded than before. I see a risk that, if the period of heightened uncertainty is prolonged, business will become more cautious and pull back on their long-term plans for hiring and capital investment, generating further negative feedback effects.

Another area where my worries have increased is the ag sector, where conditions have deteriorated noticeably in recent months. Major flooding across U.S. farming regions has led to substantial planting delays and reports of planted seed rotting in the ground. The result in either instance is a potentially significant reduction in crop yields. Of course, reduced yields could help boost prices for farm commodities from the lows of recent years, but higher prices will not be much help to farmers without crops to sell. Indeed, the effect on farm output may be large enough to leave an imprint on our national GDP figures for the third quarter.

Moreover, the adverse weather conditions have put additional financial pressures on farm borrowers, many of whom are already facing stressful debt service burdens, given the increase in carried-over debt from preceding years. Carryover debt has continued to rise for many borrowers, and bankers have continued to restructure debt and to deny a modest amount of new loans, due to cash flow shortages.

To be sure, an easing in trade tensions would relieve some of the pressure on farm incomes. But even so, conditions in the ag sector are likely to remain challenging for an extended period of time. Opportunities to export farm products have likely diminished, given the emergence of trade replacement routes and continued oversupply of commodities from previous years. While land values have remained high, they are elevated in relation to the land's potential to earn income, specifically with respect to cash flow to farm the ground and its rental value as an investment.

In contrast, conditions in the household sector still appear to be quite favorable. Consumer spending has regained momentum following a brief slowdown early in the year, and recent measures of consumer confidence have remained elevated. Ongoing gains in employment and wages, together with modest inflation, are supporting further gains in real income. Additionally, households' financial obligations relative to income have remained well below their pre-recession levels. For all these reasons, I remain optimistic about the strength of consumption growth this year.

Housing activity weakened last year, but with mortgage rates down more than 1 percentage point over the past year, home-purchase loan originations have returned to the solid level seen in 2017. And, of course, the labor market remains very strong. The unemployment rate is extremely low, and job creation has continued at a healthy pace. Over the past year we have also been seeing that the strong job market seems to be pulling in people from the sidelines. And if that pattern continues, as I expect it will, the economy will benefit from a higher labor supply.

On the other side of our dual mandate, PCE price inflation looks to have been tracking below our target rate of 2 percent. The Board staff and many market analysts view much of the recent softness as transitory, and they expect core inflation to move back up close to its target before year-end. And survey readings on long-run inflation expectations have remained somewhat stable. If those forecasts are correct, as I am assuming, and the underlying pace of price inflation has not faltered, we remain in a favorable position with regard to monetary policy.

We are close to meeting our goals of maximum employment and price stability, and yet the lack of inflationary pressures leaves us room to consider whether some accommodation may be appropriate to help sustain the economic expansion. The incoming price data over the next few months will be important to consider, and it will also be worthwhile to see whether current uncertainties are resolved in the near term. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you. The most likely path of the economy remains broadly similar to the assessment in May: Consumer spending is robust, the job market is strong, and some measures of core inflation are soft. But crosscurrents from trade policy have made a dramatic return, putting at risk business investments, setting off volatility in equity markets and gloom in Treasury markets, and casting a pall on the global economy. So while the modal outlook remains solid, risks have shifted to the downside.

With regard to the most likely path of the economy, real GDP growth should come in somewhat above its potential rate in the first half of this year, and incoming data provide some basis for expecting above-trend growth to continue for the remainder of the year. On the back of the strong retail sales report, it appears that consumer spending remains robust. With unemployment testing historic lows, wages growing moderately, and consumer sentiment elevated, there are good reasons to expect solid consumer spending gains to continue into the second half. Residential investment also looks likely to pick up.

The labor market remains strong, although there are some indications that payroll employment is decelerating. The 3.6 percent unemployment rate in May was the same as in April and is down about ¼ percentage point from the first-quarter average. The employment to population (EPOP) ratio for prime-age Americans was about 79.7 percent in May—which is up about ½ percentage point from a year earlier and close to its pre-crisis cyclical peak. So far this year, payroll gains have averaged about 160,000 per month, and May's payroll gain was especially weak. Against this, initial claims for unemployment insurance, which has proven to be a relatively good indicator of broader labor market reversals, remain very low. So far, I view the deceleration in payroll employment as in line with our earlier expectations that real GDP growth would slow but remain at an above-potential pace. But I will be watching both the payrolls and claims data very closely for any indications of a further loss of momentum.

When we last met, there was some hope that disruptive shifts in trade policy were behind us. But May 5 marked a reescalation of trade conflict, and the subsequent Mexico tweets significantly ratcheted up trade concerns. Though trade discussions with China had been in focus for some time, the announcement that tariffs could be imposed on Mexico to address issues in an unrelated realm of policy came as a surprise and appeared to be a game changer. For some businesses, it cast into doubt the supply chain adjustments they were already planning to protect against China uncertainty, while for others it raised the probability that auto tariffs could be imposed for national security or other reasons.

These developments have prompted many to conclude that tariff volatility is not a bug but rather a feature of the current policy environment. The perpetual threat of additional tariffs represents one-sided adverse risks to the outlook. The prospects of new tariffs on consumer goods from China or on trade from Mexico or on autos do not come with commensurate upside risks. As one market participant told us, “Trade tensions are no longer risks to the outlook but are now actually impacting the outlook.” We can see the effects of that trade pessimism in the weakness in business investment indicators. And the downward revisions to expected earnings are an important factor in the Tealbook weighing on business investment projections and the assessment of spending plans. Depressed oil prices are also weighing on capital expenditures.

Moreover, the reescalation of trade tensions has exacerbated the crosscurrents from the global economy. The latest indicators for China have been on the soft side for both industrial production and retail sales. Trade negotiations have deteriorated to the point where it now seems unlikely that we will see a full lifting of the restrictions that have been put in place; instead, the best that many are hoping for is no further escalation. Many China experts, nonetheless, believe the fiscal stimulus that has been put in place will gain traction in the months ahead, and the authorities have additional policy space that they are prepared to use to cushion the economy if needed.

Thus, there are good reasons to expect China's economy to stabilize, although we cannot rule out the prospect of further weakening with the attendant spillovers to important economies in that region. Similarly, while the authorities appear to have a more transparent and credible framework for managing their currency than was in place in 2015 and '16, risks of greater-than-expected currency weakening cannot be ruled out, along with potential financial spillovers more broadly.

For Europe, the latest indicators also suggest weakness in the current quarter, especially in the manufacturing sector. And though Parliamentary elections are now in the rearview mirror, the transition in ECB leadership is coming at an exceedingly delicate time, when there is a need to fortify monetary policy in light of the apparent slippage in European growth and inflation. And Mexico is suffering from the slowdown in manufacturing in the United States, and inflation has been running above the central bank's target, so interest rates remain elevated. Finally, the intermeeting period has also seen further geopolitical tensions with Iran, which are roiling oil markets. The repricing of risk that we have been seeing since the May 5 "pivot" has left overall financial conditions only marginally tighter than in April and still accommodative relative to historical norms. Nonetheless, within the broad indexes, there has been considerable price movement across asset classes. Risk appetite has diminished. That is most evident from the volatility we have seen in equities. By contrast, spreads of corporate bond yields over Treasuries haven't widened by commensurate amounts, nor have they demonstrated the same kind of volatility as a result of what market participants report to be ongoing strong demand. And the dollar has appreciated about ¾ percent since our last meeting.

Against this, the 10-year Treasury yield has come down about 40 basis points and is now below the federal funds rate. Alongside the drop in long-term interest rates, short-term interest rates have been little changed. This is a pattern that has historically been associated with increased recession risk, and I am taking some signal from these developments. More broadly, by a variety of indicators, it appears that recession probabilities moved up sharply in the recent quarter.

In my discussions with market participants, the downside risks associated with trade policy is the single most cited reason for the pullback in risk sentiment in equity markets, with trade and geopolitical tensions seen as more likely to raise recession risk than either financial imbalances or the stance of monetary policy—which is consistent with Lorie's presentation earlier.

In the months ahead, fiscal policy may well add to the highly uncertain policy environment. Not only will the debt ceiling need to be addressed, but it will be important to reach agreement on spending levels beyond the expiration of the Bipartisan Budget Act. I see little evidence of the groundwork being laid so far, and we can't rule out a repeat of the shutdown or other disruptions along the way.

Finally, weaker-than-expected inflation warrants ongoing vigilance. In the most recent release of PCE prices of April, core PCE prices posted a 12-month increase of 1.6 percent, well short of our objective. There was reason to think that idiosyncratic factors may have been responsible for some of those low readings. Subsequent to that, however, we have seen the May CPI and PPI, and housing services and other market services data were somewhat disappointing relative to expectations. The staff is currently expecting that when the May PCE prices are released, the trailing 12-month change in core inflation will be 1.5 percent.

These developments are concerning, especially given the fact that recent indicators of inflation expectations have been discouraging. Five-year, five-year-forwards have moved down 30 basis points since our last meeting. The Michigan measure of long-run consumer inflation expectations fell to a new record low in its preliminary June reading, and three-year expectations in the New York Fed's Survey of Consumer Expectations also edged down to 2.6 percent in May from 3 percent as recently as January.

Along the same lines as Jeremy Rudd's presentation today, I've been troubled by the low level of underlying trend inflation for the past couple of years, as implied by estimates of underlying inflation obtained using a variety of statistical filters. These are all lower than they were before the financial crisis and are uniformly below 2 percent. Consistent with the simulations that Jeremy showed today, I have been curious about how much and how quickly underlying inflation might respond to a higher actual inflation path. One model that has proven to be useful in thinking about that is the inflation-trend model of Stock and Watson, which captures the idea that underlying inflation reflects experience with actual inflation, and that that responsiveness varies over time.

On the basis of recent estimates of the sensitivity of underlying inflation to experienced inflation, John Roberts and I found that if the FOMC were to succeed in raising inflation to about 2¼ percent, it would only take about two and a half or three years for underlying inflation to rise from the starting point of about 1¾ percent currently to 2 percent. Of course, in our new normal of a flat Phillips curve, it's not clear how the FOMC could engineer that 2¼ percent inflation to begin with on a sustained basis. Nonetheless, that calculation should give us some reason for optimism that if we were to experience shocks that raised inflation somewhat above 2 percent, we could actually move underlying trend inflation up to our target over a relatively few number of years, which is the main reason that I have been hopeful that, if we were so to see some positive inflation shocks, that "opportunistic reflation" would be an effective response.

To sum up: Inflation remains soft, but consumer spending remains strong on the back of a strong and robust labor market. Trade conflict has reignited crosscurrents that are buffeting the economy at a time when it would already have been tricky to achieve a gentle glide path toward trend growth. That makes our navigational challenge somewhat greater, and we'll talk more about that tomorrow. Thank you.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chair. Consistent with my effort to be a beacon of stability in a shifting and uncertain world, similar to President Bostic, my economic outlook remains largely unchanged from the time of the March SEP, although I have not yet adopted the practice of Oliver Wendell Holmes in his later years of never reading the newspaper so as to filter out the ephemera. So I do acknowledge that the uncertainties associated with the outlook have increased—and primarily to the downside. But just as in March, I continue to expect that GDP growth will step down this year from the very solid pace of last year and the first quarter but to remain at a rate that's above my estimate of potential.

I continue to see a fair amount of momentum in the economy, as President Rosengren and President Bostic and others have indicated, supported by fiscal policy and by a healthy labor market. The recent noise around trade policy, including the surprising and somewhat alarming prospect of tariffs on Mexico and the even more alarming prospect of tariff policy being completely divorced from trade objectives certainly presents a downside risk, especially if businesses begin to hold off on investment until the policy environment settles down. In that context, it certainly seems to me that the allure of auto tariffs on Europe, with the flaming ring of November 2020 hanging in the sky, may well be irresistible with predictable, quite negative effects on both activity and confidence, as President Evans suggested in his initial questions.

And I do share the concerns of those of you, like Governor Brainard, who think we're in for some rough sailing on the debt ceiling. I may be convincing myself otherwise [laughter], but I continue—at least at this meeting—to view these risks as more prospective than realized, though the situation requires continued monitoring. In particular, like many of you, I'll be watching what happens to investment. The staff now expects business fixed investment to decline for the remainder of this year, an outlook that—if it is, in fact, realized—would lead me to reassess not only my near-term growth outlook, but also my relative optimism about potential growth and the level of the neutral interest rate.

I have been fairly optimistic, as I have repeatedly said in these meetings, that the continuing rollout of new productive technologies supported by the incentives of the 2017 tax bill would boost capital spending and increase the economy's productive capacity. I took last year's strong investment as validating that outlook, but with equipment spending declining in the first quarter and the staff's forecast for further declines, I'm open, but not quite ready yet, to perhaps temper my optimism. While trade concerns could be contributing to the weakness of investment, it does seem that the consumer has, up until now, been able to largely shrug off both the increased uncertainty around trade as well as the actual increase in prices on tariffed goods.

Last week's retail sales numbers implied solid consumption at the start of the quarter. It's perhaps not surprising that consumers are likely to be more focused on the continued strength of the labor market than the current state of trade negotiations. And the labor market does remain strong, notwithstanding a somewhat soft number for May, but the three-month average of job gains remains in the range necessary to keep the unemployment rate flat, and flat at its lowest rate in half a century. And though I believe that there is continued scope for even more increases in labor force participation, I also wouldn't be surprised, as a number of you have mentioned, if the pace of job gains lets up a bit as we reach very low levels of unemployment. Eventually, job creation is likely to decelerate, and we should not be terribly surprised or, if the deceleration is moderate, terribly concerned when it does.

Regarding inflation, recent readings continue to surprise to the downside. It's certainly appropriate to continue characterizing inflation pressures as muted. That said, it seems likely to me that the recent weak readings, at least in part, reflect transitory factors that can be expected to fade. In particular, the importance of outliers in driving the recent weakness of inflation is confirmed by the Dallas trimmed mean, which has been moving up in recent months and resting comfortably at 2 percent in April.

Finally, in an effort to try to comply with what seems to be the modern social-media-saturated world's principle that one can never overshare, I am SEP participant number nine.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. Vice Chair Quarles, I'm going to assume that that comment was not directed at me. [Laughter]

Starting with the local economy, characterization of growth in the Ninth District has been downgraded from "modest" to "slight." Most sectors continue to do well, but business contacts, like your contacts, report more uncertainty and more nervousness about the outlook.

Most of my comments are going to be focused on the national economy. To start with, inflation is running below target—not surprising, I think, for this stage in the economic growth cycle. Core PCE on a 12-month basis is only running at 1.6 percent. We can continue to point to possible transitory factors, but a range of signals suggests that low inflation is likely to be persistent, not to mention the fact that we have been pointing to transitory factors for a number of years. One of my economists a year ago made a comment that if we ignore the low sectors of inflation, inflation looks much higher. [Laughter] That's a little bit of a joke late in the day.

Surveys of inflation expectations are hitting all-time lows, with Michigan and the New York Fed survey readings coming in at record lows. Market-based five-year, five-year inflation expectations are down around 30 basis points relative to 2018. Risk-neutral inflation probabilities show a much larger chance of inflation falling below 1 percent than rising above 3 percent over the next five years, and there is worrying evidence of global disinflationary pressures. Oil prices are down about 20 percent from the spring, and inflation expectations have fallen sharply in the euro zone. I think we were premature in declaring victory on achieving our 2 percent inflation target.

For the real economy, consumption growth is strong and consumer confidence remains high, but weak investment is a concern. Orders, shipments, business surveys, and analyst surveys all point to waning business confidence. In addition, the labor market seems to have slowed somewhat: Only 75,000 jobs were added in May. On average, 2019 is running quite a bit below 2018 in terms of job growth. Are these payroll gains slowing simply because the pool of potential workers is close to empty? I don't think so. If that was the case, I would expect to see wage gains picking up, and they're not. Wage growth is essentially flat. If we're going to change the definition of maximum employment to mean maximum employment absent wage gains, then I don't know what the definition of maximum employment is anymore. So, for me, the key factor here is wage growth, and it's not accelerating.

The world economy appears to be slowing. There is the ongoing slowing of China, and the Tealbook forecast is only 1.3 percent growth for the advanced foreign economies in the second half and not much better in 2020 and 2021. The biggest signs of weakness in the global outlook are very low interest rates. Five-year government bonds are offering negative returns in Japan, but also in Germany, France, Spain, and even Portugal. Trade war escalation would obviously slow growth even further. As others have noted, recession forecasts based on the yield curve have gone from flashing yellow to flashing red. The staff's term spread model shows a 67 percent chance of recession in the next year.

In sum, the U.S. economy is doing okay overall, but there are more than a few hints of weakness in the outlook. The global economy does appear to be weakening, posing a threat to the U.S. expansion. Inflation and the outlook for inflation are uncomfortably low—a theme that I'll return to at tomorrow's policy go-round.

Let me just add one more thing. I'm SEP participant number 17. Setting aside my rate forecast, I have shifted down my u* estimate from 4 to 3.6 percent. And the reason I did this is because, previously, I had said that the labor force participation (LFP) was going to continue to expand. So if u went up to u* in my March submission, I was not expecting job growth to go down or jobs to go down, because the LFP would have continued to expand. But I heard from staff last time that they're looking at the SEP as one of the justifications for their positive output gap. I don't want my SEP submission to be contributing to your positive output gap. [Laughter] I don't think there's an actual positive output gap, so I'm going to keep lowering my u^* with u until I see nominal wage growth net of productivity above 2 percent. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. Information received since our last FOMC meeting indicates that, overall, the economy is growing at a moderate pace but points to a loss of momentum in job gains and business spending. At the same time, signals are increasingly flashing yellow that underlying inflation and inflation expectations are at risk of getting stuck in a rut below our 2 percent goal. While consumers enjoy their spending spree, the latest indicators suggest that we could see an outright contraction in business fixed investment this quarter, and that's a rare event during an economic expansion.

In addition, the outlook for global real growth has dimmed. The recent escalation of trade tensions poses risks of a more significant slowdown in sentiment and activity both here and abroad. These darkening clouds are affecting the mood in the Second District, where the headline index for the May Empire State Manufacturing Survey exhibited the steepest monthly drop in the survey's 18-year history. We also saw a big drop in the Business Leaders Survey for the service sector. The replies to our business survey questions collected after the escalation of trade tensions suggest pronounced concerns about a deteriorating outlook, and responses to special questions on the effects of trade policy and tariffs revealed that a large share of firms have already been negatively affected and anticipate further negative effects in the near future.

In large part, these more downbeat assessments appear to stem from heightened uncertainty, which reduces businesses' willingness to hire and invest. This anxiety is echoed in comments from financial market contacts who view the recent extension of tariffs issued not directly related to trade as a game changer in how they view the likely duration and magnitude of trade tensions over the period ahead.

But we shouldn't ignore the direct effects of the tariffs either. For instance, the enacted increases in tariffs on imports from China will likely lead to substantial welfare costs, including the tax burdens faced by consumers as well as deadweight or efficiency losses. Research by my staff finds that U.S. domestic prices at the border have risen one-for-one with the tariffs levied last year. And, all told, my staff estimates a drag of nearly 0.4 percentage point on the level of real GDP a year from now to come from the existing tariffs, assuming that they stay in place.

The fiscal outlook poses additional downside risks to the outlook to the economy. The Tealbook assumes that the current level of discretionary spending will be maintained in fiscal years 2020 and 2021. But in the absence of legislation—that is, under current law—discretionary budget authority is scheduled to decline $150 billion for fiscal 2020, which starts in October 1 of this year. The resulting contraction of fiscal spending would exert significant drag on growth next year, resulting in a level of real GDP about ½ percent lower than baseline by the end of next year.

On the inflation front, recent signs have not been reassuring. Wage growth appears to be stalled at a level that's below that consistent with 2 percent inflation. Core CPI inflation in May was below expectations for the fourth consecutive month, and the 12-month core PCE inflation looks to come in at 1.5 percent in May. Now, we don't want to get too caught up in the month-to-month movements in inflation, but the direction of travel in core inflation from 2 percent in December to 1½ percent today is far from encouraging, especially given that this is happening at the same time that we've had these tariffs that should be otherwise providing a positive fillip to inflation. Measures of inflation expectations appear to be in danger of drifting away from us as well. The median three-year-ahead measure of inflation expectations from the May Survey of Consumer Expectations is the lowest since 2017, as a number of you have mentioned, and longer-term inflation expectations from the Michigan survey are at all-time lows.

In addition, longer-horizon inflation compensation measures have declined significantly over the intermeeting period, with the U.S. five-year, five-year-forward inflation swaps down about 27 basis points, reaching the lowest level since 2016. And this development is not unique to the United States. It reflects an ongoing disinflationary wave across advanced economies. For example, the five-year, five-year-forward euro inflation swaps have declined to around 1.2 percent. Global disinflationary forces will continue to put downward pressure on prices at home.

All told, ebbing growth momentum in the United States and abroad, heightened risks of a more significant slowdown, and ongoing weakness in inflation indicators all argue for a more accommodative policy path, as I will discuss in more detail tomorrow. Conditioned on a policy rate path that includes two rate cuts this year, my forecasts for GDP growth this year and next are little changed since the previous meeting at 2 percent, slightly above the potential rate.

And this is actually an important point—a number of people have said this, but you can't look at people's forecasts and then say, "Your forecast hasn't changed. Why have you cut the funds rate?" Well, the reason the forecast hasn't changed is because, in my view, I've cut the funds rate. So we just need to be careful in how we think about that. You know, without a change in the path of the funds rate, my forecast would be lower for real GDP growth and higher for unemployment. I expect the unemployment rate to bottom out at about 3½ percent, ½ percentage point below my natural rate of unemployment estimate of 4 percent and remain near there over the forecast horizon.

A strong economy will not be sufficient to steepen the inflationary trajectory over the next few quarters, but I hope that it will increase the probability that we see a sustained achievement of our symmetric 2 percent inflation goal. In particular, I see core inflation coming in at 1.7 percent this year and only reaching our 2 percent longer-run goal in 2021. Even with these rate cuts, I see the preponderance of risks to the outlook to be on the downside, in terms of both growth and inflation. I am SEP participant number one. Thank you.

CHAIR POWELL. Thanks very much, and thanks for a very thoughtful, not to say—

VICE CHAIR WILLIAMS. We have a lot of time. Could I actually go over the Orphanides and Williams model? [Laughter]

CHAIR POWELL. Maybe after.

VICE CHAIR WILLIAMS. Okay.

CHAIR POWELL. Thanks for a thoughtful and also thought-provoking go-round. So at the time of the May meeting and with the very strong jobs report that arrived just two days later on that Friday, I felt that our base-case outlook was really coming to fruition, one of an economy gaining steam in the second quarter. In fact, I felt better, briefly, about the outlook than at any time since last September. In a context of much more supportive financial conditions and high confidence readings from households and businesses, domestic demand was strengthening, the labor market was tightening even further, and there were tentative signs that the crosscurrents we had been monitoring were moderating. Inflation had dropped in the first quarter, but there were reasons to think that temporary factors were at play. I saw the economy as in a good place, and I saw our patient policy stance as fully appropriate.

That was then. News that the trade talks with China had taken a seriously negative turn broke that Sunday afternoon, May 5, and from that moment forward, the intermeeting period has been eventful. Incoming data show that domestic economic activity continues at a solid pace. The baseline outlook is largely intact, though some fault lines are appearing, as I will discuss. However, risks to that outlook from trade confrontations and persistent trade policy uncertainty and weaker global growth have increased significantly. In addition, intermeeting developments have, on balance, further raised my concerns about the persistence of low inflation.

All of these risks are reflected in turbulent financial markets that are signaling heightened concerns about the outlook. The combination of fault lines in domestic economic activity, increases in downside risks, and inflations concerns says to me that the case for additional accommodation has strengthened. As Jeremy showed in his presentation, incoming data indicate that economic activity was solid in the first half of the year, headline real GDP has grown above its trend pace, consumer spending has picked up in the second quarter, and unemployment has remained low. However, there are those fault lines that I mentioned. Business fixed investment looks to have stalled in the second quarter, manufacturing output and residential construction activity have continued their slide, and employment growth for May was disappointing.

Moreover, with big contributions from government spending and net exports, the composition of growth is also much less flattering than the headline number. Since last September, the staff's forecast for 2019 private domestic final purchases (PDFP) growth has been revised down 90 basis points, mostly because of lower business fixed investment, and now stands at 2.1 percent. While it is difficult to pin down the causes of weak business fixed investment with certainty, it does seem likely to me to be linked to concerns about trade policy and global growth, echoing Steve's presentation. Softer, more timely information may shed some light on the strength of this link. The conversations that we have with businesses around the country provide such information and are particularly valuable today.

The most recent Beige Book reports fairly widespread indications that trade policy uncertainty is, indeed, weighing on business sentiment and planning. The contrast to recent editions is striking. Tariffs were mentioned 37 times in the June Beige Book, twice as often as in April and March. References to trade and uncertainty were also much more prevalent in June than in prior months, echoing the survey that Lorie talked about as well. In addition, most Fed indexes of economic activity have moved lower, as have several private-sector indexes. Strikingly, yesterday the headline index from the New York Fed's Empire State Manufacturing Survey suffered its steepest drop in history and is now in negative territory. There was a similar drop in the index for new orders.

Anecdotes collected in the process of constructing these various indexes point toward trade policy as a risk. Overall, these indicators tend to confirm the presence of elevated downside risks from trade. Of course, survey results may just reflect the latest drama, which could die down, or we may be seeing that trade policy uncertainty is now a persistent factor in our economy. If so, I believe it will weigh on business sentiment and investment and jobs and, ultimately, output.

With regard to inflation, the backdrop for the story is that inflation has run, on average, a bit below 2 percent for the past quarter-century. Of course, the Committee only formally adopted a 2 percent objective in 2012 and only began to use the word "symmetric" in the Statement on Longer-Run Goals and Monetary Policy Strategy in 2016. Inflation ran close to 2 percent for much of 2018, and we've been expecting it to move up from last quarter's weak readings over the course of the year. Data received since the May meeting suggest that inflation will also move up but slower than we had anticipated. Readings since the May meeting on inflation itself were mixed and a bit weaker overall than expected. Inflation expectations in the preliminary Michigan survey moved down to what would be an all-time low for a final reading. As a number of us have mentioned, breakevens have fallen sharply. This combination of factors seems to me to underscore concerns about our ability to achieve our symmetric inflation goal on a sustained basis. Indeed, the median SEP core inflation forecast is down two-tenths for 2019 and one-tenth for 2020. Despite tight labor markets and above-trend real GDP growth, we may be losing ground.

Financial markets are flashing warning signs. Since we last met, the yield on the 10-year Treasury is down about 40 basis points, and risk-neutral probabilities for rate cuts are moderate for this meeting and quite high for July. I have already mentioned breakevens. The stock market is down about 2 percent and presumably would be much lower if it wasn't pricing in quite a lot of monetary policy accommodation. Animal spirits can be volatile—and we should look past temporary shifts in financial markets. But markets are powerful aggregators of information and sentiment that we should not ignore.

To sum up, despite some areas that bear close monitoring, the baseline outlook hasn't changed that much, with growth near potential and unemployment near historic lows. But with the crosscurrents reemerging due to heightened uncertainty regarding trade negotiations and global growth, I believe that the case for additional accommodation has strengthened, and I believe that there is broad, if not universal, agreement around this table on that. And I invite you to take the opportunity tomorrow morning to disabuse me of that notion if I am wrong. [Laughter]

Given the speed with which these risks seem to have gained strength, we need to be ready to move in the near term. For the same reason, for today it is appropriate to wait and see more data. We should not overreact to data and events that may reflect noise rather than signal, nor do we have the luxury of waiting for anything approaching certainty. So what I'd like to do to wrap up my part of this is, I'm going to say more specifically, but in summary form, what I'm hoping to convey at the press conference tomorrow afternoon.

I will be saying that the baseline outlook is not much changed, supported by solid consumer spending, but there are areas that we are monitoring closely. And I'll mention the more sustained inflation shortfall, weak business fixed investment, and job growth. I'll also say that the downside risks to the outlook have clearly increased. In other words, after tentative signs in April that the crosscurrents were moderating, they have now reemerged, and I'm referring here to weaker readings on global real growth and trade policy developments. I'll note that many participants see that a more accommodative rate policy is likely to be appropriate at coming meetings. I will also note that participants broadly see the case for more accommodation as having strengthened, including some of those who wrote down a flat rate path. The message that I hope to deliver is one of a calm assessment that somewhat more accommodative monetary policy is likely to be appropriate to achieve our baseline outlook.

One obvious question will be, if you think that, then why not move now? My answer will draw from what I've just relayed to you in these comments: "Only one meeting ago, there were tentative signs that the crosscurrents were moderating. At that time, the Committee did not see a strong case for moving. The crosscurrents have returned, but only quite recently, and we don't want to overreact to short-term swings in sentiment, anecdotes, and data. So the Committee would like to see if the crosscurrents fade yet again or will remain strong while remaining ready to act swiftly if needed." And then I'll say, "We will use our tools as appropriate to sustain the expansion with a strong job market and inflation running near our 2 percent objective."

So, that was long. Thank you very much. And, with that, we will go to Thomas. I think we have time for that before dinner. So, Thomas, over to you for monetary policy.

MR. LAUBACH.[7] Thank you, Mr. Chair. I will be referring to the handout labeled "Material for the Briefing on Monetary Policy Alternatives."

As Lorie pointed out in her briefing and as discussed by many of you, during this intermeeting period we have witnessed unusually large shifts in measures of the expected path of the federal funds rate. As shown by the green bars in the upper-left panel, the market-based probability distribution for the federal funds rate at the end of June now suggests a nontrivial—but still not large—probability of a reduction in the target range for the federal funds rate at this meeting. By contrast, as shown in the upper-right panel, about 75 percent of the probability mass for the federal funds rate following the July meeting now lies below the current target range, compared with only 20 percent at the time of the previous meeting. And for those of you sharing my recent addiction to Bloomberg's webpage, as of this afternoon that number was about 80 percent. It is important to keep in mind that these probability measures have not been adjusted for risk premiums, and insofar as the Committee is expected to reduce rates in bad states of the world, these market-based measures may exaggerate the true probability that market participants attach to cuts. Nonetheless, consistent with the Desk surveys, the shift in expectations has been rather dramatic.

Understanding the drivers of the shift in policy rate expectations may be important for your policy action and communications at this meeting. To explore this issue, the middle-left panel shows the evolution over the intermeeting period of the market-based expected level of the federal funds rate at the end of this year, the red line, along with the S&P 500 futures price index, the blue line. To put the magnitude of the moves in historical perspective, both series have been set to zero at the time of the May meeting and have been scaled by their average daily standard deviations over the past decade. The purpose of the rescaling is to provide a common ruler on the vertical axis with which you can judge the relative magnitudes of the changes in the two series. For example, upon the announcement of the China trade tariffs early in the intermeeting period, both stock prices and the expected policy rate fell about 2 daily standard deviations, a nontrivial move. Much larger moves in policy rate expectations, however, came following the Mexico tariff escalation, when the expected policy rate fell by roughly 11 daily standard deviations over a couple of days. The stock market reaction was tiny by comparison despite widespread commentary that the proposed new tariffs, if implemented, could represent a significant drag on economic activity.

One explanation for the disparate reactions across the two markets is that investors expected that the Committee would ease policy in response to the headwinds generated by trade uncertainty, and that this easing would be sufficient to sustain the economic expansion, thus keeping the stock market afloat. Following the

[7] As noted on page 4, the materials used by Mr. Laubach are appended to this transcript (appendix 1).

weaker-than-expected employment report, the two markets followed a similar pattern, with the expected policy rate falling notably alongside largely unchanged equity valuations. As shown by the red square in the middle-right panel, the actual response of the two-year Treasury yield following the release of the employment report was about twice as large as would have been predicted based on the size of the surprise implied by this release—hence the square's location well below the regression line.

What accounts for this unusual sensitivity of monetary policy expectations to negative economic surprises? As Lorie mentioned, the Desk survey respondents rank changes in the outlook for trade policy and uncertainty regarding this outlook as the most important drivers of the decline in the 10-year Treasury yield over the intermeeting period. This is consistent with the much more frequent references to trade-related concerns from your business contacts in the Beige Book, as the Chair mentioned, as well as reports from market participants that, because of trade uncertainties, nonfinancial firms are beginning to hold off on investment plans.

With perceptions of downside risks to economic activity and inflation having increased significantly, key questions that you are confronting are how much hard evidence for a degradation in the outlook for employment and inflation you would need to see before changing your policy stance and how to communicate your willingness to respond to such evidence. As summarized in the bottom-left panel, there are good arguments on either side for acting early and preemptively as well as for awaiting more evidence.

As a general matter, with the federal funds rate still not far away from the effective lower bound, economic research suggests that your ability to forestall an economic downturn is highest if you respond early and forcefully to emerging signs of economic weakness. The uncertainties surrounding trade policy developments may already have had negative implications for the economic outlook. And the return of PCE inflation—both headline and core—to 2 percent seems, yet again, to be more protracted.

In these circumstances, a reasonable case can be made that the appropriate stance of monetary policy should be easier than it is now. This is the case motivating alternative A. On the other hand, there are risks associated with changing the policy stance if it is unclear to outside observers what information you are responding to. Changing the policy stance now could create confusion about your reaction function, and it could inadvertently serve to increase pessimism by raising the perennial question, "What does the FOMC know that we don't?" In addition, you have, in the past, emphasized that you are responding to economic and financial developments that are sustained and thereby affect the prospects of achieving your goals. With many of the developments that have given rise to the deterioration in risk sentiment quite recent and their resolution still open, you may want to signal that their implications for the economic outlook are, as yet, unclear.

As summarized in the bottom-right panel, with alternative B you would communicate that the evidence accumulated so far does not warrant a change in the policy stance at this meeting, and that waiting for a few more weeks to assess the effects of heightened uncertainty on the economy may be prudent. But emphasizing uncertainties about the outlook and dropping the "patient" language in favor of asserting your willingness to act as appropriate would likely leave the impression that, unless risks to the outlook materially diminish over the coming intermeeting period or the data surprises on the upside, you are ready to ease policy in July. This message would be supported by the notable downshift in the dots as well as the fact that, in your SEP submissions, most of you see the risks to the outlook for real activity and inflation as weighted to the downside.

Thank you, Mr. Chair. That completes my prepared remarks. The May statement and the draft alternatives and implementation notes are shown on pages 2 to 10 of the handout. And I will be happy to take questions.

CHAIR POWELL. Thank you. Questions for Thomas?

MS. DALY. I have one, at the risk of—

CHAIR POWELL. President Daly.

MS. DALY. —upsetting people's dinner plans. I just want to know how, Thomas, you and the staff think about this pessimism response, that people will react because they will think we know something they don't. In your mind, is that only if we surprise markets by cutting rates when they don't expect it, or is it something more? How should I think about that?

MR. LAUBACH. I think my speculation on this point was mostly motivated by thinking that if you moved, for example, at this meeting when the probability is still relatively low, that could lead to questions of, do you see, actually, the risks as more severe than market participants see them? And that could lead to a response of, maybe the situation is more dire than we had expected. But that's very difficult to predict.

CHAIR POWELL. If I can—I always find it useful to think of historical examples, like, people are talking about '95 and '98 and things like that. Are there any historical examples we can think back to in which what might have been seen as a "dovish" thing was seen as "hawkish" for this reason? Can we point to anything like that?

MR. LAUBACH. I don't know whether we can actually—I'm not quite sure how far back, for example, our event study results go, whether the mid-'90s would show something of this sort. I'm not aware of that.

CHAIR POWELL. I think Governor Bloom Raskin, if you remember, used to make this point, just generally, about the statement being—yes.

MR. CLOUSE. I recall several cases of event studies in which we had what, at the time, we were calling the "English effect," because Bill was pointing out this is a possibility. But I can't remember exactly.

CHAIR POWELL. We'll look at them. It's interesting. Further questions? President Barkin.

MR. BARKIN. In the, I think, second iteration of the statement that came on Wednesday, the phrase "with a strong labor market and inflation near its" was added to the end. There were other changes made that I understood, but I was just curious what the thinking was about the addition of that phrase.

MR. LAUBACH. That is a formulation that actually the Chair has used now for quite some time in the press conference statement. The frequent sentence in there ran something like "We have one overarching goal, which is to sustain the expansion, with a strong labor market and inflation near the Committee's 2 percent objective." And so I think the "sustain the expansion" thought was basically continued with those words.

MR. BARKIN. You're trying to define what "sustain the expansion" means? Is that the—

MR. LAUBACH. Link it to the goals, right.

VICE CHAIR WILLIAMS. I mean, I—

CHAIR POWELL. Go ahead.

VICE CHAIR WILLIAMS. I think one of the things is, people are looking for, what are the triggers, what are the things we're looking for. And I—at least from my perspective, you know, it's important to go back to the dual-mandate goals. A couple of months ago, everyone was asking, "What's the inflation data you'll need to see to cut rates?" And now they're saying, "What's the bad data in the economy you'll need to see?" And I think it's better to step back and give the bigger picture. We're looking for a strong labor market, sustained expansion, and inflation, all of these things coming together, as opposed to one or the other.

CHAIR POWELL. Let me just say—so this is also echoing what I said in Chicago pretty much verbatim. And we thought that was a good technology. But, more to the point, why say "sustain the expansion"? I've been saying that a lot. I'm trying to link to the thought that in a long, long expansion, you're now pulling people back into the labor market, wages are going up for people at the bottom end, labor force participation had been holding in really well. You know, there is just so much value in a couple of more years of expansion, in terms of reaching low- and moderate-income communities. So that thought links up with that. Further questions? Governor Brainard.

MS. BRAINARD. It also just links up with what we say earlier in the paragraph, which is that we view this as the most likely outcome, it's the three things together, and then we say, "But uncertainties have increased, and so what do we need to do to ensure"—so that thought has been there for a long time, I think.

MR. BARKIN. And no interest in, you know, line editing. I was just curious whether there was something about defining "expansion" that you felt was necessary. It's on—

CHAIR POWELL. That was it.

MR. BARKIN. Okay.

CHAIR POWELL. I say that in every press conference statement now. And people started to pick it up as a priority, and they link it to those low- and moderate-income panels—that you are really benefiting these communities that are just now seeing the benefits of the expansion. In a couple of more years, they'd see a lot more. President Bullard.

MR. BULLARD. Yes. Thank you, Mr. Chairman. I just had a question about the "Equity Prices and Policy Expectations" chart here, which you've normalized by daily standard deviations. But I just had the thought that this gives the impression that the reaction on the policy rate has been outsized and the reaction on equity market pricing by some metric has been muted. But the policy rate was constrained by the lower bound for a decade, so I'm not quite sure you're getting the right kind of comparison here.

MR. LAUBACH. We did this calculation over a couple of different samples. If you start only around the time of liftoff, actually, the picture looks even more extreme. This sample here starts in 2008 and, therefore, includes the quite volatile crisis period in there. So you are right that the volatility is very suppressed, basically, from 2011 to 2015. But on the two bookends of that period, there is actually quite a bit of policy rate volatility.

Let me just say—you might look at this and say, "Okay, 20 standard deviations, are you kidding?" This is a once-in-the-life-of-the-universe event. I would say, now, we know that these asset price moves are neither normally distributed nor independent over time. Over this period, I believe, even if you look, say, at the intermeeting period including the Brexit referendum, which on the day elicited the largest response—so that's the largest single-day response of about 20 basis points on a two-year yield—but over the intermeeting period as a whole, it was not nearly as big. In fact, much of it reversed. So this intermeeting period really stands out, in terms of the size of the decline in policy-sensitive rates.

MR. BULLARD. Well, I mean, I would just casually—you know, living through the ’90s, and you’d have a crisis come along, and markets would reprice down 50 basis points for the Fed, it’s not a crazy thing. This makes it seem like it’s crazy.

MR. LAUBACH. I’m not saying it’s unprecedented, but it is historically quite low.

CHAIR POWELL. Other questions? If not, we will reconvene in the elegant West Court Café for dinner, and I’ll see you tomorrow morning at 9:00 a.m.

[Meeting recessed]

June 19 Session

CHAIR POWELL. Good morning, everyone. Let's get started again. President Rosengren, would you like to begin the policy go-round?

MR. ROSENGREN. Thank you, Mr. Chair. I support alternative B. The bimodal outcomes that I discussed yesterday make the crafting of our policy statement tricky. While the draft statement could be viewed as a readiness to act contingent on trade risks materializing, I fear that the statement will be heard as too close to a promise of easing at our next meeting.

To be clear, if the next round of tariff increases are in place by the July meeting and the retaliation from China and market reactions here and abroad are significant, I'll be very comfortable insulating a shock with monetary policy easing. However, we could instead see both sides coming to a resolution quickly, perhaps motivated by a concern about the potential cost to both sides of trade disruptions, with both sides declaring victory. Under that scenario, our lean toward easing will seem out of step, and, rather than suffering the consequences of a trade shock, the shock to the economy could be our walking back the presumption of easing.

My preference would be to move toward less forward guidance in the statement over time, as President Barkin has previously suggested. We should respond to significant events that disrupt the economy, but in cases like this, in which they are not particularly predictable, I'd be inclined to wait until the event occurs rather than set a policy lean with a particular unpredictable outcome in mind. I am concerned that our statement will validate markets that are already too sure about our future actions. The sooner we can communicate that the future is not that certain, the better.

A final thought. The S&P 500 index is quite close to a record high, the unemployment rate is at a 50-year low, yet we have a strong lean to additional accommodation. Such a pattern gives me pause. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Clarida.

MR. CLARIDA. Thank you, Chair Powell. I support alternative B as written. I think it does make sense to acknowledge that market-based measures of inflation compensation have declined, because, since our May meeting, the decline has been material and has reversed the welcome increase in breakevens that we observed year to date through our previous meeting.

We continue in the statement to state that survey-based measures of inflation expectations are little changed. This is technically correct, but, of course, it obscures the fact that survey measures—such as the Michigan survey, for example—are at very low levels. Indeed, the most recent "print," if it is sustained, will be the lowest "print" ever in the history of that survey.

In regard to the way forward for monetary policy, I would like to make three points. First, the median SEP forecast of long-run u^* has yet again been revised down and now stands at 4.2 percent, and five participants, including myself, project a long-run u^* of 4 percent or lower. I mentioned the paper by Crump, Eusepi, Giannoni, and Sahin yesterday. One of the important contributions of that paper is that it distinguishes between the long-run trend in the unemployment rate and the rate consistent with stable inflation. They estimate the latter to be 4 percent or less right now, which is below their estimate of the trend. If, indeed, u^* is 4 percent or less—and this is certainly consistent with the data as I read them on wages, as well as their model—then the output gap is much smaller than the staff estimates, which means that any upward pressure from the output gap on future inflation will be less than the staff estimates, which means it is less likely that inflation will return to target under unchanged policy—which, even under staff projections, does not occur over our forecast horizon. This is a downside risk to our ability to reach price stability under the current stance of policy.

Second, an important judgment the Committee will need to make in the months and years ahead is how much weight we place on inflation expectations in our conception of price stability. In textbook models that ignore the lower bound, this issue does not arise, because optimal policy delivers inflation outcomes that are symmetrically distributed around the target, and rational—model consistent—expectations will equal the target. Thus properly understood, period-by-period optimal policy should deliver expected inflation equal to target. Actual inflation will, of course, differ from target due to random shocks. Our existing consensus statement does not fully convey that price stability requires expected inflation to equal target—rather, it just asserts that, simply by announcing a target, we anchor inflation expectations. I wish it were so, but it is not.

I would argue that, as we go forward, we should calibrate policy to achieve and sustain inflation expectations at our target, fully recognizing that inflation expectations, like u^*, are unobserved and possibly time varying. As we do with labor market indicators, we should consult a wide range and variety of measures of expected inflation and form our judgment.

Finally, I agree with the decision today to take no policy action but to signal with our language that uncertainties about the outlook have increased, that we will act as appropriate, and that the case for a more accommodative policy stance has increased since our May meeting. I discussed these downside risks in my outlook go-round yesterday. I won't repeat them. Of course, none of us have a crystal ball. So I, like the rest of you, would like an opportunity to study the incoming data on employment, inflation, real GDP, and trade policy before our next meeting. But, that said—and given my concerns about underlying inflation—I am comfortable in conveying this tilt in our communication with the statement. Thank you, Chair Powell.

CHAIR POWELL. Thank you. President Daly.

MS. DALY. Thank you, Mr. Chair. At this meeting, I support alternative B as written. As I noted yesterday, recent data are worrisome and indicate that conditions for both economic growth and price inflation have tilted to the downside. The loss of momentum in the real economy is apparent in forecast revisions that show weaker real GDP growth in the second half of this year.

There has also been a jump in recession probabilities and the probability of hitting the lower bound. The increase in these probabilities reflects several factors, as Lorie mentioned yesterday in her presentation, including elevated trade policy uncertainty, renewed global weakness, and more pessimistic investor and business sentiment.

At the same time, we are falling even further below our 2 percent inflation target, with headline and core PCE inflation of only 1.5 percent over the past 12 months. As I noted yesterday, some of the low inflation readings could be attributable to transitory factors. However, after several years of undershooting our inflation target, it seems likely that more fundamental or persistent factors are also at play, even if we can't measure them yet. And with slower real GDP growth, stable wage gains, and falling commodity prices, inflation pressures currently are tugging in the wrong direction, dragging inflation down rather than pushing it up.

Whatever the cause, persistently weak inflation readings run the risk of softening inflation expectations, which we're already starting to see in the data. Our ability to maintain the nominal inflation anchor both now and, importantly, when we inevitably enter our next downturn requires that we achieve and maintain inflation at our 2 percent goal. In response, we need to make sure that we are doing all we can to achieve our target sustainably. Even, I would add, if we're not sure how robust our instruments are, we still have to try to push inflation up to

2 percent. Therefore, my appropriate policy projection for this year is more accommodative, with two 25-basis-point cuts later in the year.

Finally, I appreciate the concerns that policy easing may exacerbate already high asset valuations and aggravate corporate indebtedness, and that recent headwinds could die down again or even vanish in the most optimistic scenarios. So it is appropriate to wait and gather some more data to see if the weakness in growth and inflation continues. However, absent surprisingly good data and a marked turnaround in inflation, adjustment to our policy stance will be warranted. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bullard.

MR. BULLARD. Thank you, Mr. Chairman. My assessment is that this Committee is out of position at this juncture and that we're taking some risk at this meeting in being interpreted as too "hawkish," given recent developments in the global economy. I do not think that this is a good moment to be more "hawkish" than the market, as our preferred measure of inflation is below target and, more importantly, measures of inflation expectations are low and have been declining precipitously.

I would associate myself with the comments of Governor Clarida on this. In models, we would have rational expectations, and so credibility wouldn't be a problem. But, in the real world, it is an issue, and I would see these measures as reflecting on the credibility of the Committee. So I think that the credibility of our inflation target is waning and that we should take action beginning today to shore up that credibility. We say that our inflation target is 2 percent, but we need to back that pronouncement with action to ensure that actual inflation outcomes by our preferred measure match the pronouncement.

I propose that we cut the policy rate today by 25 basis points along the lines suggested in alternative A. The primary purpose is to try to re-center inflation and inflation expectations at the 2 percent target. If successful, this move would help push inflation back to 2 percent more quickly than would otherwise be the case.

Separately, trade regime uncertainty is now elevated, and, in my estimation, it will remain significantly elevated over the forecast horizon. I see this persistent, elevated trade uncertainty as a drag on global real GDP growth, especially global manufacturing and agribusiness, which is likely to feed back to U.S. growth prospects.

I think we need to be forward looking, not backward looking, in this situation. Many at this table and in financial markets have marked down second-half 2019 U.S. real GDP growth meaningfully, sometimes even after taking into account sharp action by this Committee. The 10-year/3-month measure of the yield curve slope has become meaningfully inverted. I see no reason to fight this market signal in the current situation. A cut today would help provide some insurance that the slowdown in the economy does not become considerably sharper than we currently expect. Ideally, we can move today to sidestep any recession risk that may be out there. A signal of success would be to return the yield curve to a more normal shape.

Finally, should the second half of 2019 turn out to be stronger than expected, there is a silver lining for the Committee. In that circumstance, all that would happen is that inflation by our preferred measure would return to target more quickly, and inflation expectations would become better centered on our inflation target.

In sum, I support a reduction in the policy rate today as outlined in alternative A. I see the policy rate reduction as helping re-center inflation and inflation expectations at target and, simultaneously, as insurance against a sharper-than-expected slowdown in real economic activity. I do think that the 1995 example, which has been discussed extensively here in the past, provides a good road map for how this can be done successfully. I understand that there are many differences between 1995 and today. But I see the principles as the same.

On language and tactics, in alternative A, I would also propose to remove the third sentence in paragraph 2, which is "The Committee also decided to conclude the reduction of its aggregate securities holdings in the System Open Market Account at the end of July," et cetera. I'm concerned about this, and I think we may face this again at the next meeting. In my mind, we've already made the decision about balance sheet policy. I would not open this box again and reintroduce balance sheet policy as something that's simultaneously going on with interest rate policy. I think the sentiment, as I understood it around the table, was that we did not want to do that. So I think our language should be that we've already made a decision on the balance sheet—we're going to end the runoff in September, and that's going to be that. I think the policy rate sends plenty of signal here. I don't think we need to do anything on the balance sheet side. So I would just strike that entire sentence.

I wanted to just make a few comments about moving today versus moving later. I think, as Chair Powell discussed yesterday, going with alt-B today successfully would mean that we put essentially 100 percent weight on a move in July. I think the key question is going to be, well, if it's 100 percent on July, why didn't we move today? And what data would have to come in during the intermeeting period that would make you take the July move off the table? If, on the other hand, we come off as saying, "Well, we're not sure if we're really going to move in July," then that'll be perceived as pretty "hawkish" relative to market expectations. And I'm not sure we really want to be that "hawkish" in this situation, since inflation and inflation expectations are below target.

Another possibility is that the intermeeting news is not good and we get pressed into a 50 basis point move in July, which I think is also a bad situation for the Committee. That's going to make it seem like we've "fallen behind the curve" or are trying to catch up, and my experience in the past is that that's not a good situation for the Committee to be in. That might also signal quite a bit more easing action through the fall and into next year than we're really intending at this point.

So this is why I'm recommending that it's better to move today and not say too much about what we may or may not do in the future, and that we're awaiting developments and will make a judgment. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President Kashkari.

MR. KASHKARI. Thank you, Mr. Chairman. I support alternative A at this meeting, but I'm actually not that excited about it. I think my comments are going to echo President Daly's and President Bullard's, though I think my prescription is going to be somewhat different.

My main concern is that inflation remains stubbornly below target 10 years into the expansion. As others have said, I think it's tempting to point to transitory factors. But my view is that inflation is too low primarily because inflation expectations are too low and that there's still slack in the labor market. Low inflation expectations signal that firms and markets are not convinced that our 2 percent inflation objective is a symmetric target as opposed to a ceiling. I would say, the staff having underlying inflation at 1.8 percent—in Minneapolis, we think it's around 1.7 percent—that's consistent with a ceiling rather than a symmetric target.

The danger is that if inflation expectations become unanchored to the downside, it's very difficult to reset them up. Japan has had no success. Europe appears to be following in Japan's footsteps.

To me, long-run inflation expectations are a reflection of the reaction function that we have taught markets over a number of years. Again, I think markets have interpreted us as having a ceiling. That points to long-run inflation expectations of 1.7 or 1.8 percent. So I challenged my staff to say, how could we teach markets a new reaction function to re-anchor inflation expectations at 2 percent? And here's where I differ somewhat with what President Bullard said in terms of the prescription. I don't think that a 25 basis point cut in isolation, a 50 basis point cut, or two 25 basis point cuts by themselves will actually re-anchor inflation expectations, because it's taken years for us to teach the markets the current underlying rate of inflation of 1.7 and 1.8 percent. So my proposal is a 50 basis point cut combined with language that commits us not to raise rates until we actually achieve our 2 percent target—core inflation of 2 percent on a sustained basis. That, to me, is teaching the markets a new reaction function, and I think it's something that we could credibly commit to.

For this, by the way, there's some precedent, the Evans rule, which anchored policy on an employment outcome. In my proposed approach, we would be anchoring policy on our inflation outcome. And I don't think it would preclude us from cutting rates further in the future if the economic conditions deteriorated further.

So, what are the risks associated with this? First, I think if the plan is too successful and inflation and inflation expectations rise quickly, that's great. We have an outlet, which is, if inflation returns back to target, then we're free to go ahead and raise rates at that time. I view that as a high-class problem.

I think there's a much bigger risk associated with remaining patient until we're sure that the economy is really slowing. You know, inflation expectations may decline further, making them harder to then re-anchor, and we may have misjudged neutral. I've been saying that I think we’re roughly at neutral, but we might be in a contractionary stance right now, in which case policy is depressing real activity, job creation, and inflation. As I said many times, I still think there’s slack in the labor market. And, as President Bullard pointed out, the yield curve is inverted, and I think we should take that signal seriously.

Now, finally, how would this proposal fit into the *Fed Listens* initiative that we have undertaken? I actually think that this compliments it very well, because we’ve said we’re not going to change our inflation target. So if we conclude that we want to move to some alternative framework, the best thing we can do is achieve our goals under our existing framework. That’s the right place from which to move to any potential new framework. So I don’t think my proposal of a 50 basis point cut, combined with forward guidance—holding rates where they are until we achieve our target—I think that supports our longer-run policy review rather than working at cross-purposes. That’s it. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Mester.

MS. MESTER. Thank you, Mr. Chair. President Rosengren’s views are aligned with mine, and I’m sure he was much more elegant than I’m going to be in a moment expressing mine.

I support no change in the funds rate today, as in alternative B. My outlook for the economy is similar to that characterized in the third sentence of paragraph 2—namely, little change in the modal outlook but increased downside risks. Although the softer data cloud the outlook, I continue to think the most likely outcome will be output growth and employment growth slowing to trend over the forecast horizon and, after the weak near-term readings, inflation gradually rising to 2 percent. This is conditional on appropriate monetary policy.

Now, the inflation and inflation expectations readings have been soft. But in the scenario of continued expansion and strong labor markets, given the relatively low level of the funds rate, I think it would be best to take an opportunistic approach to low inflation readings rather than proactively try to move inflation up with rate cuts. This would mean a shallow policy rate path, maintaining the funds rate at current levels for a while to allow inflation to move up without overstimulating the economy, and not overreacting to shocks that move inflation somewhat above 2 percent for a time. And we should be transparent that this is the strategy that we're following. I view this strategy as consistent with our balanced approach to achieving our policy goals.

This is my modal view. However, the downside risks to the forecast have increased since our previous meeting, and there's some possibility we'll experience a sharper slowdown in growth. Global real growth has slowed, and business investment is weak. The global decline in sovereign debt yields suggests bond investors see higher risks of slower growth, and the low inflation readings could also be a signal that we're entering this scenario. In the slow-growth scenario, the Committee would need to act to bring the funds rate down with the equilibrium interest rate in order to support continued expansion and foster our policy goals.

This two-scenario view seems consistent with the revised SEP. The policy dot plot is close to bimodal, with one group of participants believing holding pat on rates is appropriate and another group seeing rate cuts as appropriate. So this is a time when the dot plot is more informative about the views across participants and the sense of the Committee than the median path is. This bimodality poses some challenge for our statement in its current format, since the statement does not really allow for discussion of two scenarios.

Now, the Committee is contemplating a change in the direction of policy at some point soon. This should not be taken lightly. It's different from deciding on a next interest rate decrease after several have already occurred. This is a change in direction.

I certainly understand the rationale for acting earlier and more decisively to negative shocks when short-term interest rates are near the lower bound. The models suggest this strategy yields better outcomes. However, these results depend on how the actions are interpreted by the public—namely, that they change expectations that the central bank will be taking actions to cushion the shocks. But we're operating in an environment in which other policy has been capricious. In particular, concerns about trade policy have risen, and it's this uncertainty associated with it that has created the concerns. In this environment, I don't think we can depend on our actions not being misinterpreted as a signal of deterioration in the outlook rather than preemptive action.

To me, this means, at this point, we should continue to gather more evidence to assess which scenario is most likely playing out. Is this a growth pause, or are the probabilities of a sharp deterioration in the outlook high enough to warrant a change in policy? Our next meeting is only six weeks away, a relatively short period. Now, it's possible we will have enough evidence by then to make a determination. But, given the schedule of data releases and the typical data volatility, I believe it may take somewhat longer.

This means, in terms of today's statement, we should be cautious of signaling that a rate cut is coming in July. The changes in paragraph 2 have improved on the first version we saw. But, of course, the public sees only the changes from our previous statement—and not the evolution of our drafts. I'd like us to remain flexible. The new language is consistent with language the Chair has recently used, and the press conference offers an opportunity to expand and clarify.

The problem is that I remain concerned, even with that language that's been used, that we'll ratify expectations for a change in policy in July when patience may be the best policy choice. A change in policy direction is a significant comment on our outlook for the economy, and I do think gathering more data is appropriate. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Harker.

MR. HARKER. I'd like to just say "ditto" and be done with it, but I can't. [Laughter] But I do agree with Presidents Mester and Rosengren. I do favor alternative B as written, including the phrase in blue. I would not like to cut rates at this meeting, because I think that signals potentially that the economy is in a place that I don't think it's in—the economy is not as bad as would be signaled if we made a cut today. The language, though, implies that the next rate change will most likely be a cut. But I think the wording maintains the flexibility needed if incoming data point to another rate increase or, what I forecast, no change in the rate as being appropriate.

Inflation does remain stubbornly low, and, although the latest economic data are largely disappointing, I think it's premature to react to a few data points and the sense of gloom that seems to have enveloped the markets recently. However, the recovery seems to be on shakier footing, and the inversion of the yield curve is an unwelcome event. But, until the recent weakness shows some persistence, I don't see the need for cutting rates at this meeting, and I'm on the fence right now about a July cut. On the one hand, labor markets remain robust, and consumers remain optimistic. But, as others have said, if inflation remains well below our target and inflation expectations continue to remain below target as well, then I think a rate cut could be justified. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Evans.

MR. EVANS. Thank you, Mr. Chair. I support alternative B for today. The real economy still appears to be in good shape. Yes, there are important downside risks to growth, but they've not yet materialized into any meaningful softening in activity.

Inflation is worrisome, however. It's been too low for too long, and I fear this could continue to be the case unless our policy actions become more supportive of the symmetry of our mandate. So while I am in favor of alt-B today, I expect rate cuts will be desirable later this year to bolster progress toward our inflation objective. Indeed, I have two 25 basis point moves in my SEP submission for this round. Of course, such cuts would come with the side benefit of providing insurance against downside growth developments, but let me emphasize that, for me, the inflation risks alone support these policy moves.

For some time, the appropriate policy rate paths in my SEP submissions have been designed to move inflation modestly above 2 percent in the forecast window. After years of underrunning our target, I think such overshooting is necessary for firmly establishing the symmetry of our inflation objective. I doubt that maintaining the current setting of policy rates can achieve this overshooting outcome.

Importantly, it's unclear to me that transitory factors are responsible for the large decline in core inflation this year or the pullback in the reports from my contacts about wage and price pressures. I worry that softer underlying trends in inflation expectations deserve a good deal of the blame. And I certainly agree with Governor Clarida and Presidents Daly, Bullard, and

Kashkari that inflation expectations should be much more in line with our inflation objective of 2 percent.

The best way to boost these fundamentals to levels that are consistent with our symmetric 2 percent objective is with a tangible demonstration of a stronger commitment to our inflation mandate. I worry, like President Kashkari, that 2 percent is viewed as a ceiling for our inflation objective. And, like Neel, I have argued that supporting symmetric inflation objectives is really important for avoiding, as best we can, the effects of the zero lower bound. So I think that's going to be an important part of how we go forward.

Accordingly, I now assume two 25 basis point funds rate cuts in the second half of 2019 and then have the funds rate on hold into 2021. This policy setting, with continued good economic fundamentals, should lift inflation expectations enough that, by 2021, inflation will be clearly heading above 2 percent.

In my forecast, I have inflation at 2¼ percent by late in 2021. With this overshooting solidly in train, we could begin to move rates up toward their long-run neutral level. In my SEP submission, I assume 50 basis points of tightening in 2021, leaving the funds rate in the range of 2¼ to 2½ percent by the end of that year. I have to say, this is aggressively optimistic. I'm less than certain that the funds rate increase in 2021 is going to be appropriate, but that's how we put it together.

I also think that these policy assumptions are sensible from a risk-management perspective. First, the rate cuts provide insurance against the downside risks to growth. Second, the costs of being wrong about our reading of recent inflation developments are not symmetric, and I agree with President Bullard as he describes the silver lining in this case. If the recent decline in inflation turns out to be transitory, extra monetary accommodation would simply move forward the timing of the now-more-opportunistic inflation overshoot, and the FOMC could react by increasing rates a bit earlier than in my baseline. Or maybe not. The costs of reversing rate cuts somewhat sooner do not worry me so long as these actions generate inflation outcomes consistent with symmetry around 2 percent.

In contrast, if the recent decline in inflation is driven by more persistent factors and we did not lower rates, our commitment to a 2 percent objective may be called into question. Inflation expectations could sag even more, and it would take even more accommodation to achieve our objective. So there are larger costs to this inflation undershooting misjudgment.

In sum, I support alternative B today. But, in light of the concerns that I have about longer-run inflation trends, I believe we must be prepared to take explicit policy action in order to achieve our symmetric inflation mandate. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Kaplan.

MR. KAPLAN. Thank you, Mr. Chairman. I support alternative B. Of course, since May 1, downside risks to the outlook have increased due to heightened trade tension and decelerating rates of global growth. The question, which I continue to ask myself, is whether these uncertainties are likely to persist in a manner that leads to a material deterioration in the outlook for the U.S. economy. And my honest answer right now to this question is that it's too soon to judge. I'm cognizant that we've got solid rates of economic growth, even with these uncertainties, and a labor market that I believe is either at or past full employment, even though we've got a PCE inflation rate somewhat below target.

I believe, given this situation, it's appropriate for the time being to still take a balanced approach to monetary policy. While I'm very concerned about inflation running below target, I'm still cognizant of the fact that the trimmed mean measure of PCE inflation is running at approximately 2 percent. We expect it to end the year at approximately 2 percent. And our Dallas Fed economists and I still agree with the argument that the trimmed mean should be a good indicator of future trends in PCE inflation. I have no illusions about this view and will continue to monitor that.

I'm also cognizant of the fact that the cost of capital is historically low. Access to capital is historically high. Financial conditions are very strong. Markets remain near their all-time highs.

I also am cognizant, with the federal funds rate even where it is today, at 2¼ to 2½ percent, that excesses and imbalances in the economy are likely to continue to build. I'm particularly concerned about the relative amount of corporate debt, particularly in triple-B and weaker segments. I'd be concerned that further accommodation would increase the likelihood of a buildup of greater imbalances and excesses, which may be difficult and painful to address in the future.

I'm concerned about the Treasury yield curve being inverted from 3 months to 10 years, and I'm cognizant of the federal funds futures market calling for more than one rate reduction. However, I believe these conditions can change very quickly, as we saw from the fourth quarter of 2018 to today.

I also worry more than a little bit about the echo chamber of both the FOMC responding to financial markets and the financial markets responding to expectations of what the Committee is going to do. In particular, I think the financial markets are responding not to what they think the FOMC should do, but to what they think it's going to do. And I just think we should be cognizant of that.

So in this intervening number of weeks, I'll be closely watching developments in the U.S. economy and changes in financial conditions, particularly credit spreads—which, right now, are very tight—and availability of credit, to look for evidence that there is some persistence in uncertainties and some deterioration in the outlook for the economy, which would cause me to alter my views regarding monetary policy. Thank you, Mr. Chairman.

CHAIR POWELL. Thank you. President George.

MS. GEORGE. Thank you, Mr. Chairman. I support alternative B. The word "patient" has worn out its welcome by now, and I view the revisions to the statement as appropriately acknowledging the uncertainties and risks associated with the outlook. At the same time, however, the new language gives me some pause, because it points not only to uncertainty, but also to muted inflation pressures, as the basis for future Committee action. I continue to view inflation developments in the context of our dual mandate. Easing policy in an attempt to increase inflation by a few tenths of 1 percentage point risks further overheating labor markets, misallocating resources, and fueling financial imbalances. Given the global structural factors that have been restraining inflation for some time, it remains unclear that easing would be effective in raising inflation.

On the other hand, there are clearly downside risks to monitor. Growth in private domestic final sales weakened in the first quarter, and we've seen a loss of momentum in recent months. Like others, I'd expected to see slower real GDP growth this year, reflecting the waning of fiscal stimulus, the lagged effects of our past policy actions, and slower growth abroad. But the recent softer tone of the data has led me to mark down my own outlook for growth in the near term.

Whether a policy response will be needed in the months ahead remains unclear to me, and I would not want our communication to solidify expectations for a rate cut at our next meeting. So I'll be monitoring the data closely for risks to the ongoing expansion and would be prepared to take action if, in coming months, economic indicators call into question the expansion's sustainability. Thank you.

CHAIR POWELL. Thank you. Governor Bowman.

MS. BOWMAN. Thank you, Mr. Chair. I support alternative B as currently written. It remains my baseline expectation that the domestic economy will continue to perform well in 2019.

Since our previous meeting, the outlook for economic growth abroad has weakened, and concerns about ongoing trade negotiations have intensified. That said, we're still in a favorable position with regard to our dual mandate. The labor market continues to be very strong. The unemployment rate remains at its lowest level in 50 years, and various indicators of labor demand and hiring activity point to continued strength.

Real GDP rose at a strong pace last quarter and looks to be increasing again this quarter. Although there have been some tentative signs of softening in business investment and sentiment, data suggest consumer spending growth has remained at a healthy pace. Financing conditions for both households and businesses continue to be favorable.

The recent readings on price inflation continue to be below our 2 percent target. But, given the tight labor market and my expectation that real GDP growth will be at or above its long-run trend rate this year, I remain hopeful that the recent softness in prices will prove to be transitory, and that we will see inflation move back up close to its target before year-end.

Given all of the information we currently have in hand, I don't believe an adjustment to our policy stance would be appropriate at this point, although developments since our previous meeting have tipped the scales in that direction. Of course, along with the rest of the Committee, I'll be watching inflation closely in the coming months, and my assessment may change if inflation does not show signs of firming or if the current uncertainties surrounding the outlook persist long enough to have a material effect on economic activity. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Bostic.

MR. BOSTIC. Thank you, Mr. Chair. I support the policy action outlined in alternative B. As I noted yesterday, the information my team and I have gathered over the intermeeting period suggests the economy will continue along a steady trajectory moving forward. This is in line with my outlook, and I thus have the same view on the appropriate course of policy as I've had for the past few meetings: Wait, watch, and act only if new information suggests that the economy's performance is likely to significantly deviate from its present course in one direction or another. I therefore see no need for the Committee to take a policy action moving in any direction today.

At the previous meeting, my view on the risks to the economy were such that I expected the economy to recover strongly in the latter half of the year. Today, I do not have that view, as I've taken on board the increase in downside risks acknowledged by contacts and our Survey of Business Uncertainty and the data. I have thus shifted down my appropriate policy rate path for the remainder of 2019 to have no additional increases.

I need to say explicitly that my downgrade does not signal a view that the economy has weakened sufficiently to require additional stimulus. Like the outlooks of President George and others, my outlook had 2019 growth lower than in 2018, so I expected some pullback. And I have not seen indicators that suggest a more dramatic pullback in performance is imminent. I would need to see something more significant before I would support moving to a more accommodative policy position.

Given the current climate, the communication that comes with the proposed policy action will play a critical role in how our action is received. My view is that we need to make two points. First, we need to note that the economy is growing at a healthy clip and above its long-run level, which suggests that additional stimulus is not required right now. And, second, we need to acknowledge the heightened nervousness associated with uncertainty and pledge to be aggressive in our data and information gathering over the next six weeks to discern any signs of material weakness to the extent such signs emerge.

In my view, the statement as newly constituted succeeds at the first and basically hits the mark in terms of the second. It is an improvement over the previous proposed language, and I think it's really important that we signal vigorous effort on our part to discover any sustained trends that might portend trouble. In my view, we haven't seen such trends yet. I'm very open to the possibility that I might find them in the near term. And if I do, I will advocate for policy stimulus to mitigate them.

I feel compelled to close with a concern I have about the Committee's policy actions in the context of market and political chatter. I'm very concerned that an action we take for a legitimate economic reason might be understood by external parties as being motivated by a different reason. And today the potential for such a misinterpretation looms large. There are serious risks if our Committee is viewed as being driven by—and you can read that as "will capitulate to"—political or financial market whims or desires. We will have bigger problems down the road if the Committee is perceived as being "reactionary" or as acting for reasons other than what is necessary to support the real economy in pursuit of the dual mandate.

To this end, the appropriate response to this, in my view, is doubling down on data and not leaning too heavily on signaling a particular policy action in a direction in the future. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. Governor Brainard.

MS. BRAINARD. Thank you, Mr. Chairman. The most likely path for the economy remains solid—and not much changed from the last time we met. The latest data suggest that consumer spending remains robust and consumer confidence remains high, which reflects ongoing strength in the labor market. Unemployment is at a 50-year low, and labor force participation has improved significantly, along with moderate growth in wages. Initial claims are at cyclical lows. Inflation is soft and measures of inflation expectations have softened, which is troubling. But financial conditions overall remain supportive relative to their historical average and have tightened only marginally in recent weeks. On the basis of these factors alone, the case for a rate cut today implied by the modal outlook is little changed since the discussion we had on May 1.

But the escalation of trade conflicts since May 5 poses significant downside risks. The sentiment of business contacts and market participants has darkened—starting with the escalation of tariff threats on May 5, and continuing a few days later with the Mexico immigration-related tariff threat, which many saw as a game changer in threatening tariffs in response to issues entirely unrelated to trade. Crosscurrents due to elevated policy uncertainty have strengthened, crimping business investment plans, exacerbating foreign growth challenges, and materially raising market indicators of recession probabilities. Peer central banks are seeking additional policy space to address growth and inflation disappointments, and this in turn may have implications for financial conditions and inflationary developments here. A variety of market-based recession indicators are flashing warning signs with greater urgency. Separately, the latest data on inflation and on inflation expectations have been disappointing, making it all the more imperative that we maintain the forward momentum of the expansion.

So basic principles of risk management, particularly in a low neutral rate environment with compressed conventional policy space, would suggest that the increase in downside risks warrants a downward adjustment to the modal path of the policy rate. These downside risks, if realized, could weigh on economic activity. On their own, heightened downside risks to output and employment would argue for a softer federal funds rate path to sustain the expansion.

A reduction in the federal funds rate before the modal outlook has deteriorated can be seen as taking out insurance against the realization of these risks, which is prudent, in light of the greater proximity to the effective lower bound compared with historical norms. In the event that the risks do not materialize, this would provide a modest boost to the outlook. An accommodative stance of policy at a time when the unemployment rate is already at historic lows should boost our credibility in achieving the inflation target. However, my own conviction is that successfully moving underlying trend inflation back to target on a sustainable basis will require a broader change in our longer-term framework and will not be achieved through a 25 or 50 basis point cut in the near term.

I have noted in the past that the one reason to be cautious about maintaining a “low for long” policy rate path with growth continuing to run above potential is the risk of exacerbating exuberance in financial and credit markets. Experience suggests that financial market risk appetite and private-sector leverage are highly pro-cyclical, and current, elevated risky corporate debt and associated asset valuations are consistent with that pattern. But such financial excesses should be addressed by activation of our countercyclical capital buffer, more rigorous use of our stress tests, and more muscular monitoring of leveraged lending across the financial sector, not by diverting monetary policy to financial stability concerns.

Although I'm anticipating that a downward tilt to the path of the federal funds rate will occur, I support alternative B today. The language in alternative B removes the reference to patience from the May statement. Alongside the shift of roughly half of the SEP participants to projecting a 50 basis point cut in the federal funds rate by the end of this year, these changes in statement language should be read as signaling that a future cut in interest rates is on the table. In the summer months, we will have the opportunity to gather significantly more information, especially with respect to the uncertainty surrounding trade as well as fiscal policy, that could be very consequential, both for the modal outlook and for the balance of risks.

Finally, consistent with the projected decrease in the federal funds rate, I would also want to see the balance sheet runoff brought to a clean end in September, with trend growth resuming a few months thereafter, in order to eliminate any possible confusion in our communications or an unnecessary volatility in rates at a delicate time. Thank you, Mr. Chair.

CHAIR POWELL. Thank you. President Barkin.

MR. BARKIN. Thank you, Mr. Chair. I'll join my colleagues at this side of the table, concluding what I would describe as an inside straight. [Laughter] I confess, after my several ineffective pleas to remove the word "patient," I was pleased to see and happily support today's alternative B and its "as appropriate" language.

I continue to want to limit forward guidance to the times we need it the most. To that end, in contrast to the views of some of us and likely in contrast to the views of the market, I view our statement as a "no forward guidance" statement.

To be clear: In line with what several others have said, I'm open to lowering rates if and when real GDP growth falters. But while I'm nervous about the confidence of businesses and consumers, growth and employment still seem to be above trend.

I'm sensitive to the signals from markets, but I worry that we risk deepening the perception that we respond too readily. I also think that heightened uncertainty will be with us for some time. So it's critical that we not be seen as too ready to respond to every move.

I hear the argument that we should move in response to inflation or inflation expectations. And although I, too, want to deliver symmetric 2 percent inflation, when I take a step back, our current gap is small. Our tools are not precise, and our recent pivots in the rate path might well provide the impetus, in time, for inflation to meet or exceed our target. So a cut focused only on stimulating inflation feels premature at this time. Instead, we should remind ourselves and the public that, for all of the noise, we remain very, very close to our mandated goals and, in that context, are reluctant to tinker too much for an uncertain and imprecise return. Doing so also limits the risk—which I think is uncomfortably close to reality—that we inadvertently become the voices for a self-fulfilling prophecy of low expected inflation. Thank you.

CHAIR POWELL. Thank you. Governor Quarles.

MR. QUARLES. Thank you, Mr. Chair. I'm comfortable with alternative B as written. I'm happy to see the word "patience" go. I think it's appropriate to signal, given the prevailing uncertainties, that we will be responsive to economic developments as they develop—and quickly, if necessary. Like President Bostic, I prefer the current language in the statement to the language that was circulated in the first draft.

The market currently expects a cut in July, with further cuts later in the year. From my viewpoint, the market has gotten ahead of itself, and I think there is value in maintaining optionality regarding July. In that connection, I'd emphasize, as President Bullard emphasized in the other direction, that, as a Committee, if we say we're waiting to see how the economy evolves, we have to believe there is a reasonable possibility that we will not cut in July. And if we don't think there's a reasonable possibility that the economy will evolve in that direction, then we should cut now. But I don't view the case for a cut as being tremendously strong either now or in July, with the economy still growing at a healthy pace, most recently evidenced by robust retail sales, and the labor market still very strong. Inflation does remain subdued by some measures but not by others, as President Kaplan mentioned, and likely should climb back to target, even on our stated measure, by the end of the year. But even with all of that, I am cognizant of the risks to the forecast and would change my view if my outlook were to deteriorate by the time of our next meeting.

Over the longer term, I still project a longer-term neutral rate that is a few rate hikes above the current policy rate. This estimate is premised on my assessment that potential growth is likely to pick up, although, as I mentioned yesterday, I'll be carefully watching investment trends to see if I have to revisit that forecast.

One development that I view as supporting that outlook is the recent pickup in labor productivity. The 2.4 percent increase in output per hour that we've observed over the four quarters that ended in Q1 represents a considerable acceleration after the extended period of sluggish growth in which we have been mired post-crisis. Thank you.

CHAIR POWELL. Thank you. Vice Chair Williams.

VICE CHAIR WILLIAMS. Thank you, Mr. Chair. I support alternative B as written. At our previous meeting, I viewed the economic outlook as highly favorable, with above-trend growth supporting a robust labor market and inflation moving back to our 2 percent target over time. Now, this balance of strong growth and low inflation argued for maintaining the target rate near neutral. Since then, the outlook has dimmed on all fronts and become decidedly less clear, and this shift in the outlook and risks calls for a repositioning of our posture to one of readiness to adjust course as appropriate. And the statement conveys that very effectively.

In thinking about the future course of policy, an assessment of the risks of too easy or too tight policy suggests that the balance has moved in the direction of erring on the side of additional accommodation. In this regard, my remarks are going to follow pretty closely those of Presidents Bullard and Evans and others. If we err on the side of being too accommodative, the risk, of course, is that the economy will outperform and will reach our 2 percent inflation goal faster than anticipated. Obviously, that's a manageable risk. It could even have the side benefit of demonstrating that we really mean it when we say we have a symmetric 2 percent inflation goal.

On the other hand, if we err by being too restrictive and the economy underperforms, the consequences may be more dire. For one, the economy would be at greater risk of a downturn. Second, inflation expectations, already showing signs of fragility, could really become unmoored from our target, like we've seen in Japan and the euro area. And here I'd like to associate myself completely with Governor Clarida's remarks about how, really, the sign of success is that inflation expectations are anchored at our target. You know, if you think about what the consequences of inflation expectations going lower are, it's not just some loss of credibility or inflation being a little bit lower. It is actually just taking away our policy space to respond to the next downturn.

If you look at the euro area, the five-year, five-year-ahead inflation swaps are at 1.2 percent, as I said. My estimate of the neutral real rate in Europe is about minus ¼ percentage point. That means that the neutral nominal interest rate in Europe is about 1 percent in a strong and healthy economy. So that's the policy space that the euro area appears to have right now.

Similarly, for Japan, estimates of the neutral real rate are about 0 percent. Inflation expectations are around 1 percent. Again, when inflation expectations drift that low, it basically means you have less ammunition when you're confronting the next recession, and that's not a situation that we want to be in.

Finally, as Governor Brainard highlighted—and I think I'm essentially saying exactly the same thing you said—we don't have a ton of policy space, to say the least. And one important lesson, coming from research and experience, is that, when confronting negative shocks to the economy, you don't want to keep your powder dry, but instead you should act aggressively to add monetary stimulus. This does argue against being overly patient or waiting until the data, which are always backward looking, provide 100 percent certainty that a slowdown is in train. So it would be a mistake to be too timid, given the amount of policy space we have, in responding to negative shocks.

Now, of course, the change in tone of economic data is relatively fresh, and it may not persist. We may find that the downbeat data that we've been seeing fully reverse themselves in the next month or so, and I hope that happens. If, in contrast, my assessment of the overall outlook does not improve, I would expect that a 25 basis point rate cut will be appropriate at our next meeting in July in order to maintain a strong economy and achievement of our symmetric 2 percent inflation goal.

Finally, I'd just like to mention something about market reaction to our statement and how my colleagues at the New York Fed think. We've had a lot of discussions about this. And there was some discussion this morning about, let's try to, perfectly, communicate what we're thinking and how we're thinking about it. I actually don't think there is any perfect way of doing this, given the situation.

Right now, there's basically a bimodal view out in the market about what the Fed is going to do. If you look at the views of dealers, the economists at those firms, they're more in the camp of this side of the table, thinking that we won't lower rates for some time. A lot of these are former Fed economists there. So you hear a lot of commentary that we won't lower rates or we won't lower rates maybe until later this year. On the other side, the "buy" side, we definitely see a lot of views already that July is when we're going to cut—maybe even 50 basis points.

Given this bimodal distribution, any communication that we do and, obviously, what the Chair does today is going to move market expectations one way or the other. If we reiterate what we've been saying, the July camp is going to find validation in that, and the people more on the dealer/sell side are going to move their expectations, and it will be viewed as "dovish." If we fight the expectation that's out there that July is a high probability and push against that, then, obviously, we're going to have a move the other way.

So my point is that, like this Committee, there is this bimodal distribution out there in beliefs and no matter how we communicate what we're doing, it is going to move views and expectations among these various groups. You know, this idea that we can somehow avoid cementing in a July move is, I think, very hard to accomplish, given this distribution of beliefs, unless we were to push hard against the view that future rate cuts are on the table. So I think we just need to be realistic about that. Thank you.

CHAIR POWELL. Thank you. And thanks for an interesting round of interventions. I heard some discussion of language issues with alt-B, but I heard no proposed substitute language, so I think we're just going to go ahead and move to a vote. I'll ask Jim to make clear what we're voting on and to read the roll.

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

Chair Powell	Yes
Vice Chair Williams	Yes
Governor Bowman	Yes
Governor Brainard	Yes
President Bullard	No
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 settings of interest rates on reserves and discount rates. May I have a motion from a Board member to take the proposed action with respect to the interest rates on reserves as set forth in the first paragraph associated with policy alternative B on the last page of Thomas's briefing materials?

MR. CLARIDA. So moved.

CHAIR POWELL. May I have a second?

MS. BRAINARD. Second.

CHAIR POWELL. Without objection. Thank you. Now may I have a motion from a Board member to take the proposed actions with respect to the primary credit rate and the rates for secondary and seasonal credit as set forth in the second paragraph associated with policy alternative B on the 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. Now, before we confirm the date of our next meeting, I'd like to turn the floor over to Governor Clarida for a few words on the status of the work of the communications subcommittee.

MR. CLARIDA. Thank you very much, Chair Powell. I'll be brief. The communications subcommittee met yesterday, as is our custom, and discussed two related items. One, earlier in the spring, we reached out to each of you to gauge your interest and your suggestions for ways in which the SEP may be improved or refined. So we are beginning to discuss those ideas. Also, at the Chicago conference, one of the papers by Cecchetti and Schoenholtz had a number of specific suggestions for ways in which the SEP could be refined and improved, and we're also beginning to discuss those.

On a related point, we've had seven *Fed Listens* events so far, including the Chicago event recently. So, again, thank you to President Evans and his team for hosting a fabulous event. Each of the Reserve Banks has scheduled a *Fed Listens* event, and the remaining ones will be taking place in future months.

At this point in the framework review process, as we've discussed, the process moves inside this room now. And in future FOMC meetings, we will be discussing on the agenda varied aspects of the framework review, with briefings from the staff. Thank you, Mr. Chair.

MR. EVANS. May I ask a question?

CHAIR POWELL. President Evans.

MR. EVANS. It sounded like the paper by Cecchetti and Schoenholtz was taking on a bit more weight in your deliberations than I might have thought from the presentation and discussion. Is that right? And I just wonder—having served on the subcommittee in the past and the way these things have evolved, I guess I would encourage, on these important issues, even more discussion among the nonmembers of the subcommittee. There has been good discussion. It's just that these are pretty important—

MR. CLARIDA. Oh, sure. Well, again, it was at the conference, so we felt that we wanted to have some discussion among ourselves about what was in there. But, obviously, this is all something that—any aspect of the framework review will have to be, of course, discussed in this group and in this room. So, yes—thank you.

MR. EVANS. Thank you.

CHAIR POWELL. Thank you. Before we break up, I want to return to something. There are eight who have written down rate cuts, and there are nine who haven't. And my objective going into this is to achieve that impossible thing of not moving expectations at all. So I can imagine a question like, what about the nine who don't? And that's why I mentioned in my intervention yesterday the idea that, of the nine, there are some who see the case as having strengthened—not made, but strengthened. That's why I asked for your reactions. I hear consistent reactions around the table but nothing specific on that. But I really need to know whether I can say that without people feeling that I've gotten ahead of where they are. So if you feel that way, feel free to say so either privately or here.

I want to be able to address the question of the nine who have not written down rate cuts in a way that suggests that they're not, you know, "No way, no how." So you have a split Committee, which would be just the kind of thing journalists would like to write about. I don't know that it's going there, but I'm inclined to say something that creates optionality regarding actually being able to cut, as opposed to walking into a sort of "split Committee" narrative. So I would—please, Esther.

MS. GEORGE. I was just going to say; I guess the way I think about it is that as opposed to saying with my own flat path that that means "open to cutting," I guess it is more a realization of downside risk. In other words, it is taking in the fact that the language that's in that statement about monitoring incoming information has taken on, I think, a more prominent role relative to the previous meeting. That might lead you to conclude, if things go badly then you'd be open to a rate cut—that would be true. But I guess the emphasis would not be on saying, in the case of a flat path, "clearly open to more accommodation," as opposed to "clearly recognizing downside risk and looking at incoming information."

CHAIR POWELL. Loretta.

MS. MESTER. Yes, I was going to say the same thing. The emphasis would be on the "monitoring" part of your language in the statement, as opposed to necessarily saying which way we're tipping—but recognizing there are risks.

CHAIR POWELL. Any others?

MR. KAPLAN. I think—and we've talked—you're obviously making the point that, if you go back to literally May 1 or April 30, whenever your most recent press conference was, in that six or seven weeks, conditions and uncertainties have deteriorated. And I'm fine to say that the case has strengthened, but we're cognizant of the fact this heightening of uncertainties is recent, and we'd like to take more time to just see how events unfold. But, certainly, downside risks have increased, so I agree with "the case has strengthened." But this is a recent weakening—that is, just since the most recent press conference.

CHAIR POWELL. I'm going to make the case of recency and a need to see more. In fact, I think I'm going to point to the fact that the original Mexico tariff announcement was less than three weeks ago, and that was really the event that—I mean, it's 19 days ago. So it's too soon to be reacting. President Barkin.

MR. BARKIN. You can certainly use your language for me on the "strengthen." As I listened around the room, I think it might also be the case that the group that didn't have rate cuts was thinking more about growth than inflation, just on the margin.

CHAIR POWELL. Yes. I picked that up.

MR. BARKIN. And I don't know if that's helpful or not.

CHAIR POWELL. President Evans.

MR. EVANS. Well, I think that's a very helpful comment, because my counterpoint to that, from my own perspective, is I would be comfortable with cutting today if that was the consensus for the inflation side of this. I view the wording in alt-B as something that I can agree to. I wouldn't necessarily have written it down exactly this way myself. It tends to emphasize the real-side risks and less the inflation undershooting and the strategic concern about inflation being interpreted as a ceiling. It says "muted inflation," but it focuses on monitoring the economic outlook and doesn't mention inflation per se, which is pretty typical in that it mentions inflation near its symmetric 2 percent objective. So those are things that, for my own sake, I would emphasize inflation more. And I recognize that that's different from the viewpoint that is most likely to be represented in the commentary.

CHAIR POWELL. Okay. This is really helpful. Thank you.

So where does that leave us? That leaves us with the important job of confirming that the next meeting will be on Tuesday and Wednesday, July 30 and 31, 2019, right here in this room. And that concludes the meeting. As always, a healthy buffet lunch will be served in the adjacent anteroom starting at 11:30. Thanks very much, everybody.

END OF MEETING